ENERGY LAW JOURNAL

Volume 42, No. 2 2021

ESSAYS

ARTICLES

TRANSCRIPTS

BOOK REVIEWS

NOTES

ENERGY BAR ASSOCIATION®

PUBLISHED BY
THE ENERGY BAR ASSOCIATION
UNIVERSITY OF TULSA COLLEGE OF LAW

America's Electric Cooperatives

RELIABILITY REDEFINED.

#PowerOn

America's electric cooperative are playing an essential role in supporting 42 million consumer-members during the pandemic. Co-op leadership goes beyond providing reliable energy to expanding broadband, supporting health care and bolstering local economies.

NRECA
America's Electric Cooperatives

More than 300 attorneys in Kirkland's Energy & Infrastructure Practice Group handle an array of sophisticated energy transactions and advisory engagements. We are at the forefront of trends in transactions across the energy industry and are equipped to offer unparalleled market intelligence to our clients.

Read more about our full range of transactional, litigation and bankruptcy/restructuring services at www.kirkland.com/energy.

KIRKLAND & ELLIS

Kirkland & Ellis LLP | 1301 Pennsylvania Avenue, N.W., Washington, D.C. 20004
+1 202 389 5000 | Attorney Advertising. Prior results do not guarantee a similar outcome.

America's Electric Companies Are #Committed2Clean

America's investor-owned electric companies are leading the clean energy transformation. We are committed to getting the energy we provide as clean as we can as fast as we can, without compromising the reliability and affordability that are essential to the customers and communities we serve. Today, 40 percent of the electricity that powers our homes and businesses comes from clean, carbon-free sources, including nuclear energy, hydropower, wind, and solar energy. Equally important, carbon emissions from the U.S. power sector are at their lowest level in more than 40 years and continue to fall.

We have an extraordinary opportunity before us as a nation to tackle climate change. America's investor-owned electric companies are well-positioned to be a major part of the climate solution—and we want to be part of the solution. With new technologies and the right policies, a 100% clean energy future is possible. For us, the path forward is clear. The path forward is clean. We are #Committed2Clean.

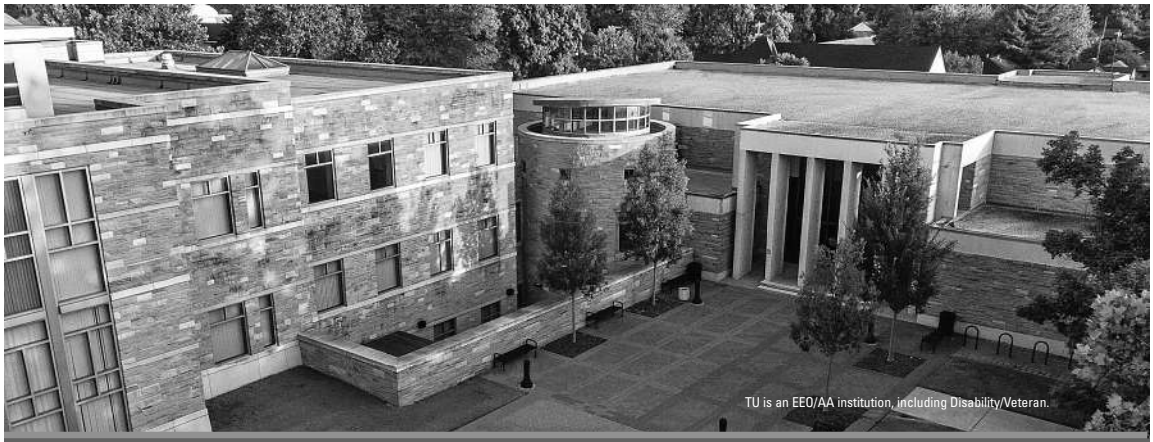
To learn more, visit
www.eei.org/cleanenergy

EEI
Edison Electric
INSTITUTE

The faculty, administration and students of The University of Tulsa College of Law express our appreciation for the support, mentorship and dedication shown to our students by the Energy Bar Association (EBA) and the professional board of the *Energy Law Journal* (*ELJ*). High-quality experiential learning is a major facet of the TU Law experience, and students at TU Law have been privileged to edit the *ELJ* for more than 20 years. This opportunity has instilled in our students a culture of professionalism and accountability while introducing them to cutting-edge issues in energy, environmental and regulatory law. In addition, during the last decade alone more than 20 TU Law students have had scholarly papers accepted for publication by the *ELJ*, providing these emerging experts with exposure to a readership comprised of thousands of leaders in their fields and enabling them to work closely with professional editors to meet the journal's rigorous standards. The EBA's investment in our students has paid enormous dividends, both during their education and after graduation. Past *ELJ* editors from TU Law work as counsel to small independent oil companies and in the legal departments of the world's largest integrated energy companies. They serve the public as consumer representatives in utility rate cases and as counsel for major state environmental protection agencies, national energy-related trade groups and environmental advocacy groups. In each case, our graduates' ability to contribute to their respective fields derives, in large part, from their *ELJ* experience. We look forward to working closely with the EBA for many years to come.

Lyn S. Entzeroth
Dean and Dean John Rogers
Professor of Law
The University of Tulsa College of Law

Warigia Bowman
Professor of Law and Faculty Advisor,
Energy Law Journal
The University of Tulsa College of Law



Energy Law Journal
Editorial Policy

The *Energy Law Journal* publishes legal, policy, and economic articles and other materials of lasting interest with significant research value on subjects dealing with the energy industries. The *Energy Law Journal* also welcomes articles and other materials on emerging issues and significant developments affecting the energy industries. Articles by members and non-members of the Energy Bar Association are welcomed. The *Journal* publishes articles and other materials of varying length that provide a full consideration of the issues and opposing viewpoints. All submissions must contain a synopsis, table of contents, and a brief biographical statement about the author(s). Style and form of citations must be in conformity with the "Blue Book," as well as the *Energy Law Journal* Style Manual posted on the Energy Bar Association website. All submissions should be sent to Harvey L. Reiter, Editor-in-Chief, *Energy Law Journal*, by mail to Stinson LLP, 1775 Pennsylvania Ave., N.W., Suite 800, Washington, D.C. 20006 or electronically to harvey.reiter@stinson.com. By submitting materials for publication in the *Energy Law Journal*, authors agree that any such materials, including articles, notes, book reviews, and committee reports, published in the *Journal* are considered "works made for hire," and authors assign all rights in and to those written works to the Energy Bar Association. The Energy Bar Association hereby grants permission for reproduction and distribution of copies of written works herein for non-commercial use, provided that: (1) copies are distributed at or below cost; (2) the notice of copyright is included on each copy (Copyright © 2021 by the Energy Bar Association); and (3) the *Energy Law Journal* and the author are clearly identified on each copy. The *Journal* is free to all members of the Energy Bar Association. Subscriptions for non-members are $35.00 per year for domestic subscriptions, $41.00 per year for Canadian subscriptions, and $47.00 per year for foreign subscriptions. Back issues are available by contacting the William S. Hein & Co. at (800) 828-7571.

The Energy Bar Association Website

The Energy Bar Association (EBA) Website, www.eba-net.org, contains a potpourri of useful information about the EBA, the Charitable Foundation of the Energy Bar Association (CFEBA), and the Foundation of the Energy Law Journal (FELJ). Through the website, you will find latest industry news, annual energy sector reports, upcoming meetings, Energy Law Academy courses and much more. Prior issues of the Energy Law journal may be found at: www.eba-net.org/felj/energy-law-journal/.

Looking to hire someone? Looking for a new job? If so, you will want to look at EBA Career Center at: https://careers.eba-net.org/.

Finally, the Website contains usual and customary items that an association would have. EBA-Net.org contains a vast amount of information on the practice of energy law.

Please visit www.eba-net.org.

ENERGY LAW JOURNAL

Volume 42, No. 2 2021

CONTENTS

COMMITTEE REPORTS

Neither the reports of the Energy Bar Association Committees nor the annual review of the Canadian energy law developments are included in the print version of the Journal. Rather they are published online on the EBA's website at www.felj.org. Persons citing to the reports should use the following format: [Title of Report], 42 Energy L.J. [page number] Online (2021), [link to report]. Included in the full electronic version of the Energy Law Journal, Volume 42, No. 2, are the following reports:

Canadian Chapter Review

Finance, Transactions and Investments

Gas, Oil, and Liquids

ENERGY BAR ASSOCIATION
Past Presidents

1946	Carl I. Wheat	1964	David T. Searls
1947	C. Huffman Lewis	1965	J. Harry Mulhern
1948	Randall J. LeBoeuf, Jr.	1966	Norman A. Flaningam
1949	Charles V. Shannon	1967	Stanley M. Morley
1950	J. Ross Gamble	1968	F. Vinson Roach
1951	W. James MacIntosh	1969	Cameron F. MacRae
1952	C.W. Cooper	1970	Christopher T. Boland
1953	Arthur E. Palmer, Jr.	1971	Richard A. Rosan
1954	Justin R. Wolf	1972	Raymond N. Shibley
1955	Edwin F. Russell	1973	Thomas M. Debevoise
1956	Harry S. Littman	1974	Bradford Ross
1957	James O'Malley, Jr.	1975	Carroll L. Gilliam
1958	Robert E. May	1976	William T. Harkaway
1959	Richard J. Connor	1977	Richard M. Merriman
1960	J. David Mann, Jr.	1978	Edward S. Kirby
1961	William R. Duff	1979	Thomas F. Brosnan
1962	Charles E. McGee	1980	Carl D. Hobelman
1963	Jerome J. McGrath	1981	C. Frank Reifsnyder

ENERGY BAR ASSOCIATION
Past Presidents (cont'd)

1982	James J. Flood, Jr.	2001	Paul E. Nordstrom
1983	Frederick Moring	2002	Jacolyn A. Simmons
1984	George F. Bruder	2003	Barbara K. Heffernan
1985	Richard A. Solomon	2004	Stephen L. Huntoon
1986	John E. Holtzinger, Jr.	2005	Frederic G. Berner, Jr.
1987	George J. Meiburger	2006	David T. Doot
1988	Thomas G. Johnson	2007	Michael J. Manning
1989	David B. Ward	2008	Donna M. Attanasio
1990	John T. Miller, Jr.	2009	Richard P. Bonnifield
1991	Sheila S. Hollis	2010	Susan N. Kelly
1992	Stephen A. Herman	2011	Derek A. Dyson
1993	Frank P. Saponaro, Jr.	2012	Susan A. Olenchuk
1994	J. Richard Tiano	2013	Adrienne E. Clair
1995	Carmen L. Gentile	2014	Jason F. Leif
1996	Jennifer N. Waters	2015	Richard Meyer
1997	Edward J. Grenier, Jr.	2016	Emma Hand
1998	David D'Alessandro	2017	Robert A. Weishaar, Jr.
1999	Robert S. Fleishman	2018	Matt Rudolphi
2000	Joel F. Zipp	2019	Jonathan Schneider
		2020	Jane E. Rueger

ENERGY BAR ASSOCIATION
President's Award

This Award is given occasionally to an individual that has made an extraordinary contribution to the profession or the development of energy law over a long career.

2019	Robert S. Fleishman
2017	Robert R. Nordhaus
2010	Richard D. Cudahy (Judge)
2008	Richard J. Pierce, Jr.
2006	Senator Pete V. Domenici
2004	Charles B. Curtis
2002	Stephen F. Williams (Judge)
2001	Congressman John D. Dingell

ENERGY BAR ASSOCIATION
Paul E. Nordstrom Service Award

This Award was created in memory of Paul Nordstrom, a past President of the Energy Bar Association (EBA) and motivating force in the organization of the Charitable Foundation of the EBA (CFEBA). The first award was given to Paul posthumously. It is an award to honor and to recognize exemplary long-term service or a particularly significant example of public service by a current or past member to the community through the EBA, the CFEBA, or the Foundation of the Energy Law Journal. Exemplary community service outside of these organizations may also be considered as a criterion for the Award.

2021	David T. Doot
2020	Harvey L. Reiter
2019	James Curtis "Curt" Moffatt
2018	Susan N. Kelly
2017	Michael Stosser
2016	Robert S. Fleishman
2015	A. Karen Hill
2014	Paul B. Mohler
2013	William Mogel
2012	Freddi L. Greenberg
2011	Richard Meyer
2010	Shelia S. Hollis
2009	Paul E. Nordstrom

ENERGY BAR ASSOCIATION
State/Provincial Regulatory Practitioner Award

This Award recognizes innovation and superior advocacy by members of the state utility regulatory bar. The award is consistent with the State Commission Practice Committee's goal to be a resource to lawyers who focus their practice on state energy regulatory matters.

2021	Frank Lindh
2020	Holly Rachel Smith
2019	H. Russell Frisby
2019	Andrew O. Kaplan
2016	Sandra Mattavous-Frye
2015	Stephen H. Watts, II
2014	Charles Gray
2013	Jeff Genzer
2012	Sonny Popowsky
2011	Ben Stone
2010	James Van Nostrand

ENERGY BAR ASSOCIATION
Jason F. Leif Chapter Service Award

This Award was created in memory of Jason F. Leif, a past President of the Energy Bar Association (EBA), a past President of the Houston Chapter of the EBA, and a motivating force in the revitalization of the Houston Chapter. This award honors and recognizes exemplary long-term service, or one or more particularly significant examples of service, by an EBA member to one or more of the EBA Chapters, enhancing the role of the EBA Chapters in representing EBA's values and character at the regional level. Exemplary service to the community in connection with EBA Chapter activities may also be considered. The EBA Board created this award in 2018, and voted unanimously to honor Jason as the first recipient of the Award.

2021	Cynthia Brown Miller
2020	Crystal McDonough
2019	Daniel T. Pancamo
2018	Jason F. Leif

ENERGY BAR ASSOCIATION
Champion for Diversity and Inclusion Award

The Champion for Diversity and Inclusion Award, is given to a Member who has embodied the principles of the Diversity and Inclusion Policy through their actions in the Associations and/or their professional career. The award is granted as deemed warranted by the EBA Board and may, or may not, be granted annually. Emma Hand was named as the first recipient of this award.

2021	Sherry Quirk
2020	Chief Judge Carmen A. Cintron
2019	Emma Hand

FOUNDATION OF THE ENERGY LAW JOURNAL
Past Presidents

1986-1996	William A. Mogel	2010	Andrew B. Young
1997-2000	Clinton Vince	2011	Lodie D. White
2000	Isaac D. Benkin	2012	Richard G. Smead
2001	Richard G. Morgan	2013	Elizabeth Ward Whittle
2002	Thomas E. Hirsch, III	2014	Andrea Wolfman
2003	Kevin M. Downey	2015	Grace D. Soderberg
2004	Richard Meyer	2016	Lisa S. Gast
2005	Earle H. O'Donnell	2017	Gary E. Guy
2006	Channing D. Strother	2018	Linda L. Walsh
2007	Regina Y. Speed-Bost	2019	Nicholas Pascale
2008	Elisabeth R. Myers	2020	Molly Suda
2009	Laura M. Schepis		

CHARITABLE FOUNDATION OF THE ENERGY BAR ASSOCIATION
Past Presidents

2003	Paul E. Nordstrom	2012	Robert A. Weishaar, Jr.
2004	Richard P. Bonnifield	2013	Evan C. Reese, III
2005	Derek A. Dyson	2014	Marcia C. Hooks
2006	Paul B. Mohler	2015	Michael Stosser
2007	Linda L. Walsh	2016	Jane E. Rueger
2008	Richard Meyer	2017	Mark C. Kalpin
2009	Jeffrey M. Petrash	2018	Donna F. Byrne
2010	Paul M. Breakman	2019	David M. Connelly
2011	Robert H. Loeffler	2020	Julia D. English

ENERGY LAW JOURNAL
Past Editors-in-Chief

1980-2003	William A. Mogel
2004-2005	Clinton Vince
2005-2019	Robert Fleishman

The Charitable Foundation of the Energy Bar Association

Dedicated to charitable activities, including energy-related charitable projects and other community service endeavors, through financial contributions and volunteer efforts of members of the Energy Bar Association and others.

We welcome your contributions
and
solicit your participation.

Charitable Foundation
of the Energy Bar Association
2000 M St., N.W., Suite 715
Washington, D.C. 20036
(202) 223-5625

www.eba-net.org/cfeba/

And we gratefully acknowledge those EBA members and others who have so generously contributed in the past.

ENERGY LAW JOURNAL

The Energy Bar Association is an international, non-profit association. Founded in 1946 as the Federal Power Bar Association, the Association currently has approximately 2000 members. The Association's voluntary membership is comprised of government, corporate, and private attorneys, as well as energy professionals from across the globe, and includes law students interested in energy law. The mission of the Association is to promote the professional excellence and ethical integrity of its members in the practice, administration, and development of energy laws, regulations, and policies. In addition to publishing the *Energy Law Journal*, the Association organizes and sponsors a number of activities, including two national conferences a year, and numerous continuing legal education (CLE) programs each year. The Association also sponsors eight formal chapters in the United States and Canada and committees that monitor and report to the membership on developments of interest. Complete membership and subscription information can be obtained from the Association at 2000 M Street, NW, Suite 715, Washington, DC 20036, or by contacting us at (202) 223-5625 or by visiting EBA-Net.org.

Twice a year, the *Energy Law Journal* publishes legal, policy, and economic articles and other materials of lasting interest with significant research value on subjects dealing with the energy industries. The Journal also welcomes articles and other materials on emerging issues and significant developments affecting the energy industries. Articles by members and non-members of the Association are welcomed. The Journal publishes articles and other materials of varying length that provide a full consideration of the issues and opposing viewpoints. All submissions must contain a synopsis, table of contents, and brief biographical statement about the author(s). Style and form of citations must be in conformity with the "Bluebook," as well as the *Energy Law Journal* Style Manual posted on the Energy Bar Association website. All submissions should be sent to Harvey L. Reiter, Editor-in-Chief, *Energy Law Journal*, by mail to Stinson LLP, 1775 Pennsylvania Ave., N.W., Suite 800, Washington, D.C. 20006 or electronically to harvey.reiter@stinson.com. The opinions expressed in the published materials are those of the writers and are not intended as expressions of the views of the Energy Bar Association. Inquires about advertising in the Journal should be addressed to Michele Smith at the Energy Bar Association at (202) 223-5625. The Journal is indexed in the INDEX TO LEGAL PERIODICALS, the CURRENT LAW INDEX, WESTLAW, and LEXIS SERVICES.

The Journal is printed on 100% recycled paper.

To be cited as: 42 ENERGY L.J. ____(2021).

ISSN 0270-9163

DIVERSITY AND INCLUSION POLICY

The Energy Bar Association (EBA), the Charitable Foundation of the Energy Bar Association (CFEBA), and the Foundation of the Energy Law Journal (FELJ) are committed to the goals of fostering an inclusive and diverse membership and increasing diversity across all levels of the Associations. Attorneys, energy professionals and students with varied and diverse characteristics practicing in the energy field are welcome to join our ranks, regardless of race, creed, color, ethnicity, Native American, Alaska, or Hawaiian Native tribal membership or descendance, gender (including gender identity or expression), sexual orientation, family and marital status (including pregnancy), family responsibilities, religion, national origin, age, personal appearance, political affiliation, veterans status, disability, source of income (government, solo, corporate, firm practice), or place of residence or business (geographic diversity) and are encouraged to become active participants in the Associations' activities.

PRESIDENT'S MESSAGE

Last year, we celebrated the Energy Law Journal's 40th Anniversary. This year, we are in the midst of the Energy Bar Association's 75th Anniversary. These institutions were established to advance the practice of energy law first at the federal level, then across the country, and now internationally. To mark EBA's 75th Anniversary milestone, the EBA Board authorized the formation of a "Tiger Team" of energy experts across the country to explore whether the Energy Bar Association's combination of legal and regulatory knowhow, energy expertise, and our member-connections between key institutions and associations is uniquely positioned to do something bold about Energy Insecurity in the United States and Canada. The Tiger Team is doing this work in the context of the energy transition and in recognition that the EBA, together with the Charitable Foundation and this Energy Law Journal, is a place where important work in energy law and policy gets shared, amplified, and improved.

Energy Insecurity is the loss or threatened loss of energy required for our modern lives; it is both a chronic and acute problem.[1] It is the chronic inability to afford or access adequate energy to meet household or community needs, and the acute crises arising from infrastructural, maintenance, environmental, or other external sources disrupting or impeding access to energy.

A substantial number of families, communities, businesses, and individuals across the U.S. and Canada experience Energy Insecurity chronically and acutely far too frequently, and the issue may only be exacerbated by climate and energy trends.

In this edition of the Energy Law Journal, Ann M. Eisenberg & Elizabeth Kronk Warner focus on an important aspect of energy insecurity in their article "The Precipice of Justice: Equity, Energy, and the Environment in Indian and Rural Communities." In particular, the authors explore the risk that these communities will bear disproportionate environmental and economic burdens during an energy transition while also facing barriers to equitable access to new opportunities, such as "green" jobs.

This issue also includes an example of acute energy insecurity through the transcription of a panel discussion that was part of a day-long, in-person symposium on Winter Storm Uri sponsored in partnership with the Texas Chapter of the Energy Bar Association and the University of Texas at Austin School of Law. Titled "Fuel Assurance, Reliability and the Generation Resource Mix: Repairing Vulnerabilities Exposed During the Crisis," this panel of experts put forth specific action items that Texas could take to ensure that the lights stay on during the next crisis.

Caroline Trum, Deputy Director of the North American Energy Standards Board, discusses in her article "Energy Storage and the Future of the Electric Market," barriers that impede energy storage resources and steps that state and federal regulators might take that may better integrate those resources. Finally,

1. Sonal Jessel, Samantha Sawyer & Diana Hernández Energy, *Poverty, and Health in Climate Change: A Comprehensive Review of an Emerging Literature*, FRONT. PUB. HEALTH (2019), https://www.frontiersin.org/articles/10.3389/fpubh.2019.00357/full

Katharine M. Mapes, Lauren L. Springett, and Anree G. Little, have penned an article arguing that regulators can do more to deter reliability risks for ratepayers.

Through this edition, the Energy Law Journal continues to be a public forum for ideas where controversial views are expressed and debated. This edition is no different, offering diverse, wide-ranging, challenging, and creative ways of understanding and shaping our conversation and debates around energy laws, regulations, and policies. I know you will find plenty to chew on and hope that you will consider joining the conversation with an article of your own to ensure that our Journal is robust and diverse.

I want to thank the Journal's leadership and its volunteers for putting together another wonderful edition. Editor-in-Chief Harvey Reiter, Executive Editor Caileen Gamache, and Administrative Editor Nicholas Cicale continue to do yeoman's work from initial conversations with authors to vetting, testing, and editing articles with the help of the Journal's all-volunteer editorial board. I also want to thank the University of Tulsa College of Law, our student editors there, and faculty advisor Professor Warigia Bowman, who do such great work. Through your efforts and dedication, this publication continues to be the premier journal in energy law and a source of great pride for EBA.

Sincerely,
/s/ Mosby G. Perrow
Mosby G. Perrow
President, Energy Bar Association

EDITOR-IN-CHIEF'S PAGE

For many decades concerns over the rate treatment of long-lived investments have been governed by FERC's policies on intergenerational equity. "Intergenerational equity," FERC has stated, "is the fair distribution of the costs and benefits of a long-lived project when those costs and benefits are borne by different generations' project users."[1] But its focus generally has been on the potential inequity of requiring the current generation of ratepayers to fund investments that will primarily benefit future customers.[2] Today we face a far different intergenerational inequity – the extent to which this generation's failure to invest in facilities that could mitigate the effects of climate change could force future ratepayers to bear the costs of the current generation's underinvestment.

What prompts this concern? Just consider what we've seen since the last edition of the Journal was released.

On August 7, 2021, the UN's Intergovernmental Panel on Climate Change released a report that produced an unnerving two-fold conclusion: The world has already passed the tipping point – no matter what we do we will face unavoidable and serious climate change impacts that we -- humans – have already caused. Only if we act now, the report adds, will we have the hope to avoid a complete climate catastrophe. Here are its key findings:

- It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred.
- Many changes due to past and future greenhouse gas emissions are irreversible for centuries to millennia, especially changes in the ocean, ice sheets and global sea level.
- Global surface temperature will continue to increase until at least the mid-century under all emissions scenarios considered. Global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in carbon dioxide (CO2) and other greenhouse gas emissions occur in the coming decades.[3]

An article in the September 26, 2021 edition of the journal Science, *Intergenerational inequities in exposure to climate extremes*, further highlights these problems. The work of twenty-eight scientists, the article finds that children born in this decade will live through three times as many climate disasters as their grandparents -- including twice as many wildfires, more than three times as many river floods and two and a half times as many crop failures. And, their study finds, the inequities are themselves spread disproportionately. Over half of the greenhouse gases now in the atmosphere have been added in the last thirty years, mostly by developed countries. Yet the impact will be felt most by those living in the poorest nations. Compared to their pre-industrial ancestors, the youngest sub-Saharan Africans can expect a fifty-fold increase in the frequency of heat waves.

---

1. *BP Pipelines (Alaska) Inc., 125 FERC ¶ 61,215* at P 18 n.16 (2008), *aff'd sub nom.* Flint Hills Res. Alaska, LLC v. FERC, 627 F.3d 881 (D.C. Cir. 2010).

2. *Syst. Energy Res., Inc.*, 96 FERC ¶ 61,165 at p. 61742 (2001).

3. IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

Finally, an October 12th story in the Washington Post recounts the sobering conclusion of a study appearing in the journal Nature Climate Change[4]: "at least 85 percent of the global population has experienced weather events made worse by climate change." The study, an analysis of over 100,000 climate change studies, concludes that climate change has affected "80 percent of the world's land area."[5] We've seen this with our own eyes in just the last few months.

- On June 29th the temperature in Lytton, British Columbia – a small town located eighty miles *north* of Vancouver -- reached 121 degrees Fahrenheit, hotter than the highest temperature ever recorded in Las Vegas. Days later, Lytton was virtually destroyed by wildfires, the cause of which is still under investigation.
- In August -- for the first time in recorded history – rain fell at the highest point on the Greenland ice sheet. As a CNN report pointed out, in the prior month Greenland had already lost 8.5 billion tons of ice in one day – "enough to submerge Florida in two inches of water."[6]
- A monitoring station in Sicily reported a temperature of 120 degrees Fahrenheit on August 11th - the hottest day ever recorded in Europe. That same day Russia was fighting over 190 wildfires across Siberia, covering an area larger than the fires in Greece, Turkey, Italy, the United States and Canada combined.
- Seventeen inches of rain fell in Waverly, Tennessee on a single day - Saturday, August 21st, resulting in flash flooding. As Washington Post reporter Sarah Kaplan described it, "Tennessee's flash floods underscore the peril climate change poses even in inland areas."[7] Citing data from FEMA, she noted that "[i]nland flooding is the leading cause of death associated with tropical cyclones in the past 50 years" and that "damage from inland floods costs more than any other severe weather event."[8]
- Late that same month, Ida, a category 4 hurricane, made landfall in the Caribbean, causing enormous destruction from Venezuela to Nova Scotia well into October. On the 16th anniversary of Hurricane Katrina, Ida hit Louisiana again. Residents of New Orleans lost power for nearly a month, and, in addition to the billions in property damages, ninety-five persons in the U.S. lost their lives,

---

4. Max Callaghan et al., *Machine-learning-based evidence and attribution mapping of 100,000 climate impact studies*, NATURE CLIMATE CHANGE (Oct. 2021), https://www.nature.com/articles/s41558-021-01168-6.epdf?sharing_token=_9H48QapWMno-nt2WwqvzNRgN0jAjWel9jnR3ZoTv0PwAcRfhcoupIk0A95eY8_-lUvstnryI-SR9UaIsiFOg-w-sDdhuWJHxx39U7Z_9mOCeWTIgnk-7LkNTsLYd2qZ5_zt5YhTDE6WOUkRO83z-tYhnnXusDZChTwM43UoaaP2vnzuE0TkzIjU_36EGQiaq6onKy0zkeCSA5ajVBVtsoQXMvdJqn3K64hiK30ois%3D&tracking_referrer=www.washingtonpost.com.

5. Annabelle Timsit & Sarah Kaplan, *At least 85 percent of the world's population has been affected by human-induced climate change, new study shows*, WASH. POST, (Oct 12, 2021), https://www.washingtonpost.com/climate-environment/2021/10/11/85-percent-population-climate-impacts/.

6. Rachel Ramirez, *Rain fell at the normally snowy summit of Greenland for the first time on record,* CNN (Aug 19, 2021), https://www.cnn.com/2021/08/19/weather/greenland-summit-rain-climate-change/index.html.

7. Sarah Kaplan, *Tennessee floods show a pressing climate danger across America: 'Walls of water',* WASH. POST (Aug. 23, 2021), https://www.washingtonpost.com/climate-environment/2021/08/23/tennessee-floods-show-pressing-climate-danger-across-america-wall-water/.

8. *Id.*

some, in New York and in Rockville, Maryland (only miles from the ELJ's offices), were drowned to death in their basements.

- On Tuesday, September 7th, "Death Valley reached 122 degrees, the hottest temperature ever recorded this late in the calendar year anywhere in the world."[9]

These events and others like them have real world implications for utility regulatory policy. The Energy Information Administration reports that the average duration of power outages has doubled in the last few years, "largely as a result of higher numbers of hurricanes, wildfires, and severe storms."[10] What regulators, legislators and other policymakers can do to mitigate the magnitude of these changes on utility ratepayers will be important to reduce the potential intergenerational inequities I mentioned at the outset of these remarks. This is a topic that will be explored in future editions of this Journal. In the meantime, the Journal is planning its first ever symposium to discuss the topic. It will feature a panel of experts – scientists, engineers and those involved in policy, to discuss these issues. The symposium, to be held in January, will be transcribed and included in the next edition of the Journal.

I would be remiss not to mention another defining feature of this young decade. The COVID pandemic is still an unfortunate fact in our lives. I had hoped that by now, at least in the U.S. where we have enough vaccines to inoculate the entire population twice over, we'd have largely emerged from the COVID-19 pandemic. But that is not the case. We've now lost over three quarters of a million persons to COVID in the U.S. -- substantially more than the entire population of Wyoming – in the manmade crisis that the President has called an epidemic of the unvaccinated. In Montgomery County Maryland, where I reside, the CDC reports that over 99% of all residents 12 years and older have received at least one COVID shot. But our experience is unfortunately not typical. Beyond all logic, and after the worldwide virtually incident-free administration of more than a billion vaccine doses, millions of Americans have shunned COVID vaccines as somehow inadequately tested. Yet some – at the bare suggestion of wholly unqualified pundits and against all medical advice – are nonetheless willing to resort instead to the use of ivermectin to prevent COVID. Ivermectin is a medication used primarily to treat parasites in livestock – and it is being taken by human beings in doses only intended for animals. For members of the bar association this insanity and broader reflexive opposition to the vaccine have meant that we have once again had to conduct our mid-year and annual meetings virtually. And for the Journal, it means that nearly all of the work of the authors, peer review editors, student editors and EBA staff has been done remotely. But, as I think you'll agree, it has not stopped us from reaching our semi-annual goal -- producing a volume of practical scholarship. Many thanks go to Michael Campbell, the student Editor-in-Chief and EBA CEO Lisa Levine, and their respective staff members for pulling off this difficult feat. Here's hoping that in producing future editions we will not face the same challenges. And here's also wishing a fulfilling retirement to Lisa Levine, who has given the EBA a decade of dedicated and outstanding service.

---

9. Jason Samenow & Diana Keonard, *Summer Heat not felt since Dust Bowl wilts West*, WASH. POST, September 10, 2021, at A2.

[10] Anodyne Lindstrom & Sara Hoff*, U.S. customers experienced an average of nearly six hours of power interruptions in* 2018, U.S. ENERGY INFO. AGENCY (June 1, 2020), https://www.eia.gov/todayinenergy/detail.php?id=49556.https://www.eia.gov/todayinenergy/detail.php?id=43915.

Let me close on a personal note. I'm reminded that some inequities are not intergenerational, but traverse generations. While the ravages of climate change and the pandemic are wreaking havoc with so many lives at least one thing has remained constant: the ineptitude of the Detroit Lions. Winners of but one playoff game in the last sixty-four years – that one win now thirty years ago – the Lions have somehow made rare ways to lose commonplace. More than fifty years ago (when I was a much younger Lions fan) the Lions lost a game to the New Orleans Saints on what was then a record-breaking 63-yard field goal as time expired. In the first five games of this season the Lions accomplished what no other team in NFL history has done over an entire season: lost two games on 50+ yard game-ending field goals. The first of these was on a new record-breaking 66-yard field goal by the Baltimore Ravens kicker, the second a mere 54-yarder. Rest assured, however, that this long-suffering fan will not let these events affect the work of the Journal.

Harvey L. Reiter
Potomac, MD
November 2021

*Foundation of the Energy Law Journal Contributors**

2021 Individual Contributors

Sponsors

($250 or above)

Vicky A. Bailey
Freddi Greenberg
Richard M. Lorenzo
Justin J. Mirabal
Susan A. Olenchuk
Norman A. Pedersen
Mosby G. Perrow
Jane E. Rueger
Debra Sharp
Clinton A. Vince

Friends

($100 or above)

Paul G. Afonso
Daniel S. Arthur
Sylvia J. Bartell
Alex Bartko
Christina Bonanni
Traci L. Bone
James F. Bowe
Stacey Burbure
Georgia B. Carter
Kelli Cole
Deonne R. Cunningham Nauls
James Donahue
Bill Edwards
Amy Engstrom
George W. Flugrad
Joseph W. Ghormley
Nainish Gupta
David Haag
Gwen Hicks
Thomas E. Holmberg
Jeffrey M. Jakubiak
Bill Keffer
Suedeen G. Kelly
Jacob Krouse
Zora Lazic
Chenchao Lu
Breandan M. Mac Mathuna
Catherine P. McCarthy
Shannon K. McClendon
Jenna McGrath
Bhaveeta K. Mody
Jim Mowry
Grace D. O'Malley
Jennifer J. Panahi
Delia D. Patterson
Steven R. Pincus
Christopher Psihoules
Andrew Ratzkin
Harvey L. Reiter
Holly Rachel Smith
Richard G. Smead
Amanda Soler
Andrea Spring
Mark J. Stanisz
Kevin M. Sweeney
Tyrus H. Thompson
Ann L. Trowbridge
Linda L. Walsh
William Weaver
Amy J. Welander
Mallory Widgren
Benjamin Zacks

Contributors

(less than $100)

Steven A. Adducci
Allan W. Anderson, Jr.
Derek L. Anderson
Donna M. Attanasio
Vicky A. Bailey
Alan J. Barak
Bruce J. Barnard
Kenneth A. Barry
Regine Baus
Emily Beard
Bidtah Becker
Colin G. Beckman
James C. Beh
Robert H. Benna
Frederic G. Berner, Jr.
William O. Blome
Cynthia S. Bogorad
George Briden

Steven H. Brose
Robert Butkin
Neil H. Butterklee
Robert W. Byrne
Christopher Lee Callas
Matthew C. Campbell
Glenn E. Camus
Frank A. Caro, Jr.
John P. Coyle
Luis Cruz
Matthew J. DeCourcey
Anthony C. DeCusatis
William D. DeGrandis
Jeffery S. Dennis
Sachin Desai
Ljuba Djurdjevic
Kenneth B. Driver
Daniel Patrick Duthie
Michael Engleman
Sedina Eric
Christine F. Ericson
Peter G. Esposito
David A. Fitzgerald
Sidney Fowler
Peter A. Fozzard
Kevin C. Frank
Michael J. Fremuth
Caileen N. Gamache
Levi T. Gardner
Linda S. Gilbert
Nicholas Gladd
R. Keith Gordon
Erin Green
Brian R. Greene
Walter R. Hall, II
Roberta Lee Halladay
David R. Hammel
Emma F. Hand
Jerrod L. Harrison
Mark R. Haskell
Scott Hempling
R. David Hendrickson
Patrick J. Hester
Hugh E. Hilliard
Linda Hillman
Thomas E. Hirsch, III
Colette D. Honorable
Jacqulynn B. Hugee
Gerit F. Hull
Alan Hunter Hodges
Stephen L. Huntoon
Kenneth W. Irvin
Dary Jessome
Meredith M. Jolivert
Michael Keegan
Mr. R. Keith Gordon
Susan N. Kelly
Martin V. Kirkwood
Barbara J. Koonz
Richard J. Kruse
Ruth Ku
Cheryl A. LaFleur
Shaun D. Ledgerwood
Ilia Levitine
Tamara L. Linde
Frank R. Lindh
Phillip G. Lookadoo
Toni A. Lundeen
Gordon P. MacDougall
Emily P. Mallen
Jason Marshall
Philip M. Marston
Michael N. McCarty
Brian J. McManus
Bernard McNamee
Colette B. Mehle
Patrick T. Metz
Richard Meyer
Rebecca J. Michael
Richard B. Miller
Paul B. Mohler
Todd Mullins
William V. Murchison
Clifford M. Naeve
S. Diane Neal
Paul G. Neilan
Gary J. Newell
Ryan Norfolk
Temitope Ogunrinu
Theodore J. Paradise
Nicholas J. Pascale
Kay Pashos
Tanya Paslawski
Anjali G. Patel
Stephen T. Perrien
Mosby G. Perrow
Irwin A. Popowsky
Michael Postar
Daniel J. Poynor
Kati Hannele Punakallio
Presley R. Reed
Maria D. Robinson
Curtis James Romig
Jane I. Ryan
Catherine J. Sandoval
Nancy Saracino
Donna M. Sauter
Tom Schaaf
David S. Schmitt
Floyd R. Self
Timothy A. Simon
Honorable Eric F. Skrmetta
William H. Smith, Jr.
Robert H. Solomon
Anne L. Spangler
Regina Y. Speed-Bost
Molly K. Suda
Gerald A. Sumida
F. Alvin Taylor
Branko Terzic

Abila1 Test
David G. Tewksbury
Adrienne Thompson
Steven G. Thomson Reed
Susan Tomasky
Nicole A. Travers
James T. Tynion III
John G. Valeri, Jr.
Steven I. Venezia
Roger St. Vincent
Jennifer J. Vosburg
Maria F. Vouras
Thomas George Wagner
David B. Ward
Jeffrey D. (Dan) D. Watkiss
Monique Watson
Heidi Werntz
Stanley W. Widger, Jr.
Joseph B. Williams
Mark C. Williams
Andrew C. Wills
Raymond B. Wuslich
Erica Youngstrom

**Contributions from 1/1/2021-11/13/2021*

2021 FALL FOUNDATION FUNDRAISING CAMPAIGN
CORPORATE CONTRIBUTORS
Charitable Foundation of the Energy Bar Association (CFEBA)
Foundation of the Energy Law Journal (FELJ)

(Contributions from 1/1/2021–11/17/2021)

GEMS Diamond

Dentons US LLP
National Rural Electric Cooperative Association
Perkins Coie LLP

GEMS Emerald

Balch & Bigham LLP
Bracewell LLP
Edison Electric Institute
Jones Day
Stinson LLP
Van Ness Feldman LLP

Foundation Patrons- $3,000

Davis Wright Tremaine LLP
Duncan, Weinberg, Genzer & Pembroke, P.C.
Eastern Generation, LLC
Hanna and Morton LLP
Loeb & Loeb LLP
PJM Interconnection, L.L.C.
Troutman Pepper
Wright & Talisman, P.C.

Foundation Partners- $1,500

Day Pitney LLP
Engleman Fallon, PLLC
Kirkland & Ellis LLP
McCarter & English, LLP
McNees Wallace & Nurick LLC
Mosby G. Perrow

Foundation Supporters - $300

Akin Gump Strauss Hauer & Feld LLP
Sylvia J. Bartell
Georgia B. Carter
Kelli Cole
Bhaveeta K. Mody
Norman A. Pedersen
Steven R. Pincus
Post & Schell, P.C.
Harvey L. Reiter
Jane E. Rueger
Linda L. Walsh
Bhaveeta K. Mody
Linda L. Walsh

CFEBA Corporate Contributors

Pierce Atwood LLP
Steptoe & Johnson LLP
Thompson Coburn LLP

FELJ Corporate Contributors

Husch Blackwell LLP
Sidley Austin LLP

2021 Fundraising Campaign

INDIVIDUAL PATRON
Contributions $500- $1500

Kimberly Frank
Freddi L Greenberg
Donald A. Kaplan
Richard M. Lorenzo
Jay Morrison
Richard Roberts
Clinton A Vince

Charitable Foundation of the Energy Bar Association
*Individual Contributors**

Steven A. Adducci
Vicky A. Bailey
Alan J. Barak
John Michael Blackwell
Jonathan E Booe
Christopher Lee Callas
Gregory V. Carmean
Thomas G. Chandler
Ronald E. Christian
Susanna Chu
Carol A. Clayton
Kelli Cole
Hanna M. Conger
David M. Connelly
Anthony C. Decusatis
William D. DeGrandis
Joel deJesus
Romulo L. Diaz
Katlyn A. Farrell
Aaron A. Fate
Russell A. Feingold
Caileen Kateri Gamache
Richard Glick
Eve Kahao Gonzalez
Erin Green
Freddi Greenberg
Shari C. Gribbin
James Patrick Guy
Walter R. Hall
Sharon Hanson
R David Hendrickson
Heather Horne
David E. Hunger
Norma R. Iacovo
Kurt H. Jacobs
Andrew M. Jamieson
Terry M. Jarrett
Michael L,Kessler
Linda S. Kizuka
Gregory M. Kusel
Cheryl A. LaFleur
Seth T. Lucia
Justin R. Martin
Jenna McGrath
Cynthia B. Miller
Max Minzer
S. Diane Neal
Gary J Newel
Joel Newton
Susan A. Olenchuk
Grace D. O'Malley
Adina Owen
Nicholas J. Pascale
Tanya Paslawki
Anjali G. Patel
Delia D. Patterson
Norman A. Pedersen
Olya Petukhova
Darlene Tobert Phillips
David R. Poe
Kati H. Punakallio
Presley R. Reed
Carl Richie
Richard L. Roberts
Jane E. Rueger
Matthew M. Schreck
Floyd R. Self
Steven M. Shparber

Charitable Foundation of the Energy Bar Association
Individual Contributors **Continued**

Gregory T. Simmons
Daniel R. Simon
Timothy A. Simon
Richard G. Smead
Justin T. Somelofske
Roberts B. Stoddard
Drew Stuyvenberg
Justin A. Swaim
Kevin M. Sweeney
Richard D. Tabors
Branko Terzic
Jennifer H. Tribulski
Paul C. Vernado
Jeffrey D. (Dan) D. Watkiss
Monique Watson
Julia Owen Weller
Stanley W. Widger
David P. Yaffe

***** *Contributions from 1/1/2021 – 11/13/2021*

THE PRECIPICE OF JUSTICE: EQUITY, ENERGY, AND THE ENVIRONMENT IN INDIAN COUNTRY AND RURAL COMMUNITIES

Ann M. Eisenberg & Elizabeth Kronk Warner[*]

Editor's Note: As the authors mention at footnote 1, the ideas presented in their essay were first shared during a panel presentation in February of this year at the at the University of Florida Levin College of Law's annual Public Interest Environmental Conference. We and the authors have described their piece as an essay and not an article because it is not intended as a comprehensive approach to solving energy/environmental justice issues, but as an introduction to the subject intended to highlight these issues. As the authors note, their hope – and ours - is that their essay will prompt in depth contributions from authors addressing energy/environmental justice issues in future editions of the Journal.

Synopsis[1]**:** Energy justice, environmental justice, climate justice, and just transitions all offer frameworks for assessing questions of equity, energy, and the environment. This Essay assesses these frameworks' relevance in the context of two case studies: Indian country and coal-reliant rural communities. Both types of communities are, in one sense, prototypical environmental justice communities. Yet, both are unique in distinct and overlapping ways. In Indian country, questions of sovereignty are central to issues of environmental equity. Meanwhile, geographic isolation and a lack of economic diversification shape rural communities and parts of Indian country, making relationships with the energy sector particularly challenging. The Essay examines dynamic, ongoing policy developments relevant to both contexts, including the Biden Administration's new commitments to renewable energy targets, the American Rescue Plan, and state initiatives like Colorado's Just Transitions Office and New Mexico's Energy Transition Act of 2019. The discussion illustrates how questions of equity and the environment often transcend and blur the lines across the theoretical frameworks. Ultimately, we assert that these communities are on the precipice of justice. But justice is within reach for these and similarly situated communities, if the political will remains strong to pursue the policies with the strongest commitments to equity.

---

* Ann Eisenberg is an Associate Professor of Law at the University Of South Carolina School Of Law. Elizabeth Kronk Warner is the Jefferson and Rita Fordham Presidential Dean and Professor of Law at the S.J. Quinney College of Law at the University of Utah. She is also an enrolled citizen of the Sault Ste. Marie Tribe of Chippewa Indians.

1. The ideas presented in this Essay were first shared on a panel presentation including the co-authors at the 27th Annual Public Interest Environmental Conference at the University of Florida Levin College of Law on February 12, 2021.

I. INTRODUCTION

Several frameworks have emerged to capture the many equity-based concerns surrounding energy production, energy consumption, pollution, climate change, racial discrimination, and growing socioeconomic disparities. These include frameworks such as environmental justice and, more recently, climate justice. Energy justice is among the latest of these to gain mainstream traction.[2] Energy justice seeks to refine and expand our legal understanding of how we plan for, invest in, and regulate energy to be cost beneficial for international governance, nations and societies.[3] Energy justice examines and promotes a global energy system that is safe, reliable, just, reasonable, and also sustainable for current and future generations.[4] Importantly, it also considers the need for an energy path forward that is restorative, minimizes or reverses the cumulative impacts of the energy system, and engages energy consumers in decision-making processes.[5]

Climate justice, similarly, has emerged relatively recently as another call for equity for "those disproportionately affected by the impacts of climate change."[6] While energy justice and climate justice have gained momentum in the lexicon on justice and the environment over the past decade, environmental justice is now roughly a half-century old. Environmental justice asks whether vulnerable communities and communities of color are asked to disproportionately bear the impacts of environmental pollution. Rooted in the concept of environmental racism, this movement in the United States "forged a pivotal connection among concerns for social justice, civil rights, and environmental protection."[7]

---

2. *See, e.g.*, Kirsten Jenkins, *Setting energy justice apart from the crowd: Lessons from environmental and climate justice*, 39 ENERGY RSCH & SOC. SCIENCE 117 (2017).

3. *Cf.* Aladdine Joroff, *Energy Justice: What It Means and How to Integrate It into State Regulation of Electricity Markets*, 47 ENVTL. L. REP. NEWS & ANALYSIS, 10927-28 (2017) (examining definitions of energy justice).

4. *Id.*

5. CARMEN G. GONZALEZ, ELIZABETH A. KRONK WARNER & RAYA C SALTER, ENERGY JUSTICE: US AND INTERNATIONAL PERSPECTIVES (Raya Salter et al. eds., Edward Elgar Publishing, 2018).

6. Randall S. Abate, *Public Nuisance Suits for the Climate Justice Movement: The Right Thing and the Right Time*, 85 WASH. L. REV. 197, 199 (2010).

7. Uma Outka, *Fairness in the Low-Carbon Shift Learning from Environmental Justice*, 82 BROOK. L. REV. 789, 789 (2017); *see also* Robert Bullard, *Environmental Justice in the 21st Century: Race Still Matters*,

In the transition to low-carbon energy production, calls for energy justice alongside climate justice "expand the [environmental justice] movement's conceptual reach in the modern context."[8] As Uma Outka articulates, "The link between climate change, energy, and environmental justice is unmistakable: the energy sector contributes to climate change more than any other industry; climate change is predicted to affect environmental justice communities most; and the energy sector has a long history with environmental injustice."[9] In particular, fossil fuel-based energy production has historically been borne on the backs of the poor and communities of color. As a central example, poor and minoritized communities located near sites of fossil fuel extraction and production experience egregious health hazards because of those burdens.[10] As a result, while these frameworks—energy justice, environmental justice, and climate justice—are all discrete concepts, they can overlap at times and all three may be applicable to a particular situation.[11]

Efforts to decarbonize the energy grid and the economy at large are gaining substantial momentum today. However, the transition to renewable energy does not automatically mean that today's environmental justice communities will necessarily fare better.[12] Marginalized communities risk continuing to bear disproportionate environmental burdens while facing barriers to equitable access to new opportunities, such as "green" jobs.[13] Some environmental justice communities have also grown to depend economically on the very industries that have caused them such harm, prompting calls for just transitions—or equity for workers and communities who depend economically on fossil fuels—to ward off and mitigate regional fiscal collapse and individual hardship.[14]

To help further understanding of the many interacting issues of equity described above, this Essay assesses these frameworks' relevance to two community case studies: Indian country and coal-reliant rural communities. Specifically, the Essay examines the experiences of Indian country and coal-reliant rural communities in the energy system, those communities' environmental and energy justice burdens, and the law and policy frameworks that both shape those burdens and are positioned to alleviate and transform them. Both types of communities are, in one sense, prototypical communities burdened by both environ-

---

UNIV. OF WIS. (2008), https://uwosh.edu/sirt/wp-content/uploads/sites/86/2017/08/Bullard_Environmental-Justice-in-the-21st-Century.pdf.

8. Outka, *supra* note 7, at 790; *see also* Shelley Welton & Joel Eisen, *Clean Energy Justice: Charting an Emerging Agenda,* 43 HARV. ENVTL. L. REV. 307 (2019); J.B. Ruhl, *Climate Change Adaptation and the Structural Transformation of Environmental Law*, 40 ENVTL. L. 363, 408 (2010).

9. Outka, *supra* note 7, at 790; *see also* Alice Kaswan, *Environmental Justice and Domestic Climate Change Policy*, 38 ENVTL. L. REP. NEWS & ANALYSIS 10287 (2008).

10. Outka, *supra* note 9, at 791, 792.

11. *Id.* at 789; Uma Outka, *Environmental Justice Issues in Sustainable Development: Environmental Justice in the Renewable Energy Transition*, 19 J. ENVTL. & SUSTAINABLE L. 60, 74, 122 (2012).

12. Outka, *supra* note 11, at 122.

13. Ann M. Eisenberg, *Just Transitions*, 92 S. CAL. L. REV. 273 (2019).

14. *See generally id.*

mental and energy injustice because both have historically borne disproportionate burdens associated with energy production and the pollution it creates.[15]

Yet, both types of communities' experiences with energy and environmental injustice also arise in unique circumstances. These unique circumstances often go overlooked in the broader conversations on energy justice and environmental justice. First, unlike other environmental justice communities, tribes are sovereign nations with authority to enact their own laws and regulations.[16] Tribes also have other unique legal relationships with the federal government, as discussed below. Coal-reliant rural communities, meanwhile—some of which include parts of Indian country—face unique challenges relating to a lack of economic diversification, geographic isolation, and barriers to accessing public and private resources, creating particularly challenging relationships with the energy sector.[17]

This Essay therefore examines these two types of communities side-by-side in order to assess their overlapping and differing experiences with law, energy justice, and environmental justice, and those experiences' implications for broader conversations on these topics. The Essay is not intended as a comprehensive approach to solving energy and environmental justice issues, but as a contribution intended to highlight these issues in discrete communities and to prompt in-depth contributions from authors in future editions of the Journal. While these communities are unique, their holistic experiences with equity, energy, and the environment are in many ways illustrative of widespread challenges and opportunities. Both also illustrate how the distinct theoretical frameworks described above often have overlapping, blended applicability to communities' complex experiences on the ground.

Part I examines experiences with energy justice and environmental justice within Indian country and ongoing, dynamic policy developments on clean energy projects in Indian country. Part II goes on to explore the same questions within the context of rural communities, with a focus on the loss of coal-based economic activity and the rural economy more broadly. Ultimately, we assert that tribes and rural communities are on the precipice of justice – meaning, the existence of energy and environmental justice problems has been identified, but it remains to be seen whether these problems will truly be ameliorated. But justice is also just within reach if the political will remains strong and the policies that hold promise are pursued. For example, the Biden Administration has identified energy justice and environmental justice as top priorities for the Admin-

15. *See infra* Part II.B and Part III.

16. Despite explicit and implicit divestiture by the federal government of tribal authority, tribal sovereignty persists today. Tribal regulatory authority is strongest over tribal citizens on tribal lands. For a full discussion of the scope of tribal sovereignty and the ability of tribes to regulate individuals, *see* FELIX S. COHEN, COHEN'S HANDBOOK OF FEDERAL INDIAN LAW at 203-379 (Nell Jessup Newton et al. eds., 2012) [hereinafter Cohen Handbook 2012].

17. Ann M. Eisenberg, *Distributive Justice and Rural America*, 61 B.C. L. REV. 189, 224 (2020) (discussing access to resources in rural communities, including more limited school funding, broadband internet, and private philanthropy); Eisenberg, *supra* note 13, at 301-03 (discussing geographic isolation and lack of economic diversification in Appalachia).

istration, but what remains to be seen is whether these priorities are fully funded and directed toward the communities needing the most assistance.[18] The most promising efforts in both contexts—measures such as substantial public investments alongside meaningful localized input and control and laws' prioritization of racial and geographic equity—also hold promise for other communities burdened by environmental, energy, and climate injustice. We hope that by laying out where energy and environmental justice concerns exist within some communities within the United States, future articles in this Journal can more fully explore whether the combination of public investments and local input results in the amelioration of the concerns raised here.

II. ENERGY AND ENVIRONMENTAL JUSTICE IN INDIAN COUNTRY

This Part examines questions of environmental and energy justice within the context of tribal communities. As mentioned above, tribes are unique because they are sovereign nations possessing the inherent authority to enact their own laws and regulations.[19] Additionally, the federal government (and states in some instances) owe a fiduciary obligation to act in the best interests of tribal governments. At its broadest, this federal trust responsibility constitutes a moral obligation to act in the best interests of tribes, and, in many instances, the federal government is under a binding legal obligation to act to the benefit of tribes.[20] Other important differences exist as well, and, therefore, it is important to consider how environmental justice and energy justice intertwine with these unique legal frameworks in Indian country.[21] In order to be able to fully understand energy and environmental justice within Indian country, one must first understand how tribal communities differ from other energy and environmental justice communities, so this Part begins with a brief introduction.

A. Environmental Justice in Indian Country[22]

Native communities are environmental justice communities.[23] The history of environmental injustice in Indian country has a strong connection with fossil

18. Cathleen Kelly & Mikyla Reta, *Implementing Biden's Justice40 Commitment to Combat Environmental Racism*, CTR. FOR AM. PROGRESS (2021), https://www.americanprogress.org/issues/green/reports/2021/06/22/500618/implementing-bidens-justice40-commitment-combat-environmental-racism/.

19. *See* Cohen Handbook 2012, *supra* note 16.

20. For a discussion of the development of the federal trust responsibility, *see* Elizabeth Ann Kronk, *Indian Claims and the Court of Federal Claims: A Legal Overview, Historical Accounting and Examination of the Court of Federal Claims' and Federal Circuit's Impact on Federal Indian Law*, 6 J. OF THE FED. CIRCUIT HISTORICAL SOC'Y 59 (2012).

21. "Indian country" is a legal term of art defined at 18 U.S.C. § 1151 as "(a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same."

22. Portions of this section were taken from Elizabeth Kronk Warner & Heather Tanana, *Indian Country Post* McGirt*: Implications for Traditional Energy Development and Beyond*, 45 HARV. ENVTL. L. REV. 249 (2021).

fuel-based energy production. For instance, the Navajo Nation's experience with a coal-fired power plant, the Navajo Generating Station, and a history of joint coercion by federal agencies and mining interests provides an illustrative example of energy injustice and environmental injustice in Indian country.[24]

Although there are similarities with other environmental justice communities,[25] environmental justice claims arising in Indian country differ from environmental justice claims arising elsewhere because of tribal sovereignty, the unique connection between many tribal communities and their environment, as well as other factors.[26] Tribes' legal rights flow from their inherent sovereignty and their related historical management of the land and resources. Tribes exist as entities separate from state and federal governments, and are extra-constitutional, meaning they exist apart from the United States Constitution.[27] As a result of tribal sovereignty, the federal government largely leaves issues related to incidents between tribal members in Indian country solely within the inherent sovereignty of tribal governments.[28] Congress has also explicitly recognized tribal sovereignty through the enactment of various laws[29] and by subsequently amending federal statutes to allow for increased tribal governance.[30]

Unlike claims brought by other environmental justice communities, environmental justice claims raised by tribes "must be consistent with the promotion

---

23. *See generally* Rebecca Tsosie, *Indigenous People and Environmental Justice: The Impact of Climate Change,* 78 COLO. L. REV. 1625 (2007).

24. Jariel Arvin, *After decades of activism, the Navajo coal plant has been demolished*, VOX (Dec. 19, 2020), https://www.vox.com/2020/12/19/22189046/navajo-coal-generating-station-smokestacks-demolished; *see also* Ezra Rosser, *Ahistorical Indians and Reservation Resources*, 40 ENVTL. L. 437, 439-440 (2010).

25. Like other environmental justice communities, tribes faced historical discrimination. Of relevance is the fact that federal courts often discriminated against tribal and individual Indian claimants, especially before 1934. *See* Nell Jessup Newton, *Federal Power Over Indians: Its Sources, Scope, and Limitations*, 132 UNIV. OF PA. L. REV. 195, 216–18 (1984) (explaining in general reference to the nineteenth century that "[u]ndoubtedly, racial and cultural prejudice played no small role in federal actions toward Indians during this period."). Given this history of discrimination that Native nations and individual Indians faced in federal courts, access to the courts is of increased importance today.

26. *See generally* Elizabeth Ann Kronk Warner, *Environmental Justice: A Necessary Lens to Effectively View Environmental Threats to Indigenous Survival*, 26 TRANSNAT'L L. & CONTEMP. PROBS. 343, 343-44 (2017).

27. Ann E. Tweedy, *Connecting the Dots Between the Constitution, the Marshall Trilogy, and United States v. Lara: Notes Toward a Blueprint for the Next Legislative Restoration of Tribal Sovereignty,* 42 U. MICH. J.L. REFORM 651, 656 (2009) (citing Gloria Valencia-Weber, *The Supreme Court's Indian Law Decisions: Deviations from Constitutional Principles and the Crafting of Judicial Smallpox Blankets,* 5 U. PA. J. CONST. L. 405, 417 (2003)).

28. *See, e.g.*, Worcester v. Georgia, 31 U.S. 515, 520 (1832) (holding that the laws of Georgia did not have any effect within the Cherokee Nation's territory); Santa Clara Pueblo v. Martinez, 436 U.S. 49, 55-56 (1978) (holding that tribes have the power to determine tribal membership).

29. Indian Self-Determination and Education Assistance Act, Pub. L. No. 93-638, 88 Stat. 2203, 2213 (1975) (codified as amended at 25 U.S.C. §§ 5301-5423 (2021)).

30. *See, e.g.*, Clean Air Act, 42 U.S.C. § 7601(d)(1)(A) (1990); Clean Water Act, 33 U.S.C. § 1377(e) (2014); Safe Drinking Water Act, 42 U.S.C. § 300j-11 (1996); and major portions of the Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA], 42 U.S.C. §§ 9601-9657 (1986).

of tribal self-governance,"[31] as both racial and political considerations impact tribal communities.[32] The additional consideration of tribal sovereignty is crucial to any discussion of environmental justice claims arising in Indian country, as tribes exist as both racialized and political communities and their sovereignty is essential to their existence.[33]

The practical impact of tribal sovereignty in considerations of environmental justice is that issues affecting tribes cannot move forward without tribal government approval, which, in and of itself, requires governmental consultation.[34] Environmental justice is typically understood to include a substantive component (i.e., an insistence upon equitable outcomes), as well as a procedural component (i.e., an insistence upon meaningful procedural inclusion).[35] An environmental injustice therefore occurs if the tribal government is not given a meaningful and robust opportunity to be consulted and provide feedback on any given development, including energy projects.[36] For example, in the case of the Dakota Access pipeline, the tribes involved claimed that the federal government failed to engage in meaningful and robust engagement.[37] Although the federal government provided notice to the tribes of the proposed permit (which eventually gave way to the pipeline being constructed), the tribes were notified in the same manner as other non-sovereign stakeholders in the region, and no special outreach occurred in recognition of the government-to-government relationship between the tribes and federal government.[38]Lack meaningful engagement, of course, also means that should a tribe decline to participate, the relevant project should be halted or stopped entirely. Accordingly, to both promote tribal sovereignty and to ensure meaningful participation of tribal governments, clean and renewable energy projects should be developed by tribal governments themselves within tribal territories whenever possible.

In addition to promoting tribal sovereignty through the inclusion of tribal governments in the development of clean and alternative energy projects, such development may be done in a way that is consistent with tribal environmental ethics, as many (but not all) Native cultures and traditions are tied to the envi-

---

31. Sarah Krakoff, *Tribal Sovereignty and Environmental Justice*, *in* JUSTICE AND NATURAL RESOURCES: CONCEPTS, STRATEGIES, AND APPLICATIONS 161, 163 (Kathryn M. Mutz et al. eds., 2002).

32. Additionally, individual American Indians have a political relationship with their tribal governments. *See* Rebecca Tsosie, *Negotiating Economic Survival: The Consent Principle and Tribal-State Compacts Under the Indian Gaming Regulatory Act*, 29 ARIZ. ST. L.J. 25, 27-28 (1997).

33. Rebecca Tsosie, *Indigenous Peoples and Environmental Justice: The Impact of Climate Change*, 78 U. COLO. L. REV. 1625, 1652 (2007)("Such a notion of justice must incorporate an indigenous right to environmental self-determination that allows indigenous peoples to protect their traditional, land-based cultural practices regardless of whether they also possess the sovereign right to govern those lands or, in the case of climate change, prevent the practices that are jeopardizing those environments").

34. *See* Elizabeth Kronk Warner et al., *Changing Consultation*, 54 U.C. DAVIS L. REV. 1127, 1178-83 (2020) (discussing the legal and moral requirements for effective tribal consultation and what such consultation should look like).

35. *Id.* at 1145, 1162, 1172, 1179.

36. *Id.* at 1153-56, 1180-83.

37. *Id.* at 1174.

38. Warner, *supra* note 34, at 1137, 1167, 1174, 1176.

ronment and land in a manner that traditionally differs from that of the dominant society.[39] That being said, however, each tribal nation has a different relationship with its environment, and we are hesitant to stereotype a common "Native experience," recognizing that there is a broad diversity of thought and experience related to one's relationship with the land and the environment.[40] With this caveat in mind, because of spiritual, medicinal, and cultural connections that many tribal communities have with their land, the relationship that these communities have may differ from the relationship of other environmental justice communities with their land.[41] Beyond a means of subsistence, land "is the source or spiritual origin and sustaining myth which in turn provides a landscape of cultural and emotional [means]," and "[t]he land often determines the values of the human landscape."[42] Many "[t]ribal communities

> Continue to have a deep relationship with ancestral homelands for sustenance, religious communion and comfort, and to maintain the strength of personal and interfamilial identities. Through language, songs, and ceremonies, tribal people continue to honor sacred springs, ancestral burial places, and other places where ancestral communities remain alive.[43]

Accordingly, in addition to the political sovereignty of tribal governments, their cultural and spiritual sovereignty is also typically impacted by energy development, and this in turn supports the call for increased tribal renewable and clean development, assuming the development is done in a way that does not negatively impact the environmental ethics of the tribal community.

B. Clean and Renewable Energy Development in Indian Country

With this brief introduction into how environmental justice differs in Indian country (e.g., it includes considerations of tribal sovereignty and the environmental ethics of the tribal communities involved), we can now turn to an examination of how these principles are being applied. Historically, a wide array of obstacles made it incredibly difficult for tribes to own renewable and clean ener-

---

39. Frank Pommersheim, *The Reservation as Place: A South Dakota Essay*, 34 S.D. L. Rev. 246, 249, 255, 258, 263, 266, 268 (1989). We would like to avoid traditional stereotypes of American Indians as "Noble Savages" or "Bloodthirsty Savages." *See* Rebecca Tsosie, *Tribal Environmental Policy in an Era of Self-Determination: The Role of Ethics, Economics, and Traditional Ecological Knowledge*, 21 VT. L. REV. 225, 270 (1996) ("The problems of cross-cultural interpretation and the attempt to define 'traditional' indigenous beliefs raise a common issue: the tendency of non-Indians to glorify Native Americans as existing in 'perfect harmony' with nature (the 'Noble Savage' resurrected) or, on the other hand, denounce them as being as rapacious to the environment as Europeans (the 'Bloodthirsty Savage' resurrected)."); *see also* Ezra Rosser, *Ahistorical Indians and Reservation Resources*, 40 ENVTL. L. 437, 465-468 (2010) (explaining the stereotype of Natives as environmental stewards and its likely origins). Both stereotypes are a form of mythology, although they are widely perpetuated by much of the literature on American Indian belief systems. *Id.* at 467-68.

40. Pommersheim, *supra* note 39, at 268-70.

41. *Id.* at 250; *see also* NAT'L CONG. AM. INDIANS, RESOLUTION NO. EWS-06-004, SUPPORTING A NATIONAL MANDATORY PROGRAM TO REDUCE CLIMATE CHANGE POLLUTION AND PROMOTE RENEWABLE ENERGY 2 (2006) ("climate-related changes to the weather, food sources, and local landscapes undermine the social identity and cultural survival of American Indians and Alaskan Natives . . . .").

42. Pommersheim, *supra* note 39, at 250.

43. Mary Christina Wood et al., *Tribes as Trustees Again (Part I): The Emerging Tribal Role in the Conservation Trust Movement,* 32 HARV. ENVTL. L. REV. 373, 381 (2008).

gy projects within Indian country. For example, because they are governments, tribes cannot take advantage of the tax incentives that made many renewable and clean energy development projects financially feasible.[44] Also, because many tribes with ample renewable energy resources are in geographically remote parts of the country, energy infrastructure does not exist to transport energy to more populous areas, and the development of such infrastructure is prohibitively expensive.[45]

Yet, despite these obstacles, tribal governments and outside investors are increasingly looking to Indian country to develop clean and renewable energy projects.[46] The increased interest in clean and renewable energy development in Indian country may, in some instances, be motivated by the factors examined above – tribal sovereignty and the unique connections many tribal communities have with their territories. But, increased interest may also come due to the Biden Administration's attention to this type of development. For example, President Biden announced a "new target for the United States to achieve a 50-52 percent reduction from 2005 levels in economy-wide net greenhouse gas pollution in 2030" and also established a goal of reaching net zero emissions across the U.S. economy by 2050.[47] The Biden Administration apparently intends to accomplish both goals in a manner that is consistent with environmental justice.[48] President Biden hopes these initiatives can be accomplished through the production and deployment of clean energy, which includes "100 percent carbon pollution-free electricity by 2035," "cut[ting] emissions and energy costs for families by supporting efficiency upgrades and electrification in buildings," "reduc[ing] carbon pollution from the transportation sector," "address[ing] carbon pollution from industrial processes," and "invest[ing] in innovation."[49] As an example of how the Administration will support these initiatives, the United States Department of Energy announced a $100 million investment in "transformative clean energy solutions."[50] The focus on both environmental justice and clean energy in these announcements suggests the possibility that implementation could be done in a way that is consistent with both environmental justice

---

44. Douglas C. MacCourt, Report No. NREL/SR-7A4-48078, Renewable Energy Development in Indian Country: A Handbook for Tribes 75 (June 2010), https://www.nrel.gov/docs/fy10osti/48078.pdf.

45. For a discussion of the obstacles facing renewable energy development in Indian country, *see* Elizabeth Ann Kronk, *Alternative Energy Development in Indian Country: Lighting the Way for the Seventh Generation*, 46 IDAHO L. REV. 449, 467-68 (2010); Elizabeth Ann Kronk Warner, *Renewable Energy Depends on Tribal Sovereignty*, 69 U. KAN. L. REV. 809, 840-41, 843 (2021).

46 Kronk Warner, *supra* note 45, at 823-26.

47. WHITE HOUSE BRIEFING ROOM, FACT SHEET: PRESIDENT BIDEN SETS 2030 GREENHOUSE GAS POLLUTION REDUCTION TARGET AIMED AT CREATING GOOD-PAYING JOBS AND SECURING U.S. LEADERSHIP ON CLEAN ENERGY TECHNOLOGIES (Apr. 22, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/.

48. *Id.*

49. *Id.*

50. DEP'T OF ENERGY, DOE ANNOUNCES $100 MILLION FOR TRANSFORMATIVE CLEAN ENERGY SOLUTIONS (Feb. 11, 2021), https://www.energy.gov/articles/doe-announces-100-million-transformative-clean-energy-solutions.

and energy justice principles. But, as of the time of writing, it is uncertain whether the interest being shown by the Biden Administration will translate into actions to promote energy and environmental justice within Indian country.

The targets announced by President Biden are reflected in the commitments made by the United States in its Nationally Determined Contribution (NDC) submitted in April 2021.[51] Because the United States has re-entered the Paris Agreement, it submitted a revised NDC. The NDC announces the major new goal of reducing greenhouse gas emissions by 50-52 percent below 2005 emissions across the United States economy by 2030.[52] The new NDC goes on to recognize that environmental justice and prioritizing investment to benefit communities of color and lower socio-economic communities will go a long way toward ensuring that the energy burden does not continue to negatively impact these groups.[53] Again, this suggests the possibility that implementation could be done in a way that is consistent with environmental justice and energy justice. The NDC identifies pathways through various sectors, such as electricity, transportation, buildings, industry, and agriculture and lands, to meet its major goal of reductions by 2030, reiterating the goal of "100 percent carbon-pollution free electricity by 2035."[54]

In addition to the Biden Administration's commitment to increased clean and renewable energy production, the cost of such development has also substantially decreased recently.[55] These price reductions are making such development much more affordable and accessible.

Ultimately, whatever motivations may exist between tribes and the federal government, numerous tribes are engaged in renewable and clean energy development across the United States.[56] Having tribes play a significant role in clean and alternative energy development in ways that promote tribal sovereignty and tribal environmental ethics will advance such development in a way that is consistent with energy and environmental justice principles applicable in Indian country. According to the US Department of Energy, wind and solar energy represent economic potential of "more than $75 billion in project investment."[57]

---

51. U.N. CLIMATE CHANGE, THE UNITED STATES OF AMERICA, NATIONALLY DETERMINED CONTRIBUTION: REDUCED GREENHOUSE GASES IN THE UNITED STATES: A 2030 EMISSIONS TARGET, UNFCC N.D.C. REGISTRY (INTERIM) 1 (Apr. 22, 2021), https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/United%20States%20NDC%20April%2021%202021%20Final.pdf.

52. *Id.*

53. *Id.* at 2.

54. *Id.* at 3.

55. Zak Podmore, *Navajo Nation solar project to boost San Juan County's position as energy exporter*, Salt Lake Tribune A5 (Apr. 18, 2021) ("Industrial-scale renewable projects have plummeted in price during the past decade. A 2019 report found that wind energy prices fell 70% between 2009 and 2019, and solar photovoltaics have plunged by 89% on average.").

56. *See* Elizabeth Ann Kronk Warner, *Renewable Energy Depends on Tribal Sovereignty,* 69 KANSAS L. REV. 809, 836-42 (2021).

57. Anelia Milbrandt et al., TECHNO-ECONOMIC RENEWABLE ENERGY POTENTIAL ON TRIBAL LANDS 39 (National Renewable Energy Laboratory, 2018).

With dedicated federal and private sector support and collaboration, tribes can play a significant role in the clean energy transition.

Tribes are making significant progress in switching to and investing in clean energy.[58] For example, the Standing Rock Sioux Tribe built a solar farm that produces enough energy to power two large community buildings.[59] The Winnebago Tribe installed solar panels on every building it could within its reservation and developed 720kW capacity.[60] Similarly, the Navajo Nation is actively engaged in renewable energy development, as it is currently in the process of developing several solar projects.[61] For example, in April 2021, Nation officials signed leases that will result in a 70-megawatt solar project that will provide power to cities in Utah and generate funds for the Tribe.[62] Beyond solar power, the Tribe is looking at other sources of clean and renewable energy development, such as the proposed $3.6 million Navajo Energy Storage Station that would use solar energy to pump water through hydroelectric turbines ("and not permanently divert water from the Colorado River").[63]

In sum, the stage has been set for the possibility of energy and environmental justice to both emerge within Indian country. But, as detailed above, tribes themselves (as opposed to third party investors) are taking up the mantle and engaging in clean energy development. Further, the Biden Administration has indicated its willingness to acknowledge and work toward environmental justice in Indian country, and also work toward energy justice through the promotion of clean energy. The combination of these two developments suggests that justice is possible in Indian country. It remains to be seen, however, whether energy and environmental justice in Indian country will be realized. We look forward to future articles exploring whether actualization occurs.

III. JUST TRANSITIONS AND RURAL REVITALIZATION

Having examined environmental justice and energy justice considerations within Indian country, the discussion now shifts to an examination of related developments within coal-reliant rural communities and rural America more broadly.[64] The past several years have brought attention to rural economic stagnation

58. For a discussion of other types of renewable energy development happening in Indian country, *see* Warner, *supra* note 56.

59. ENERGY INFO. ADMIN., *State Profile and Energy Estimates: South Dakota* (May 20, 2021), https://www.eia.gov/state/analysis.php?sid=SD.

60. CLIMATE REALITY PROJECT, *3 Native American Tribes Leading the Way on Clean Energy* (Aug. 8, 2019), https://www.climaterealityproject.org/blog/3-native-american-tribes-leading-way-clean-energy; *See generally* Warner, *supra* note 58.

61 SANDIA NAT'L LABS., NAVAJO RESIDENTIAL SOLAR ENERGY ACCESS AS A GLOB. MODEL 5, 8 (Sandra A. Begay et al. eds., 2018).

62. Zak Podmore, *Navajo Nation solar project will cement San Juan County's position as exporter of renewable energy*, THE SALT LAKE TRIBUNE (Apr. 19, 2021), https://www.sltrib.com/news/environment/2021/04/19/navajo-nation-solar/.

63. *Id.* If the Navajo Energy Storage Station is completed, it will produce more power than all the solar and wind energy projects currently in Utah.

64. *See generally* Adele Morris et. al., THE RISK OF FISCAL COLLAPSE IN COAL-RELIANT COMMUNITIES (Columbia Center on Global Energy Policy 2019), https://www.energypolicy.columbia.edu/sites/default/files/fil

and associated social problems.[65] While scholars of law and rurality, rural sociology, and related fields have long put forth ideas for better treatment of rural communities in law and policy,[66] other fields and media commentary have often taken a more pessimistic stance on the prospect of addressing rural marginalization and the so-called urban/rural divide.[67]

Similarly, commentary on the subset of rural communities that depend economically on fossil fuels has often not been particularly hopeful either. This issue overlaps with the one described above. For a time, the face of rural America was a coal miner, chanting at a political rally in resistance to any effort to end the dominance of the coal sector[68]—despite ample evidence that the future of energy does not revolve around coal, if coal is to be included in our energy mix at all.[69] This politicization of economic dependency on fossil fuels has created yet another wrinkle of complexity for the prospect of addressing this form of rural economic hardship.[70]

Today, the landscape of narratives and policies for both of these overlapping topics seems to have shifted. Until recently, advocating for rural revitalization initiatives or related efforts to help ease fossil fuel communities' burdens seemed like uphill battles to win mainstream hearts and minds.[71] As of this writ-

---

e-uploads/RiskofFiscalCollapseinCoalReliantCommunities-CGEP_Report_080619.pdf (discussing various forms of labor involved in coal industry).

65. *Cf.* Eduardo Porter, *The Hard Truths of Trying to 'Save' the Rural Economy*, N.Y. TIMES (Dec. 14, 2018), https://www.nytimes.com/interactive/2018/12/14/opinion/rural-america-trump-decline.html; Thomas Kaplan, *This Is Trump Country*, N.Y. TIMES (March 4, 2016), https://www.nytimes.com/interactive/2016/03/04/us/politics/donald-trump-voters.html.

66. *See generally* Lisa R. Pruitt et al., *Law Stretched Thin: Access to Justice in Rural America*, 59 S.D. L. REV. 466 (2014); Lisa R. Pruitt, *Spatial Inequality As Constitutional Infirmity: Equal Protection, Child Poverty and Place*, 71 MONT. L. REV. 1 (2010); Thomas W. Mitchell, *Destabilizing the Normalization of Rural Black Land Loss: A Critical Role for Legal Empiricism*, 2005 WIS. L. REV. 557 (2005); Katherine Porter, *Going Broke the Hard Way: The Economics of Rural Failure*, 2005 WIS. L. REV. 969 (2005); Geoffrey D. Strommer & Stephen D. Osborne, *"Indian Country" and the Nature and Scope of Tribal Self-Government in Alaska*, 22 ALASKA L. REV. 1, 1 (2005); Craig Anthony (Tony) Arnold, *Ignoring the Rural Underclass: The Biases of Federal Housing Policy*, 2 STAN. L. & POL'Y REV. 191 (1990).

67. *See, e.g.*, David Swenson, *Most of America's rural areas are doomed to decline*, THE CONVERSATION (May 7, 2019), https://theconversation.com/most-of-americas-rural-areas-are-doomed-to-decline-115343.

68. Marc Fisher, *In West Virginia coal country, voters are 'thrilled' about Donald Trump*, THE WASH. POST (Dec. 6, 2016), https://www.washingtonpost.com/politics/in-west-virginia-coal-country-voters-are-thrilled-about-donald-trump/2016/12/06/8eb0b0ca-b8c2-11e6-b994-f45a208f7a73_story.html.

69. Claire Jarrell, Comment, *Mine Reclamation's Reliance on King Coal: Meeting Legacy Environmental Obligations with A Declining Industry*, 90 U. COLO. L. REV. 901, 927-28 (2019) (discussing the decline of the coal sector).

70. Although weaning off of economic dependency on fossil fuels is a massive undertaking that will affect diverse demographics and sectors of the economy, it is true that white men are overrepresented in energy sector employment in general. Shelley Welton & Joel Eisen, *Clean Energy Justice: Charting an Emerging Agenda*, 43 HARV. ENVTL. L. REV. 307, 336-37 (2019). Rural communities are also disproportionately white, although regions have wide variations in their demographic makeup. *Rural America at a Glance*, USDA (2018), https://www.ers.usda.gov/webdocs/publications/90556/eib-200.pdf ("Whites make up nearly 80 percent of rural population" nationally).

71. *Cf.* Nathan Arnosti and Amy Liu, *Why rural America needs cities*, BROOKINGS (Nov. 30, 2018), https://www.brookings.edu/research/why-rural-america-needs-cities/.

ing, these two needs appear to have been embraced by mainstream public commentary and scholarship, in part due to more nuanced discussion and understanding of the issues.[72] These shifts in public sentiment are driving evolutions in law and policy, and, on the other side of the coin, changes in law and policy are helping shape the collective sense of what is possible.

This Essay now turns to the relationship between fossil fuel production and rural socioeconomic marginalization. Specifically, this section provides an overview of recent developments in federal assistance for and interventions into rural communities more broadly, alongside evolving changes in state approaches to just transitions for communities seeking to end their economic dependence on fossil fuels and pursue a more sustainable future. The discussion highlights a gap between the former (federal rural revitalization efforts) and the latter (state initiatives to wean off fossil fuels), as just transitions advocates continue to call for strengthened federal leadership on the massive task of restructuring an economy that has for so long been reliant on fossil fuels.[73]

A. Federal Rural Revitalization Initiatives

On the rural revitalization front, the American Rescue Plan Act of 2021 (ARPA) has reflected the most ambitious federal effort to help rural communities in decades. Former Montana Governor Steve Bullock argues that ARPA is, in fact, "one of the biggest investments in rural America in our history."[74] A 1.9 trillion dollar rescue plan, President Biden signed ARPA into law on March 11, 2021, one day after Congress passed it.[75]

Rural revitalization was not an inevitable part of ARPA. The main drivers for ARPA were the COVID-19 pandemic, the related economic fallout, including massive unemployment and widespread worries about evictions, and the drive to vaccinate as many people as possible.[76] ARPA expanded the protections and aid included in a series of legislative initiatives passed at the beginning of the pandemic.[77] ARPA's highlights included provisions to give roughly 85% of

---

72. *See, e.g.*, Hannah Love and Tracy Hadden Loh, *The 'rural-urban divide' furthers myths about race and poverty—concealing effective policy solutions*, BROOKINGS (Dec. 8, 2020), https://www.brookings.edu/blog/the-avenue/2020/12/08/the-rural-urban-divide-furthers-myths-about-race-and-poverty-concealing-effective-policy-solutions/; Jeff Turrentine, *We Need a Just Transition—Because We Should Abandon Coal, Not Coal Workers*, NRDC (Oct. 18, 2019), https://www.nrdc.org/onearth/we-need-just-transition-because-we-should-abandon-coal-not-coal-workers.

73. Liz Crampton, *America's rural crisis triggers calls for Biden to name rural czar*, POLITICO (Jan. 25, 2021), https://www.politico.com/news/2021/01/25/america-rural-economy-health-biden-czar-461326.

74. Steve Bullock, *Commentary: Biden's American Rescue Plan Keeps Promise to Rural America*, THE DAILY YONDER (March 23, 2021), https://dailyyonder.com/commentary-bidens-american-rescue-plan-keeps-promise-to-rural-america/2021/03/23/.

75. *President Biden Signs the American Rescue Plan, Boosts Funds to Secure and Modernize Technology*, U.S. GEN. SERV. ADMIN. (March 11, 2021), https://www.gsa.gov/about-us/newsroom/news-releases/president-biden-signs-the-american-rescue-plan-boosts-funds-to-secure-and-modernize-technology-03112021.

76. *Id.*

77. *Congress Passes ARPA with Many COVID-19 Payroll-Related Provisions*, THOMPSON REUTERS (March 10, 2021), https://tax.thomsonreuters.com/blog/congress-passes-arpa-with-many-covid-19-payroll-

U.S. households a direct payment of $1,400 per person, extending unemployment insurance benefits and eligibility, expanding food aid eligibility, providing expanded assistance for child care, and providing emergency assistance to cover unpaid rent.[78]

ARPA also took broad strides to pursue the sort of revitalization that rural scholars and advocates have long insisted were necessary to address rural socioeconomic challenges. Specifically, ARPA took steps to address longstanding problems in rural healthcare, food access, agricultural production issues, and access to high-speed internet. Notable appropriations include $8.5 billion directed to rural healthcare providers, "$10 billion to expand rural broadband," "$3.6 billion to the U.S. Department of Agriculture" (USDA) to enhance local food access, "$300 million to the USDA for animal monitoring and testing," "$5 billion to support farmers of color," and "$750 million to support Indian Housing and Indian Community Development Block Grant programs."[79] ARPA stands to provide a "potential historic economic boost . . . for small towns and rural communities," in part because, as rural advocate Matthew Hildreth suggests, the policy embraces "trusting local governments and local people to solve local problems" while appreciating "the richness and diversity of small towns and rural communities."[80]

While ARPA's financial commitments signal the political will to act, challenges remain. Many rural appropriations dollars end up in the hands of large-scale agricultural producers that offer little benefit to local communities.[81] The communities that need the resources the most often have the least capacity to prepare complex materials to access and leverage funding opportunities.[82] Whether ARPA can live up to its potential for rural communities remains to be seen.[83] Hildreth insists that rural communities must receive technical assistance to apply for federal programs and must have a seat at the table in decision-making processes to inform successful and equitable implementation.[84]

B. State Approaches to Renewable Energy Transitions and Coal Reliance

Transitions away from fossil fuels raise a set of concerns that reflect the broader challenges facing rural America, with a particularly acute set of conditions. Fossil fuels comprise 60.3% of today's energy mix for electricity genera-

---

related-provisions/. Prior pandemic relief provisions were found in the Families First Coronavirus Relief Act, the Coronavirus Aid, Relief and Economic Security Act, and the Consolidated Appropriations Act, 2021.

78. *American Rescue Plan Fact Sheet*, WHITEHOUSE.GOV, https://www.whitehouse.gov/wp-content/uploads/2021/03/American-Rescue-Plan-Fact-Sheet.pdf.

79. Bullock, *supra* note 74; Matt Hildreth, *Comment: Covid aid promised to rural areas; now get it there*, THE HERALD (May 30, 2021), https://www.heraldnet.com/opinion/comment-covid-aid-promised-to-rural-areas-now-get-it-there/.

80. Hildreth, *supra* note 79.

81. *Id.*

82. Hildreth, *supra* note 79.

83. *Cf.* Gillian E. Metzger, *Taking Appropriations Seriously*, 121 COLUM. L. REV. 1075, 1086 (2021) (noting importance of appropriations for advancing policy agendas).

84. Hildreth, *supra* note 79.

tion.[85] Coal alone accounts for 19.3% of that supply as of 2020, while it accounts for a disproportionately high 60% of carbon dioxide emissions, making it one of the worst fuel sources for exacerbating climate change.[86] As of 2000, coal accounted for 51.4% of electricity generation.[87] These trends illustrate that coal has already been declining, and with pushes to decarbonize the economy, the sector stands to contract more. Thus, many coal-reliant livelihoods have already been lost, and many more are likely to be lost.

Losing coal jobs is particularly challenging for rural regions that lack diversified economies. As of 2019, 53,000 workers were employed in the coal power sector, and 26 U.S. counties were formally classified as "coal-mining dependent."[88] With the past decline of jobs in coal mining and coal-fired power plants, regions have already seen the ripple effects of population loss, infrastructure decline, and a shrinking tax base that makes local and state governments less equipped to stop or reverse the downward socioeconomic cycle.[89] With decarbonization policies likely to strengthen in the coming years, the risk of further decline—what some have even called "fiscal collapse"—seems high without aggressive action to mitigate the risks.[90] Although Congress has taken some initiative to help fossil fuel-reliant communities, most activity on this front today is at the state level.[91]

State efforts to transition away from coal are proliferating around the country. Yet, the most promising just transition policies emerging are doing more than seeking to create new employment opportunities for displaced fossil fuel workers. One potential inequity of such an approach is that high-quality jobs in the fossil fuel sector are disproportionately occupied by white men.[92] Indeed, the energy sector altogether, including jobs in renewable energy fields, underrepresents women and people of color.[93] Meanwhile, while low-income communities of color have received fewer benefits from the fossil fuel economy, they have borne many of the costs.[94]

New Mexico and Colorado have been at the forefront of tackling the task of restructuring their economies to transition away from fossil fuels. Both states

85. *What Is U.S. Electricity Generation by Energy Source*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/tools/faqs/faq.php?id=427&t=3 (last updated Mar. 5, 2021).

86. *Id.*; David Cherney, *Coal's Unstoppable Decline Means Carbon Emissions Will Keep Dropping for Years to Come*, FORBES (Jan. 13, 2021), https://www.forbes.com/sites/davidcherney/2021/01/13/coal-producers-affirm-us-carbon-emissions-from-electricity-will-keep-declining/?sh=64d1611a2ba1.

87. FRED FREME, U.S. ENERGY INFO. ADMIN., U.S. COAL SUPPLY AND DEMAND: 2000 REVIEW (2001), https://www.eia.gov/coal/review/pdf/feature00.pdf.

88. Morris, Kaufman & Doshi, *supra* note 64, at 6.

89. *Id.* at 6-7.

90. *Id.*

91. Ann M. Eisenberg, *Transitions in Energy Communities*, 12 GEO. WASH. J. ENERGY & ENVTL. L. 103, 106-07 (Summer 2021) (describing the Obama administration's POWER and POWER Plus Plans and prior, mostly failed federal efforts to assist declining coal communities).

92. *Id.* at 105-06.

93. *Id.*

94. Jeanne Marie Zokovitch Paben, *Green Power & Environmental Justice–Does Green Discriminate?*, 46 TEX. TECH. L. REV. 1067, 1071 (Summer 2014).

have pursued this aim with a view not just to finding new jobs for displaced workers, but also to restructuring their economies alongside efforts to pursue environmental justice. Their approaches will likely serve as models for others that are just beginning their just transition efforts.

Colorado House Bill 19-1314 created Colorado's Office of Just Transition along with the state's Just Transition Advisory Committee, which was tasked with developing a just transition plan by the end of 2020.[95] The 20-page document describes the process of creating the plan, which included "a year of extensive study and deliberation by the Colorado Just Transition Advisory Committee . . . [a]nd [which] reflects input from a wide range of stakeholders, issue experts, state agencies, and members of the public."[96] The plan's overarching goals are to "help each community end up with more family-sustaining jobs, a broader property tax base, and measurably more economic diversity than when this process began in 2019."[97]

The Colorado Plan recognizes that the task of dealing with the fallout of coal is ultimately a question of rural revitalization. It notes that

> [t]he transition away from coal to generate electricity . . . is a predictable result of a fundamental shift in the energy economy. We can see it coming long in advance. . . . Transitions like this have happened in rural Colorado throughout our state's history, and it is due in part to inadequate (or nonexistent) government response that they too often have perpetuated boom-bust cycles that have devastated families and communities."[98]

Strategically, the Colorado Plan focuses on "early and relatively low-cost actions we can take now to prepare," in light of many anticipated costs being both substantial and unclear in a process it expects to take "a decade or longer."[99] Substantively, the Colorado Plan focuses on efforts to facilitate communities' economic diversification, attraction of quality jobs, and promotion of broader property tax bases, pursuing diverse funding strategies and keeping the plan up to date as conditions evolve.[100] Colorado legislators have also pursued energy justice for ratepayers at risk of being saddled with the costs of retiring coal-fired power plants by securitizing debts associated with the plants.[101]

---

95. Eisenberg, *supra* note 91, at 107. *See also*, *Colorado, United States: State-Level Planning for a Just Transition from Coal*, WORLD RES. INST. https://www.wri.org/just-transitions/colorado (last visited Oct. 5, 2021).

96. COLO. DEP'T OF LABOR AND EMP'T, COLO. JUST TRANSITION ACTION PLAN 1 (2020) [hereinafter Just Transition Action Plan].

97. *Id.* (emphasis omitted).

98. *Id.* at 2.

99. *Id.* at 3. The Plan states, "This is not a dodge. It is an honest and responsible reflection of the times we are in." *Id.*

100. Just Transition Action Plan, *supra* note 96, at 4, 5 ,17.

101. 2019 Colo. Sess. Laws 3290 (SB19-236). This type of securitization has been employed by other states to mitigate the impact of other costs, including ameliorating wildfires and failed nuclear plants. *See e.g.*, *Financing Order Authorizing the Issuance of Recovery Bonds Pursuant to Assembly Bill 1054*, California Pub. Util. Comm'n, Application 20-07-008 (Nov. 5, 2020); Order No. PSC-2019-0012-CFO-EI, *Order Granting Duke Energy Florida, LLC's Second Request for Extension of Confidential Classification*, Fla. Pub. Serv. Comm'n, No. 20150148-EI (Jan. 2, 2019).

New Mexico's Energy Transition Act of 2019 (Senate Bill 489) shares some overlapping themes with the Colorado initiative. Although it has received ample attention for committing New Mexico to a 50-percent renewable energy standard by 2030, the Act also includes substantial workforce training and economic transition assistance for impacted communities.[102] The Act creates a workforce solutions department to direct assistance to displaced workers, creates an economic development department to assist with diversifying affected communities' economies, and establishes apprenticeship programs to encourage diversity among participants in new energy sector jobs.[103] Like Colorado's law, the Act provides for enhanced planning processes for communities transitioning away from fossil fuels.

Although these approaches are certainly promising, they raise the question of whether Congress or the Executive branch should be tackling these issues directly rather than leaving it to the states. In fact, Colorado's Plan includes the measure that Colorado will "[e]ncourage the federal government to lead with a national strategy for energy transition workers."[104] Similarly, just transition advocates have called for Congress to create an Office of Economic Transition to handle the overwhelming task of restructuring the economy—including the economies if many coal-reliant communities—as we transition away from fossil fuels.[105]

Ultimately, ARPA on the one hand—reflecting a variety of historic, much-needed interventions to address rural poverty, infrastructure, and economic development—and state just transition efforts on the other hand—reflecting a diversity of approaches to locally and regionally driven economic transformation—raises the question of whether the country needs an ARPA-like intervention specific to coal or other fossil fuels. Such an intervention is in fact what just transitions advocates want from Congress.[106] Such an intervention could also come in the form of the much-discussed, but as-yet-realized, Green New Deal. A consistent call among activists is for a unified, centralized, well-supported national approach—maybe legislation resembling ARPA, but specific to coal—to help coal-reliant regions transform their economies. Whether Congress will heed their call remains to be seen.

IV. CONCLUSION

As the two case studies examined above demonstrate, Indian country and coal-reliant rural communities have long experienced energy injustice and environmental injustice. Yet, both case studies also demonstrate that justice in both

---

102. Press Release, Office of the Governor Michelle Lujan Grisham, Governor Signs Landmark Energy Legislation, Establishing New Mexico as a National Leader in Renewable Transition Efforts (Mar. 22, 2019), https://www.governor.state.nm.us/2019/03/22/governor-signs-landmark-energy-legislation-establishing-new-mexico-as-a-national-leader-in-renewable-transition-efforts.

103. S.B. 489, 54th Leg., 1st Sess. (NM. 2019).

104. Just Transition Action Plan, *supra* note 96, at2.

105. *See e.g.*, Eisenberg, *supra* note 91, at 108 (discussing, for example, call from philanthropic Just Transition Fund to establish federal Office of Economic Transition).

106. *Id.*

communities is possible. Although environmental justice in these communities looks different, as environmental justice in Indian country must include considerations of tribal sovereignty, opportunities exist to achieve environmental justice in both types of communities.

The Biden Administration's general focus on environmental justice and its intersection with clean energy development has the potential to benefit both of these communities. Further, developments specific to both communities suggest that justice is possible. In Indian country, tribes are increasingly becoming much more involved and even owning clean energy development projects. This development is consistent with environmental justice as explored above and also promotes the development of clean and renewable energy, which is consistent with energy justice. Although it is the states taking the lead in rural communities, rather than tribes, the outcome is similar. States, such as Colorado and New Mexico, are developing policy initiatives that will help promote the development of clean energy and shift the economies of coal-dependent counties. These initiatives are consistent with energy justice principles calling for increased development of clean energy, and also environmental justice as these vulnerable communities will be less likely to shoulder the burden of environmental pollution related to coal extraction.

Accordingly, while the vehicles of change differ between Indian country and rural communities dependent on coal production, the result is the same – we are on the precipice of environmental justice and energy justice in both communities. Although these communities' circumstances are unique, the emerging pathways to justice have broad relevance to other environmental justice communities. The most promising steps discussed above involve devolved decision-making, localized control, public infrastructure investments, and explicit considerations of racial and geographic equity in the push toward clean energy. These factors are pieces of the puzzle in moving toward a justice-based energy system rather than a system that repeats or reifies the mistakes of the past. We look forward to future articles in the Journal exploring whether energy and environmental justice progress.

ENERGY STORAGE AND THE FUTURE OF THE ELECTRIC MARKET

By Caroline Trum[*]

Synopsis: In recent years, there has been expanded use of energy storage systems, particularly batteries, within the wholesale electric markets. While energy storage represents only a small percentage of the total number of resources deployed on the electric grid today, the U.S. Department of Energy has identified the use of energy storage as a potential path to help ensure the future reliability and resiliency of the United States power grid. The Federal Energy Regulatory Commission (FERC) has taken important steps through the issuance of a series of orders addressing the participation of energy storage within the wholesale market, culminating with the landmark Order No. 841 *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*,[1] but there may be barriers that are slowing the industry's realization of the full benefits of these resources. This article focuses on the use of energy storage resources by the electric industry and includes an overview of the types of energy storage facility technologies in use as well as an examination of how the FERC jurisdictional regional transmission organizations and independent system operators responded to Order No. 841. The article also discusses the steps that can be taken to promote wider integration of energy storage resources, including policy initiatives that facilitate energy storage development implemented by FERC, the U.S. Department of Energy, the Electric Reliability Council of Texas, and state regulators (particularly in Hawaii and Massachusetts) and industry standardization efforts to support energy storage use within the market.

---

* Caroline Trum is Deputy Director of the North American Energy Standards Board where she has served as an attorney for the organization since 2011. This article is intended for educational purposes and does not represent any views or positions of the North American Energy Standards Board.

1. Final Rulemaking, *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 83 Fed. Reg. 9,580 (2018) (codified at 18 C.F.R. § 35) [hereinafter Order No. 841].

I. INTRODUCTION

The U.S. Department of Energy (DoE) has called for the expanded use of energy storage resources as one method to resolve some of the most critical needs facing our electric grid: reliability and resilience; modernization; and diverse, secure electric generation.[2] The term energy storage covers an array of resource types, from hydroelectric facilities that have historically made up the bulk of energy storage deployed on the electric grid, to batteries which have only become technologically and economically viable for large-scale use in recent years. While there are several types of storage mediums, the focus of this article is energy storage resources that fall within the Federal Energy Regulatory Commission's (FERC) definition of Electric Storage Resource – a resource that can withdraw electricity from the grid and store that electricity until some later point in time before injecting it back onto the grid.[3]

It is this unique feature of delaying the need to consume energy as soon as it is produced that makes energy storage such an appealing resource, especially as an ever-increasing percentage of the electric generation in the United States comes from variable renewable sources like solar and wind. Perhaps the largest hindrance in utilizing solar and wind generation has been that these resources often produce the greatest amount of electricity at times when demand is lowest, necessitating the use of peaking power plants to meet high demand during times when renewable generation cannot be produced.[4] Over the next ten years, there have been estimates that the grid will need an additional twenty gigawatts of peaking capacity to meet growths in demand, especially in states like California and Texas.[5] Energy storage, with its ability to convert excess energy from renewable sources during periods of low demand, represents a viable solution for meeting future increases in peak demand without having to build new peaking power

2. U.S. DEP'T OF ENERGY, SPOTLIGHT: SOLVING CHALLENGES IN ENERGY STORAGE 2 (2018), https://www.energy.gov/sites/prod/files/2018/09/f55/2018-08-23_Spotlight%20on%20Energy%20Storage%20-%20Brochure%20and%20Success%20Stories_0.pdf.

3. Order No. 841, *supra* note 1, at P 29.

4. Will McNamara, *Issue Brief: Energy Storage to Replace Peaker Plants*, SANDIA NAT'L LABORATORIES 3 (Nov. 2020), https://www.sandia.gov/ess-ssl/download/4887/.

5. *Id.* at 1.

plants, which require significant investment costs while typically operating less than 7% of the time in a given calendar year.[6]

Although energy storage facilities are often discussed as a standalone category, a number of smaller energy storage resources, such as batteries, can also be classified as part of a broader grouping known as distributed energy resources.[7] One important feature of energy storage (and all types of distributed energy resources), is that these resource types are considered fast-responding resources.[8] As such, these resource types will likely have an important role to play in securing the future reliability of the electric grid. The growing penetration of wind and solar resources, coupled with the retirement of aging, traditional power plants, means that an increasing percentage of generation will be produced by variable renewable resources.[9] In comparison to the synchronous generation produced by traditional power plants, variable resource generation is considered non-synchronous and cannot be relied upon to provide certain innate functionalities, like inertia (i.e. kinetic energy), that are integral to reliably delivering electricity.[10] While energy storage does not produce inertia as a byproduct of generation, the ability of these resources to quickly infuse electricity onto the grid could fill the same role inertia plays, momentarily maintaining the grid after an unexpected outage until other generation resources respond to produce more electricity.[11]

Energy storage facilities also could be key in helping to mitigate the reliability impacts of extreme weather events. One analysis has shown that weather-related power outages within the United States have increased by 67% since 2000,[12] and the North American Electric Reliability Corporation (NERC) has identified "extreme weather events as a leading contributor to transmission, generation, and load loss."[13] In 2012, Hurricane Sandy caused outages for more than 8,000,000 customers across parts of the Northeast, Mid-Atlantic, and Ohio Valley.[14] More recently, Winter Storm Uri left more than 4,000,000 Texas residents without

---

6. *Id.* at 3.

7. *Solar Integration: Distributed Energy Resources and Microgrids*, OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY, https://www.energy.gov/eere/solar/solar-integration-distributed-energy-resources-and-microgrids (last visited Sept. 10, 2021). Distributed energy resources are small-scale generating units located on a distribution system and include resources like batteries, rooftop solar panels, and microgrids.

8. Will McNamara, *supra* note 4, at 9.

9. Per the U.S. Energy Information Administration, approximately 63% of electricity was produced by traditional generation facilities consuming fossil fuels, 20% from nuclear energy, and 18% from renewable energy sources in 2019. *Frequently Asked Questions (FAQs),* U.S. ENERGY INFORMATION ADMINISTRATION (Mar. 5, 2021), https://www.eia.gov/tools/faqs/faq.php?id=427&t=3.

10. Inertia and the Power Grid: A Guide Without the Spin, Nat'l Renewable Energy Lab 1 (2020), https://www.nrel.gov/docs/fy20osti/76534.pdf.

11. *Id.* at 2.

12. *Power Off: Extreme Weather and Power Outa1ges*, CLIMATE CENTRAL (Sept. 30, 2020), https://medialibrary.climatecentral.org/resources/power-outages.

13. 2019 STATE OF RELIABILITY, NORTH AMERICAN ELECTRIC RELIABILITY CORP. (June 2019), https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/NERC_SOR_2019.pdf.

14. *Electricity restored to many in the Northeast but outages persist,* U.S. ENERGY INFO. AGENCY (Nov. 9, 2012), https://www.eia.gov/todayinenergy/detail.php?id=8730.

power in freezing temperatures, many for several days,[15] and Hurricane Ida knocked out power across eight states, impacting approximately 1,200,000 customers.[16] These outages can cost tens of billions of dollars in yearly economic loss in addition to posing dangerous risks to human life.[17] While energy storage systems alone cannot keep the lights on, the pairing of energy storage resources with renewable generation and their utilization within microgrids could help support critical infrastructure during outages. Puerto Rico is taking this approach following the aftermath of Hurricane Maria, which rendered nearly 80% of the island's transmission and distribution network inoperable.[18] In 2020, the Puerto Rico Energy Bureau ordered the island's utility provider, Puerto Rico Electric Power Authority (PREPA), to improve resiliency and safeguard against the effects of weather event outages through the utilization of microgrids, renewable generation, and energy storage, coupled with transmission system hardening practices.[19] In response, PREPA issued a request for proposal seeking construction of 1,000 megawatts of renewable energy capacity and 500 megawatts of energy storage capacity (of which at least 150 megawatts will be distributed virtual power plants).[20]

Beginning a decade ago, FERC began to carve a pathway for the participation of energy storage resources in the wholesale electric market. Order No. 755 was the first in a series of orders aimed at removing barriers to entry faced by third-party ancillary service providers while also enhancing the ability of owners of fast-responding resources to compete in the ancillary services market.[21] In this Order, FERC ruled that the established compensation methods for certain ancillary services failed to adequately recognize the inherent ability of then emerging fast-responding resources, like energy storage and demand response, to provide these

15. Tim Stelloh et al., *Millions in Texas without power as deadly storm brings snow, freezing weather,* NBC NEWS (Feb. 16, 2021), https://www.nbcnews.com/news/weather/knocked-out-texas-millions-face-record-lows-without-power-new-n1257964.

16. Owen Comstock, *Hurricane Ida caused at least 1.2 million electricity customers to lose power*, U.S. ENERGY INFO. AGENCY (Sept. 15, 2021), https://www.eia.gov/todayinenergy/detail.php?id=49556.

17. Weather-related power outages that occurred between 2003 and 2012 are estimated to have cost between $18 billion and $33 billion in yearly economic damages. ECONOMIC BENEFITS OF INCREASING ELECTRIC GRID RESILIENCE TO WEATHER OUTAGES, EXECUTIVE OFFICE OF THE PRESIDENT (Aug. 2013), https://www.energy.gov/sites/prod/files/2013/08/f2/Grid%20Resiliency%20Report_FINAL.pdf.

18. U.S. Energy Information Agency, *Puerto Rico electricity generation returned to pre-2017 hurricane levels one year later*. (November 25, 2019). Retrieved from: https://www.eia.gov/todayinenergy/detail.php?id=42095#:~:text=Damage%20from%20Hurricane%20Maria%20rendered,million%20MWh%20in%20October%202017.

19. Government of Puerto Rico Public Service Regulatory Board Puerto Rico Energy Bureau, *Final Resolution and Order on the Puerto Rico Electric Power Authority's Integrated Resource Plan*. Case No. CEPR-AP-2018-0001 (August 24, 2020).

20. *See* Puerto Rico Electric Power Authority, *Renewable Energy Generation and Energy Storage Resources*, Request for Proposal No. 112648 (February 22, 2021). Retrieved from: https://aeepr.com/es-pr/Documents/RFP%20Renewable%20Energy%20Generation/PREPA%20RFP%20112648%20-%20Renewable%20Energy%20Generation.pdf

21. Order No. 784, *Third-Party Provision of Ancillary Services; Accounting and Financial Reporting for New Electric Storage Technologies*, 144 FERC ¶ 61,056 at P 14 (2013) (codified at 18 C.F.R. 35) [hereinafter Order No. 784].

services as compared to traditional water, steam, and combustion turbine generators from which the services had been historically procured, resulting in unjust, unreasonable, and unduly discriminatory or preferential rates of compensation and economically inefficient use of resources.[22] To remedy this, FERC required that the compensation for these types of ancillary services, in part, reflect the quantity of the service provided.[23]

Next, followed Order Nos. 784 and 819, which revised FERC's *Avista Corp*. policy regarding the sale of ancillary services by third-party providers.[24] In Order No. 784, FERC expanded the circumstances under which third parties could sell certain services at market-based rates to public utility transmission providers.[25] Prior to this ruling, the Commission's *Avista Corp.* policy required public utility transmission providers to purchase ancillary services from third parties at cost-based rates if the provider was purchasing those services as part of Open Access Transmission Tariff (OATT) obligations to provide services to its customers.[26] Order No. 784 expanded the types of services for which third party providers were eligible to receive market-based rate compensation as opposed to cost-based rate[27] as well as mandated public utility transmission providers consider the speed and accuracy of resources in establishing reserve requirements for certain ancillary services in order to help prevent undue discrimination against customers that procure them from fast-responding resources.[28] Further, in recognition of the increased availability of energy storage resources for use in public utility transmission provider operations, FERC modified its accounting and reporting requirements to provide greater transparency with regards to utilization of these resource types.[29] FERC further built upon this expansion a few years later with the inclusion of additional ancillary services eligible for market-based rate compensation in Order No. 819.[30]

In addition to addressing the participation of energy storage resources in the ancillary services market, FERC also issued orders aimed at providing greater clarity and consistency regarding the interconnection process for energy storage facilities. First, through Order No. 792, FERC addressed the interconnection requirements for generating facilities no larger than 20 megawatts by modifying its *pro*

22. Order No. 755, *Frequency Regulation Compensation in the Organized Wholesale Power Markets*, 137 FERC ¶ 61,064 (2011), 76 Fed. Reg. 67,259 (2011) (codified at 18 C.F.R. § 35) [hereinafter Order No. 755].

23. *Id.* at P 3.

24. Order No. 819, *Third-Party Provision of Primary Frequency Response Service*, 153 FERC ¶ 61,220 at P 2 (2015), 80 Fed. Reg. 73,965 (2015) [hereinafter *Order No. 819*].

25. Order No. 784, *supra* note 21, at P 7.

26. *Id.* at P 12.

27. *Id.* at P 13.

28. *Id.* at P 4. Specifically, the Commission stated that "acknowledging the speed and accuracy of the resources used to provide this [ancillary] service will help to ensure that self-supply requirements of the public utility transmission provider do not unduly discriminate by requiring customers to procure a different amount of regulation reserves than the particular speed and accuracy characteristics of the resources in question justify."

29. *Id.* at P 5.

30. Order No. 819, *supra* note 24, at P 58.

forma Small Generator Interconnection Procedures and *pro forma* Small Generator Interconnection Agreement to incorporate energy storage.[31] This was followed by the issuance of Order No. 845 which made similar changes to the *pro forma* Large Generator Interconnection Procedures and *pro forma* Large Generator Interconnection Agreement by expanding the definition of generating facility within the *pro forma* documents to include energy storage resources.[32] Order No. 845 also clarified that energy storage resources can be a generating facility and/or a transmission asset.[33] Together, these Orders provide clarity to the wholesale interconnection process for energy storage resources, helping to promote their integration into the wholesale market.

Issued in 2018 a few months prior to Order No. 845, FERC's most consequential ruling to date regarding the participation of energy storage has been Order No. 841. Through this Order, FERC mandated the participation of energy storage resources within organized wholesale markets consistent with the treatment of other market participants.[34] However, for the energy industry to capitalize on the benefits of energy storage, there must be wider use of the resource type across the grid. While FERC has created a strong regulatory foundation to support the expansion of energy storage within the wholesale markets, there are additional actions that can be taken by policymakers, regulators, and the electric industry to foster greater utilization of energy storage and breakdown remaining roadblocks that are unintentionally impeding integration.

II. TYPES OF ENERGY STORAGE

To better understand the capabilities of energy storage, a brief primer on the resource may be beneficial. The most common application of energy storage within the electric industry today is hydroelectric storage. Known also as pumped hydro storage, this system involves pumping water into a stored area that can then be released at a later point in time, flowing downhill through turbines to create electricity.[35] Although pumped hydro storage still dominates the market, comprising approximately 90% of all energy storage capacity,[36] recent advances in technology have led to a greater prominence by other storage mediums. In total, there are generally five identified storage medium classifications:

31. Order No. 792, *Small Generator Interconnection Agreements and Procedures*, 145 FERC ¶ 61,159 (2013), 78 Fed. Reg. 73,239 (2013) (codified at 18 C.F.R. § 35) [hereinafter Order No. 792].

32. Order No. 845, *Reform of Generator Interconnection Procedures and Agreements*, 163 FERC ¶ 61,043 (2018), 83 Fed. Reg. 21,342 (2018) (codified at 18 C.F.R. § 37) [hereinafter Order No. 845].

33. *Id.* at P 278.

34. Order No. 841, *supra* note 1.

35. NAT'L TECH. & ENG'G SCIENCES OF SANDIA ENERGY STORAGE GLOSSARY OF TERMS 7, https://www.sandia.gov/ess-ssl/download/4433/.

36. UNIV. OF MICHIGAN CENTER FOR SUSTAINABLE SYSTEMS, U.S. GRID ENERGY STORAGE FACTSHEET 2 (2020), http://css.umich.edu/sites/default/files/US%20Grid%20Energy%20Storage_CSS15-17_e2020.pdf

1. Mechanical storage mediums, which include systems like pumped hydro,[37] compressed air,[38] and flywheels;[39]

2. Electrochemical storage mediums, which include all battery types (e.g. lithium-ion, flow, and lead-acid);[40]

3. Thermal storage mediums, which convert and store energy from phase-change conversion (such as the heating of ice to water);[41]

4. Electrical storage mediums, which include supercapacitors[42] and superconducting magnetic energy storage;[43] and

5. Chemical storage mediums, such as fuel cells.[44]

While most are likely familiar with the commercial application of batteries to power electric vehicles, the electric industry has begun to deploy large-scale batteries as part of grid energy storage systems. In 2010, only seven battery energy storage systems, often referred to as BESS units, were in use on the U.S. power grid, amounting to a total of 59 megawatts of capacity.[45] By the end of 2018, that number climbed to 125 units and 869 megawatts of capacity,[46] with some projected growth estimates indicating that by 2050, between 59 gigawatts and 108 gigawatts of battery storage capacity will be added to the grid.[47]

---

37. NAT'L TECH. & ENG'G SCIENCES OF SANDIA ENERGY STORAGE GLOSSARY OF TERMS 7, https://www.sandia.gov/ess-ssl/download/4433/. Pumped hydro refers to a system that stores energy through the "gravitational potential energy of water" by pumping water from areas of lower elevation to higher elevation.

38. *Id.* at 1. Compressed air refers to a system that forces air through a compressor which is then stored in a cavern or chamber until released through a turbine to create energy.

39. *See* The Environmental Protection Agency, *Electronic Storage*, EPA (2020) https://www.epa.gov/energy/electricity-storage (last visited Sept. 10, 2021). Flywheels refer to a system that utilizes electricity to spin a specific rotor type known as a flywheel. Energy is stored via the kinetic rotational energy of the spinning flywheel and converted back into electricity by using the flywheel to turn a generator.

40. Geoffrey J. May et al., *Lead Batteries for Utility Energy Storage: A Review*, 15 J. OF ENERGY STORAGE 145, 146-47, 152 (2018).

41. Ioan Sarbu et al., *A Comprehensive Review of Thermal Energy Storage*, SUSTAINABILITY (Jan. 14, 2018), https://www.mdpi.com/2071-1050/10/1/191.

42. Pietro Tumino, *An Introduction to Energy Storage Systems*, EE POWER (Sept. 14, 2020), https://ee-power.com/technical-articles/an-introduction-to-energy-storage-systems/. Supercapacitors are an advanced type of capacitor that possess the capability to store energy through an electrostatic charge.

43. EUROPEAN ENERGY RESEARCH ALL., SUPERCONDUCTING MAGNETIC ENERGY STORAGE (2019), https://eera-es.eu/wp- content/uploads/2019/04/EERA_JPES_SP5_Factsheet_final.pdf. Superconducting magnetic energy storage refers to a system that stores power through magnets by passing an electric current through a coil of superconducting material.

44. N. AM. ELEC. RELIABILITY CORP., ENERGY STORAGE: IMPACTS OF ELECTROCHEMICAL UTILITY-SCALE BATTERY ENERGY STORAGE SYSTEMS ON THE BULK POWER SYSTEM 8 (2021), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/Master_ESAT_Report.pdf.

45. U.S. ENERGY INFO. ADMIN., BATTERY STORAGE IN THE UNITED STATES: AN UPDATE ON MARKET Trends 5 (2020), https://www.eia.gov/analysis/studies/electricity/batterystorage/pdf/battery_storage.pdf.

46. *Id.*

47. U.S. ENERGY INFO. ADMIN., EIA'S AEO2021 SHOWS GROWING USE OF BATTERIES ON THE U.S. ELECTRICITY GRID (2021), https://www.eia.gov/todayinenergy/detail.php?id=47276.

III. KEY WHOLESALE MARKET REFORMS UNDER FERC ORDER NO. 841

Within the contiguous United States, the operation of much of the bulk electric system, including managing reliability and ensuring commercial optimization of the electric grid, is overseen by seven entities, referred to as Regional Transmission Organizations (RTOs) or Independent System Operators (ISOs).[48] Six of these organizations fall under FERC jurisdiction: California Independent System Operator Corporation (CAISO), ISO New England, Inc. (ISO-NE), Midcontinent Independent System Operator, Inc. (MISO), New York Independent System Operator, Inc. (NYISO), PJM Interconnection, L.L.C. (PJM), and Southwest Power Pool, Inc. (SPP).[49] The seventh entity is the Electric Reliability Council of Texas (ERCOT), which manages the Texas Interconnection, a portion of the electric grid wholly contained within the borders of the state of Texas.[50] As this portion of the grid is not synchronously interconnected to the Eastern or Western Interconnection, the transmission and consumption of electricity that occurs within ERCOT is considered intrastate commerce under the Federal Power Act and not subject to FERC jurisdiction regarding market design.[51] Oversight of ERCOT is performed by the Texas Legislature and the Public Utility Commission of Texas.[52] The Texas Reliability Entity, referred to as Texas RE, is the designated regional reliability organization for the ERCOT footprint.[53]

FERC requires the RTOs and ISOs under its jurisdiction to maintain a collection of market rules, collectively known as a tariff, that govern, among other

48. ENERGY FREEDOM COLO., THE U.S. ELECTRICITY SYSTEM (last visited Sept. 24 2021), https://energyfreedomco.org/elec-system.php.

49. *Id.*

50. OFFICE OF ELEC., DEP'T OF ENERGY, LEARN MORE ABOUT INTERCONNECTIONS (last visited Sept. 24 2021), https://www.energy.gov/oe/services/electricity-policy-coordination-and-implementation/transmission-planning/recovery-act-0.

51. 16 U.S.C. § 824(b)-(c) (2015). While the Texas Interconnection is not synchronously interconnected to any other grid, ERCOT does maintain asynchronous connections to the Eastern Interconnection and Mexico's power grid through direct current (DC) ties that allow small amounts of electric generation to flow between grids. FERC has stated that these asynchronous connections, authorized by the Commission under sections 210 and 211 of the Federal Power Act (16 U.S.C. § 824(i)-(j)), do not cause ERCOT or any utility within ERCOT to become a public utility under the Federal Power Act. *See City of College Station, TX*, 137 FERC ¶ 61,230 (2011); *Brazos Elec. Power Coop., Inc*., 118 FERC ¶ 61,199 (2007); *Kiowa Power Partners, LLC*, 99 FERC ¶ 61,251 (2002) (Kiowa); *Central Power and Light Co*., 40 FERC ¶ 61,077 (1987); *Central Power and Light Co*., 17 FERC ¶ 61,078 (1981). FERC recently affirmed this determination but indicated that the asynchronous connections between Texas and Mexico could result in interstate power flows if additional interconnection ties between the Mexican grid and border states like Arizona and California are built. This would lead to a co-mingling in Mexico of electricity produced in these states with the electricity produced in Texas, which would then flow back into Arizona and California through the cross-border ties, creating interstate power flows. *AEP Energy Partners, Inc.*, 164 FERC ¶ 61,056 at P 2 (2018).

52. ERCOT is a 501(c)(4) nonprofit corporation governed by a board of directors and overseen by the Public Utility Commission of Texas and the Texas Legislature. ERCOT, ABOUT ERCOT (n.d.), http://www.ercot.com/about.

53. Texas RE, through a FERC approved delegation agreement with NERC, has the authority to "(1) develop regional standards; (2) develop, monitor, assess, and enforce compliance with NERC Reliability Standards; and (3) assess and periodically report on the reliability and adequacy of the bulk power system." Texas Reliability Entity, Inc., *About Us*, TEXASRE (last visited Sept. 24 2021), https://www.texasre.org/pages/aboutus.

items, participation within its wholesale market.[54] Over the years though, FERC has found that certain market participants require special provisions to ensure just, reasonable, and non-discriminatory participation within the wholesale marketplace and, in turn, has required jurisdictional RTOs and ISOs to develop distinct tariff provisions in order to create a separate participation model for these market participants.[55] As previously mentioned, FERC's landmark decision in Order No. 841 was one such instance, laying the groundwork for widespread use of energy storage systems within the wholesale marketplaces operated by RTOs and ISOs. In the Order, FERC determined that energy storage resources, due to their distinctive ability to both take energy from and put energy onto the grid, possess unique physical and operational characteristics that warrant their own wholesale market participation model.[56] Although prior to the issuance of this rulemaking energy storage resources were already participating in the RTO and ISO markets, Order No. 841 introduces a number of key reforms aimed at removing barriers to entry and expanding participation.[57]

A. Defining Electric Storage Resources and the Participation Model

Under Order No. 841, FERC opted to establish a broad definition for energy storage, which it refers to specifically as Electric Storage Resources. As a result, any resource, regardless of the storage medium, can qualify as an Electric Storage Resource as long as the resource possesses the ability to both withdraw and inject electric energy from and to the grid.[58] The location of the resource is immaterial, meaning that the requirements of the Order are applicable to any Electric Storage Resource regardless of location on the grid – in front of or behind the meter as well as on the interstate transmission system.[59]

At a high-level, the Electric Storage Resource Participation Model established by each RTO and ISO must:

> "(1) ensure that a resource using the participation model for Electric Storage Resources is eligible to provide all capacity, energy, and ancillary services that it is technically capable of providing in the RTO/ISO markets;
> (2) ensure that a resource using the participation model for Electric Storage Resources can be dispatched and can set the wholesale market clearing price as both a wholesale seller and a wholesale buyer consistent with existing market rules that govern when a resource can set the wholesale price;
> (3) account for the physical and operational characteristics of Electric Storage Resources through bidding parameters or other means; and
> (4) establish a minimum size requirement for participation in the RTO/ISO markets that does not exceed 100 kilowatts."[60]

Under the participation model, an Electric Storage Resource is considered eligible to provide capacity, energy, and ancillary services within the RTO and

54. Order No. 841, *supra* note 1, at P 1.
55. *Id.*
56. *Id.*
57. *Id.* at P 2.
58. *Id.* at P 29. *See also* 18 C.F.R. § 35.28(b)(9) (2019).
59. Order No. 841, *supra* note 1, at P 29.
60. *Id.* at P 4.

ISO marketplace as long as the resource is technically capable.[61] To be considered technically capable, the Electric Storage Resource must be able to meet all requirements – technical, operational, and performance – necessary to provide the service in question.[62] However, the Order does not require RTOs or ISOs to implement new market functionalities.[63] Within ISO-NE, MISO, NYISO, and PJM, these existing market functionalities include the administration of energy markets,[64] capacity markets,[65] and ancillary services markets.[66] Within CAISO and SPP, these existing market functionalities include administration of energy and ancillary service markets, as neither maintains a capacity market.[67]

In response to Order No. 841, CAISO opted to make modifications to two of its existing participation frameworks – the Non-Generator Resource (NGR) Participation Model and the Pumped-Storage Hydro Units Participation Model – to meet the prescribed requirements for an Electric Storage Resource Participation Model. The CAISO NGR model can be utilized by resources operating as generation or load that are dispatchable but constrained by some limiting factor in the megawatts they can generate, curtail, or consume.[68] While this model accommodates resources identified by FERC as Electric Storage Resources, it can also be used by other energy-constrained resources that may not be energy storage facilities, including microgrids and dispatchable demand response.[69] To qualify to participate under the CAISO NGR Participation Model, an Electric Storage Resource must be able to consume and generate energy and — in cases of demand response — curtail the consumption of energy.[70] The CAISO Pumped Storage Hydro Units Participation Model is specifically for resources that qualify as hydroelectric dams, and qualifying resources must be capable of producing electricity and possess "the ability to pump water between reservoirs at different elevations to store such water for the production of electricity."[71]

Similar to the distinction made by CAISO to establish participation models based on resource type, ISO-NE created a singular participation model, its Electric

---

61. *Id.* at P 76.

62. *Id.* at P 78.

63. Order No. 841-A, *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Order No. 841, 162 FERC ¶ 61,127 (2018), *order on reh'g*, Order No. 841-A, 167 FERC ¶ 61,154 at P 68 (2019) [hereinafter *Order No. 841-A*].

64. *Id.* The energy market refers to the marketplace operated by RTOs and ISOs to buy and sell electricity in real-time to meet current demand by end-use customers.

65. *Id.* The capacity market refers to the marketplace operated by RTOs and ISOs to buy and sell capacity to ensure enough future generation will be available to meet anticipated projected demand.

66. *Id.* The ancillary services market refers to the marketplace operated by RTOs and ISOs to obtain grid services necessary for maintaining reliable operations.

67. *Id.* Although CAISO and SPP do not provide a capacity market, both entities ensure future generation needs will be met by defining resource adequacy (capacity) requirements for all generating facilities participating within its market footprint.

68. *Cal. Indep. System. Operator Compliance Filing Transmittal Letter,* FERC Docket No. ER19-468-000, at 7 (Dec. 3, 2018) [hereinafter *Initial CAISO Compliance Filing*].

69. *Id.*

70. *Id.* at 10.

71. *Id.*

Storage Facility Participation Model, but classifies Electric Storage Resources into one of two categories based on the physical characteristics of storage technology: Continuous Storage Facility or Binary Storage Facility.[72] Continuous Storage Facilities encompass resources that can seamlessly transition between states of charge and discharge, such as batteries.[73] To qualify as a Continuous Storage Facility, the Electric Storage Resource must both consume and supply energy as well as be able to switch between a charging state and discharging state rapidly (i.e., transition between maximum consumption and maximum generation in ten minutes or less) and continuously (i.e., be able to be dispatched to any megawatt level in the resource's range).[74] Resources categorized as Continuous Storage Facilities, unless declared unavailable by the resource owner, must also be able to "operat[e] in an on-line state at all times" and cannot share storage capabilities with another resource.[75] Binary Storage Facilities, by contrast, are resources that "cannot switch nearly instantaneously from charging to discharging nor operate continuously across the boundary between their negative and positive [megawatt] range," such as pumped hydro units.[76] To qualify in this category, the Electric Storage Resource must be able to consume and supply energy as well as be capable of offering as a Rapid Response Pricing Asset within ISO-NE, meaning the resource can come online within thirty minutes of receiving an instruction to do so.[77]

Next, MISO created its Electric Storage Resource Participation Model through the expansion of existing market constructs and the creation of new market mechanisms.[78] To qualify under the participation model, an Electric Storage Resource must have "the capability and intention to withdraw [e]nergy from, and inject it back to, MISO's Transmission System, for purposes of participating in MISO's markets by offering to provide market services or products the [Electric Storage Resource] is technically capable to provide" and either become a market participant within MISO or be represented by an existing MISO market participant.[79] Electric Storage Resources will utilize a commitment status mechanism to identify the resource's availability and which market products or services the resource can provide.[80] To delineate between the injection and withdrawal of energy by Electric Storage Resources and the consumption of energy by load-serving entities, MISO will specifically classify the charging and discharging activities of Electric Storage Resources as electric storage transactions.[81]

---

72. *Indep. Sys. Operator New England Compliance Filing Transmittal Letter*, FERC Docket No. ER19-470-000, at 6 (Dec. 3, 2018) [hereinafter *Initial ISO-NE Compliance Filing*].

73. *Id.*

74. *Id.* at 8.

75. *Id.*

76. *Id.* at 7.

77. Initial ISO-NE-Compliance Filing, *supra* note 72, at 8.

78. *Midcontinent Indep. Sys. Operator, Inc. Compliance Filing Transmittal Letter*, FERC Docket No. ER19-465-000, at 5-6 (Dec. 3, 2018) [hereinafter *Initial MISO Compliance Filing*].

79. *Id.* at 7.

80. *Id.*

81. *Id.* at 5.

Within NYISO, Electric Storage Resources can opt to participate under its Energy Storage Resource Participation Model.[82] To do so, the resource must meet five separate and distinct criteria: (1) qualify as a generator under NYISO's guidelines; (2) be able to receive, store, and inject energy from and onto the grid; (3) have the ability to actually inject energy onto the grid; (4) "receive and inject energy at the same location on the grid" and (5) have the capability "to inject at a rate of at least 0.1 [megawatt] of [e]nergy for a period of at least one hour."[83] To account for the technical feasibility of incorporating the participation of Electric Storage Resources in the NYISO marketplace, these resources will be considered dispatch-only.[84] This requirement is a unique feature within NYISO as compared to the participation models created by the other RTOs and ISOs.

In PJM, Electric Storage Resources may participate under its Energy Storage Resource Participation Model[85] or Pumped Storage Hydroelectric Participation Model.[86] In response to Order No. 841, PJM modified its Energy Storage Resource Participation Model to ensure Electric Storage Resources would be able to fully participate within its marketplace, in part by expanding upon previous requirements that limited the purchase of energy from PJM to only certain market participants.[87] In defining the eligibility of a resource to use the Energy Storage Resource Participation Model, PJM requires that Electric Storage Resources only purchase energy that is stored for later resale to PJM.[88] Qualifying Electric Storage Resources that are eligible to participate under the Pumped Storage Hydroelectric Participation Model will annually select which model the resource will use to participate within PJM.[89]

Finally, prior to the issuance of Order No. 841, SPP required any market participant that possessed at least 0.1 megawatts that could be injected into or directly connected to the transmission system to register as an SPP Electric Storage Resource.[90] Now, these resources can elect to participate under a newly created resource registration type exclusive for use by FERC-qualifying Electric Storage Resources, the SPP Market Storage Resource.[91] The SPP Market Storage Resource Participation Model introduces three new functionalities in compliance with Order No. 841 not previously available within the SPP marketplace for entities qualifying as Electric Storage Resources: (1) the ability to be dispatched to withdraw energy; (2) the inclusion of physical and operational characteristics of

82. *N.Y. Indep. Sys. Operator, Inc. Compliance Filing Transmittal Letter,* FERC Docket No. ER19-476-000, at 6-8 (Dec. 3, 2018) [hereinafter *Initial NYISO Compliance Filing*].

83. *Id.* at 13.

84. *Id.* at 18-19.

85. *PJM Interconnection, L.L.C. Compliance Filing Transmittal Letter*, FERC Docket No. ER19-469-000 (Dec. 3, 2018), at 5-6 [hereinafter *Initial PJM Compliance Filing*].

86. *Id.*

87. *Id.* at 13.

88. *Id.* at 14.

89. *Id.* at 18.

90. *Southwest Power Pool, Inc. Compliance Filing Transmittal Letter*, FERC Docket No. ER19-460-000, at 43 (Dec. 3, 2018) [hereinafter *Initial SPP Compliance Filing*].

91. *Id.* at 7.

the resource in the market dispatch and (3) the clarification that transmission charges are not applicable if withdrawals of energy are the result of market dispatch instructions.[92] As an alternative to the SPP Market Storage Resource model, an Electric Storage Resource may opt to register as any other existing resource type within the SPP marketplace.[93]

With the exception of MISO, which requested and was granted a delay in implementation until June 6, 2022 to effectuate necessary changes to its market software,[94] all Electric Storage Resource Participation Models within the RTOs and ISOs have now been implemented.[95]

B. Accommodations for Unique Electric Storage Resource Characteristics

1. De-Rating Capacity to Meet Minimum Run-Times

One important determination in Order No. 841 that effectuates participation by energy storage is that Electric Storage Resources must be permitted to de-rate capacity in order to meet the minimum run-time requirements established by each RTO and ISO.[96] As part of their tariffs, RTOs and ISOs identify the minimum amount of time that a resource participating within its market must be able to continuously provide energy, referred to as the minimum run-time. FERC recognized that in order to meet the minimum run-times proscribed by the RTOs and ISOs, an Electric Storage Resource may need to lower its output below the resource's maximum capability. For instance, a battery may be technically capable of storing twenty megawatts and releasing that energy at a maximum output of ten megawatts per hour for two hours. This would mean that for an RTO or ISO with a four-hour minimum run-time requirement, the battery may not qualify to participate in that marketplace based on its maximum output duration; however, that same battery, if allowed to de-rate its output to five megawatts per hour, is now capable of meeting the four-hour minimum run-time.

As part of Order No. 841, FERC declined to establish uniform rules regarding minimum run-time requirements,[97] and each RTO and ISO established provisions consistent with its existing requirements. MISO,[98] NYISO,[99] and SPP[100] all provide for de-rating by Electric Storage Resources to meet the four-hour minimum run-times within their marketplace, while ISO-NE requires a two-hour minimum

92. *Id.* at 5.

93. *Id.* at 7.

94. *Midcontinent Indep. Sys. Operator, Inc.,* 169 F.E.R.C. ¶ 61,137 at P 268 (2019).

95. David DesLauriers, Caroline Heilbrun, & Neve Stearns, *Order No. 841 – Planning for Next Steps*, CRA INSIGHTS (Apr. 13, 2020), https://media.crai.com/wp-content/uploads/2020/09/16164527/CRA-Insights-Order-841_-Planning_for_Next_Steps_04_2020.pdf.

96. Order No. 841, *supra* note 1, at P 94. *See also* 18 C.F.R. § 35.28(g)(9)(i)(A) (2019).

97. Order No. 841, *supra* note 1, at 96.

98. Initial MISO Compliance Filing, *supra* note 78, at 7.

99. Initial NYISO Compliance Filing, *supra* note 82, at 44.

100. Initial SPP Compliance Filing, *supra* note 90, at 13.

run time and will automatically de-rate for resources participating under its Electric Storage Facility Participation Model.[101] Within CAISO, resources set their own minimum capacity level based on technical capability and are able to de-rate to meet any service-specific requirements.[102] Additionally, resources participating under CAISO's NGR Participation Model can avoid having to de-rate capacity through the utilization of CAISO's Regulation Energy Management function.[103]

PJM, like the other RTOs and ISOs, established through tariff revisions that resources participating in its Energy Storage Resource Participation Model would be allowed to de-rate capacity to meet PJM's ten hour minimum run-time requirement.[104] Although FERC accepted PJM's proposal as consistent with Order No. 841 requirements, FERC initiated a separate paper hearing proceeding under section 206 of the Federal Power Act to determine if PJM's ten-hour minimum run-time, as applied to Electric Storage Resources is just, reasonable, and not unduly discriminatory.[105] FERC later consolidated this proceeding with a related matter to determine the just and reasonableness of the ten hour minimum run-time requirement as applied to all resource types.[106] In response, PJM proposed use of a new construct in order to determine the maximum amount of capacity non-traditional resources, like Electric Storage Resources, are capable of offering, replacing the current ten-hour capacity requirement.[107]

As described by PJM, its proposed Electric Load Carrying Capability (ELCC) construct is a technology-neutral approach that establishes a maximum level of capacity a resource may offer based on a reliability analysis that determines the amount of load a resource can be expected to serve in stressed system conditions.[108] PJM's ELCC calculation would apply to intermittent resources like solar and wind, limited duration resources such as batteries, and hybrid resources (i.e. resources that combine wind or solar generation with an energy storage component).[109] PJM purports that this methodology is similar to those employed by

101. Initial ISO-NE Compliance Filing, *supra* note 72, at 15.

102. Initial CAISO Compliance Filing, *supra* note 68, at 13.

103. *Id.* at 12-13, n. 64. CAISO maintains a 60-minute continuous energy requirement for regulation service in the day-ahead market. Regulation Energy Management is a function offered by CAISO to non-generator resources that solely provide regulation service to facilitate full participation in the regulation market by limited energy resources. Resources utilizing this function must be able to continuously curtail or generate energy for 15 minutes and can submit a bid for capacity up to four times the maximum megawatt-hour of the resource's capability within the 15-minute time period after the issuance of a dispatch instruction. CAISO offsets energy in the real-time market as needed to accommodate this participation. *See* CAISO Open Access Transmission Tariff § 8.4.1.2 and CAISO "Energy storage and aggregated distributed energy resource education forum" (2015). Available at https://www.caiso.com/Documents/Presentation-EnergyStorageandAggregatedDistributedEnergyResource-EducationalForum.pdf.

104. Initial PJM Compliance Filing, *supra* note 85, at 2.

105. *PJM Interconnection, L.L.C.*, 169 FERC ¶ 61,049, at PP 138 – 142 (2019).

106. *PJM Interconnection, L.L.C.*, 171 FERC ¶ 61,015 (2020).

107. *PJM Interconnection, L.L.C., Effective Load Carrying Capability Construct*, FERC Docket No. ER21-278-000, at 2 (Oct. 30, 2020).

108. *Id.* at 3.

109. *Id.* at 8.

CAISO, MISO, and NYISO.[110] While PJM's initial ELCC proposal was rejected by FERC due to a finding that certain, specific components of the proposal were unjust and unreasonable,[111] FERC subsequently approved a revised version of the PJM ELCC proposal that removed these aspects.[112] PJM's ELCC construct became effective on August 1, 2021.[113]

2. Electric Storage Resources as Wholesale Buyers and Sellers

In Order 841, FERC upheld its prior finding from *Norton Energy Storage* that electricity an Electric Storage Resource buys from the grid, stores, and then later resells into a RTO's or ISO's energy or ancillary services market qualifies as a sale for resale, meaning that Electric Storage Resources are eligible to participate as both wholesale buyers and wholesale sellers.[114] This will allow RTOs and ISOs to utilize Electric Storage Resources in the most efficient economical manner – demand when the market clearing price is lower than the resource's bid and supply when the market clearing price is higher than the resource's bid.[115] In allowing Electric Storage Resources to participate as both buyers and sellers, FERC anticipated that these resources could submit simultaneous bids to buy and offers to sell within the same market interval.[116] To prevent the issuance of conflicting instructions to the Electric Storage Resource, FERC required each RTO and ISO to employ a market design that will ensure the resource is only dispatched as either supply or demand.

To meet this requirement, ISO-NE uses its existing software capabilities which prohibit the consideration of simultaneous supply offers and demands bids for any Electric Storage Resource utilizing its Energy Storage Resource Participation Model.[117] Comparatively, MISO,[118] NYISO,[119] PJM,[120] and SPP[121] all utilize mechanisms that reflect the entire operating range of an Electric Storage Resource on a singular energy curve, allowing the resource to be dispatched at a singular point within its identified limits. PJM's mechanism to prevent conflicting dispatch signals also incorporates designations of operating modes by the Electric Storage Resource. For an Electric Storage Resource in charge mode, PJM will only accept demand bids,[122] and for resources in discharge mode, PJM will only accept supply

110. *Id.* at 3.
111. *PJM Interconnection, L.L.C,* 175 FERC ¶ 61,084 (2021).
112. PJM Interconnection, L.L.C., 176 FERC ¶ 61,056 (2021).
113. *Id* at P 3.
114. Order No. 841, *supra* note 1, at PP 141, 143.
115. *Id.* at PP 141, 143.
116. *Id.* at P 141.
117. Initial ISO-NE Compliance Filing, *supra* note 72, at 17-18.
118. Initial MISO Compliance Filing, *supra* note 78, at 11.
119. Initial NYISO Compliance Filing, *supra* note 82, at 9.
120. Initial PJM Compliance Filing, *supra* note 85, at 61.
121. Initial SPP Compliance Filing, *supra* note 90, at 15-16.
122. Initial PJM Compliance Filing, *supra* note 85, at 50.

offers.[123] Finally, CAISO utilizes a mix of processes to prevent conflicting dispatch. For Electric Storage Resources participating in its NGR Participation Model, CAISO uses a singular energy curve to represent the full charging and discharging range of an Electric Storage Resource participating in its NGR Participation Model.[124] For its Pumped-Storage Hydro Unit Participation Model, CAISO utilizes a market optimization process that dispatches the resource to its most economical use for a given market interval.[125]

3. State of Charge Management

Under Order No. 841, FERC granted the owner of an Electric Storage Resource the ability to manage the state of charge for the resource.[126] The state of charge, often expressed as a percentage, represents the expected amount of energy an Electric Storage Resource will have available at the beginning of a given market interval.[127] By managing its own state of charge, the owner of an Electric Storage Resource can self-schedule, controlling when the resource charges or discharges and the amount of energy stored. This ensures equal treatment of Electric Storage Resources by providing parity with the operational controls other resource owners are afforded in the wholesale marketplace. While recognizing the importance of self-determination for a resource, FERC also permitted RTOs and ISOs the option of developing a mechanism to manage state of charge on behalf of an Electric Storage Resource so long as participation is optional and resource owners are the default state of charge managers.[128]

In response, ISO-NE,[129] MISO,[130] PJM,[131] and SPP[132] all required Electric Storage Resources self-manage state of charge and provided various market mechanisms to accomplish this, such as bidding parameters, state of operation indicators (i.e. charge mode versus discharge mode), and real-time telemetry requirements. While CAISO and NYISO also provide these capabilities, both entities also opted to offer state of charge management services to its Electric Storage Resource participants. CAISO's management services are available to Electric Storage Resources participating in its market optimization process,[133] and NYISO's through a specific bidding parameter that allows the resource owner to elect how the energy levels for its Electric Storage Resource will be managed.[134]

123. *Id.*
124. Initial CAISO Compliance Filing, *supra* note 68, at 15-16.
125. *Id.* at 16.
126. Order No. 841, *supra* note 1, at P 246.
127. *Id.* at PP 208, 246.
128. *Id.* at P 249.
129. Initial ISO-NE Compliance Filing, *supra* note 72, at 26.
130. Initial MISO Compliance Filing, *supra* note 78, at 14-15.
131. Initial PJM Compliance Filing, *supra* note 85, at 32-33.
132. Initial SPP Compliance Filing, *supra* note 90, at 32-33.
133. Initial CAISO Compliance Filing, *supra* note 68, at. 18-19.
134. Initial NYISO Compliance Filing, *supra* note 82, at 24.

4. Charging of an Electric Storage Resource

The ability of an Electric Storage Resource to participate in both the retail and wholesale markets is by its nature complex as there may be times in which the retail activities of the resource are not easily distinguishable from the resource's wholesale activities, especially charging activities. In recognition, FERC required each RTO and ISO to develop metering and accounting practices as part of Order No. 841 to help delineate between a resource's wholesale and retail participation.[135] Specifically, the RTOs and ISOs must, either through direct metering or some alternative method (such as obtaining data from metering requirements imposed by other entities, like the distribution utility), measure all energy flowing into and out of an Electric Storage Resource in order to differentiate between wholesale and retail activities.[136]

As with other resources participating in the wholesale marketplace, Electric Storage Resources, regardless of the participation model being utilized, are eligible to pay the wholesale nodal locational marginal price[137] for any energy the resource purchases for later resale back into the market.[138] FERC encouraged each RTO and ISO, in the development of accounting practices, to coordinate with both distribution utilities and relevant retail regulators within its footprint.[139] These accounting practice must ensure that the Electric Storage Resource is charged the wholesale nodal locational marginal price for wholesale charging activities.[140] However, FERC realized that there may be instances in which retail and wholesale activities cannot be distinguished and established protections to prevent double payment by the Electric Storage Resource for the same energy charging event. In instances where a distribution utility cannot or will not net out the wholesale charging activities of an Electric Storage Resource from the retail bill, and the resource has already paid the retail rate for its charging activity, FERC prohibited RTOs and ISOs from recouping payment from the resource for that charging energy.[141] RTOs and ISOs cannot circumvent this requirement by requiring Electric Storage Resources in these situations to participate under a retail customer participation model.[142]

Although Electric Storage Resources are not required to purchase all energy for future use from the RTO and ISO,[143] when a resource does engage in wholesale charging activities, FERC considers these purchases to be interstate commerce.[144]

---

135. Order No. 841, *supra* note 1, at P 302.

136. *Id.* at P 322.

137. The locational marginal price, or LMP, represents the locational value of electricity at a particular point on the grid based on conditions at that point, including the generators that are being used to produce the electricity and limitations (congestion) on the transmission system; *See* FERC, ENERGY PRIMER – A HANDBOOK FOR ENERGY MARKET BASICS (2020).

138. Order No. 841, *supra* note 1, at P 294. *See also* 18 C.F.R. § 35.28(g)(9)(ii) (2019).

139. Order No. 841, *supra* note 1, at P 319.

140. *Id.* at P 275.

141. *Id.* at P 321.

142. *Id.* at P 41.

143. Order No. 841, *supra* note 1, at P 294.

144. *Id.* at P 295.

As with traditional generation resources, when an Electric Storage Resource is engaged in charging activities, the resource may be subject to transmission charges as it is behaving in a similar manner to other load-serving entities that are assessed transmission charges for energy usage.[145] These charges are to be assessed in a manner consistent with how the RTO's or ISO's existing rate structure assesses transmission charges to other wholesale loads.[146] Transmission charges are not applicable and should not be assessed if the Electric Storage Resource is charging in response to being dispatched by an RTO or ISO to provide a specific service.[147] The specific service being provided by the Electric Storage Resource in response to dispatch is not limited to ancillary services and can include any service defined within the RTO's or ISO's tariff.[148] While FERC declined to define the types of charging activities that could qualify as providing a service, Order No. 841-A clarified that an Electric Storage Resource could provide benefits, under certain system conditions, by engaging in economic charging activities.[149] If the resulting system benefits of a resource's economic dispatch charging activities constitute a service as defined by the RTO's or ISO's tariff, then the resource can be exempt from transmission charges consistent with the RTO's or ISO's existing rate structure.[150] Any new service that involves economic dispatch charging requires a revision to the RTO's or ISO's tariff through a separate filing under section 205 of the Federal Power Act.[151]

Both CAISO and NYISO proposed to exempt Electric Storage Resources from transmission charges based on a classification of energy withdrawn during charging as negative generation.[152] However, FERC determined that only CAISO's proposal was consistent with its existing rate structure.[153] Under market rules in place prior to Order No. 841, CAISO considers all Electric Storage Resources engaging in charging activities during periods of high supply and low demand or price to be providing a critical reliability service by reducing the need for generation curtailment, thus mitigating risk.[154] As such, CAISO classifies this type of charging energy from Electric Storage Resources as negative generation (as opposed to load) which, under its tariff, is settled at the wholesale nodal locational marginal price and not assessed transmission charges.[155] While such exemptions from transmission charges were historically provided only to resources participating under CAISO's NGR Participation Model, CAISO revised its tariff to exempt resources participating under the Pumped-Storage Hydro Unit Participation Model

145. *Id.* at P 297.

146. Order No. 841-A, *supra* note 63, at P 121.

147. Order No. 841, *supra* note 1, at P 298.

148. Order No. 841-A, *supra* note 63, at P 120.

149. *Id.*

150. *Id.* at P 121.

151. *Id.* at P 120.

152. Initial NYISO Compliance Filing, *supra* note 82, at 32.

153. *California Independent System Operator Corporation*, 169 FERC ¶ 61,126, at P 30 (2019) [hereinafter Order on CAISO Compliance Filing].

154. Initial CAISO Compliance Filing, *supra* note 68, at 27.

155. *Id.* at 27-28.

as well.[156] In approving the proposal, FERC found that the exemption from transmission charges for Electric Storage Resources participating under its NGR Participation was consistent with CAISO's existing rate structure, as was the expansion of applicability to Electric Storage Resources participating under its Pumped-Storage Hydro Unit Participation Model.[157]

Comparatively, NYISO proposed that all withdrawals of energy by Electric Storage Resources that are stored for later injection back to the grid be treated as negative generation,—rather than load,—and exempted from certain transmission charges,[158] consistent with its existing rate structure, which provides this type of exemption for a singular pumped hydro-storage facility.[159] Bids submitted by this facility to withdraw energy for later injection to the grid are categorized as negative generation rather than withdrawals to serve load, and are assessed at the wholesale locational based marginal price.[160] Unlike CAISO, which historically applied the transmission charge exemption to all resources participating under its NGR Participation Model, FERC determined that NYISO's historical exemption from transmission charges of a singular resource was a "limited exception" and not representative of the assessment of transmission charges to load under NYISO's existing rate structure.[161] For this reason, FERC determined that NYISO's proposal was not consistent or reasonable under its existing rate structure.[162]

Similarly, ISO-NE also proposed to exempt Electric Storage Resources from transmission charges, in part, based on its existing rate structure.[163] ISO-NE contended that unlike other resources, Electric Storage Resources, including those that self-schedule, are always providing a service when charging for later resale in the wholesale markets because these resource types (1) are subject to central dispatch by ISO-NE and can at any time be instructed to address a reliability concern, (2) are providing economically based real-time balancing of supply and demand, and (3) are obligated at all times under ISO-NE's interconnection procedures to provide the services of voltage control and reactive support.[164] In the alternative, ISO-NE proposed that its existing rate structure exempted all Electric Storage Resources from transmission charges because the manner in which these charges were assessed, by monthly peak usage, was incompatible with the interval-by-interval basis that Electric Storage Resources operate.[165] ISO-NE suggested that it

156. *Id.* at 10, 27.

157. Order on CAISO Compliance Filing, *supra* note 153, at P 138.

158. Initial NYISO Compliance Filing, *supra* note 82, at 21 n.40.

159. Request for Rehearing of New York Independent System Operator, Inc., *New York Independent System Operator, Inc.*, FERC Docket Nos. ER19-467-000, ER19-467-001, and ER19-467-002, at 7-9 (Jan. 21, 2020).

160. *Id.* at 6-7.

161. *New York Independent System Operator, Inc.*, 172 FERC ¶ 61,119 at P 21 (2020).

162. *Id.* at P 20.

163. Transmittal Letter of ISO New England, Inc*., Revisions in Compliance with the Order No. 841 on Compliance* at 4-5, FERC Docket No. ER19-470-000 (Feb. 10, 2020) [hereinafter *Transmittal Letter of ISO New England*].

164. *Id.*

165. *Id.* at 6-7.

would be unreasonable to require a restructuring of the transmission rates in New England, which would also necessitate the creation of a new system to associate market systems and transmission load values.[166] While FERC accepted ISO-NE's proposal that transmission charges do not apply to energy withdrawn by an Electric Storage Resource centrally dispatched, FERC disagreed that all Electric Storage Resources are always providing a service when charging for later resale.[167] Specifically, regarding self-scheduling resources, FERC indicated that only a portion of charging withdrawals by the resources could be dispatched to provide a service like voltage support or reactive control and that it would be more appropriate to only exempt from transmission charges the megawatts associated with providing a service.[168] FERC also declined to accept that ISO-NE's existing rate structure always exempted an Electric Storage Resource from transmission charges, finding that there were alternatives to converting its existing rate structure that had not been demonstrated to be unfeasible.[169]

IV. ACCOMMODATIONS TO PROMOTE WIDER MARKET INTEGRATION OF ENERGY STORAGE RESOURCES

Today's electric market looks different in ways that were not imaginable even just a decade ago, thanks in part to monumental advancements in science and policy changes that together have served to accelerate the pace at which the energy industry is implementing new technologies. This phenomenon is especially evident when surveying the sources of electric generation. As the affordability of renewables has increased and the public becomes more attuned to environmental impacts, the electric industry has seen a spike in solar and wind generation. Accompanying this paradigm shift though are new challenges that must be resolved. Harnessing the full capabilities of energy storage, and more broadly, distributed energy resources, could be part of the solution to safeguard the continued reliability and efficiency of the electric grid.

Since the issuance of FERC Order No. 841, energy storage capacity has continued to grow, with projected levels expected to nearly triple by the end of 2023.[170] Although this expansion is noteworthy, energy storage still only represents a fraction of total capacity,[171] and we have not yet realized all the benefits that can be provided by energy storage resources. FERC's recent rulings, specifically in Order Nos. 841 and 845, have set the stage for expanded use of energy storage within the wholesale markets, but the existing marketplace and system processes may be unintentionally limiting broader adoption and preventing the industry from pursuing the most efficient use of such resources. Overcoming these

166. *Id.*

167. *Id.* at 7.

168. *Independent System Operator New England*, 172 FERC ¶ 61,125 at P 50 (2020).

169. *Id.* at P 51.

170. U.S. Energy Info. Admin., *U.S. Utility-Scale Battery Storage Power Capacity to Grow Substantially by 2023* (July 10, 2019), https://www.eia.gov/todayinenergy/detail.php?id=40072.

171. As of 2020, there was 23.2 gigawatts of energy storage capacity deployed on the grid, representing approximately 2% of the 1,100 gigawatts of total installed generation capacity. UNIV. OF MICH. CTR. FOR SUSTAINABLE SYSTEMS, U.S. GRID ENERGY STORAGE FACTSHEET 1 (Sept. 2020).

barriers will require a mix of industry innovations, regulatory policymaking, and the creation and utilization of best practices to guide the implementation and use of stand-alone energy storage as well as energy storage as a distributed energy resource.

A. Development of a Technology-Neutral Grid Services Framework

While the supply of electricity is what first comes to mind when thinking about meeting energy demand, our bulk power grid is actually dependent on an array of grid services[172] in order to reliably and efficiently deliver electricity. Obtaining these services from distributed energy resources which are technologically able to respond in a swifter manner than other more traditional resources could shorten response times when an issue arises in grid operations, introducing added flexibility and new efficiencies in grid management. Further, the capability of energy storage resources to not only inject and withdraw energy from the grid but also store that energy until a later point in time make these resource types well suited for providing a number of grid services. For instance, grid operators rely on a service known as black start from resources that can self-generate electricity to help restore normal operations following a blackout or other catastrophic failure.[173] Although energy storage cannot self-generate, these resource types, with their ability to store power for periods of time and then, at a later point, inject that power onto the grid as electricity, could be a prime candidate for procurement of black start services.

Per recent guidance issued by NERC,[174] systems planners should be ensuring that energy storage resources, particularly BESS units, can provide essential grid services once deployed on the grid.[175] To better enable the procurement of services from energy storage and other distributed energy resource types, it may be beneficial to develop a widely applicable, technology-neutral framework that describes grid services by the market or reliability function to be fulfilled. While each grid operator would likely still need to define its market specific needs for actual procurement, a common framework focusing on the technical capabilities a resource must possess would create a better understanding of which resource types could

---

172. "Grid services" is a catch-all term that refers to all types of services and functions that must be obtained in order to ensure reliable operations of the electric grid. Historically, these services have been referred to as "ancillary services," which FERC describes as the services needed to maintain electric reliability and support the transmission of electricity and fall within four broad categories: regulation, operating reserves, black start, and reactive power. *See* FERC, ENERGY PRIMER: A HANDBOOK FOR ENERGY MARKET BASICS 56-57 (2020).

173. *Id.* at 57.

174. NERC is a not-for-profit regulatory authority that oversees the reliability of the bulk power system for North America along with six regional reliability entities: Midwest Reliability Organization, Northeast Power Coordinating Council, Reliability First, SERC Reliability Corporation, Texas Reliability Entity, and WECC. Together, these entities comprise the Electric Reliability Organization Enterprise. Within this framework, NERC is responsible for developing and enforcing reliability standards, periodically assessing reliability, and monitoring the bulk power system for North America. *See*, NERC, *About NERC*, https://www.nerc.com/AboutNERC; NERC, *ERO Enterprise: Regional Entities*, https://www.nerc.com/AboutNERC/keyplayers.

175. NORTH AMERICAN. ELEC. RELIABILITY CORP., ENERGY STORAGE: IMPACTS OF ELECTROMECHANICAL UTILITY-SCALE BATTERY ENERGY STORAGE SYSTEMS ON THE BULK POWER SYSTEM 5 (2021).

be used to provide each grid service. This information could be especially practical in promoting the implementation of energy storage, as these resources cannot self-produce generation and are thus reliant on grid service revenue streams.

A helpful starting point may be a 2012 study that resulted from the Hawaii Public Utilities Commission's effort to evaluate how the state's grid could produce a greater amount of generation from renewable energy while still maintaining high reliability. A collaboration between the Hawai'i Natural Energy Institute at the University of Hawai'i and GE Energy Consulting, the study sought to ascertain which types of grid services would be needed to more widely incorporate new resource types, such as energy storage, onto the grid.[176] To assist in this effort, the study identified eight types of services that help to ensure reliable grid management that, at the time, were being procured by grid operators in various locations across the globe: (1) frequency response reserve, (2) regulation, (3) load following, (4) spinning reserve, (5) non-spinning reserve, (6) replacement reserve, (7) black start, and (8) voltage support.[177] For each service type, the study included an accompanying technology-neutral definition.[178] Although the study was specifically focused on the requirements of the bulk power system for the Hawaiian Islands, the grid service definitions are performance-based and describe the functional role of each service, not how the service is attained within the Hawaiian market or by the type of resource that could provide the service.[179] Thus, the descriptions should be adaptable for use within any market and could serve as a basis for developing high-level standardized definitions that would be broadly applicable.

B. Grid Services for a Modern Market

In order to ensure the market is fully capitalizing on energy storage, distributed energy, and other novel resource types deployed on the grid, the industry may need to consider new types of grid services that make use of the full technological capabilities of these resources. New grid services, especially those particularly tailored to the capabilities of fast-responding resources like energy storage, could not only foster greater participation within the market by these resource types but also provide innovative tools to support grid modernization efforts. One area primed for the development of new grid services is frequency response.

Within the wholesale markets, RTOs and ISOs are responsible for ensuring that their systems maintain a frequency of 60 hertz by continually balancing electricity production (generation) and consumption (load).[180] To assist in this, RTOs and ISOs are reliant upon a class of grid services known as frequency response that are used to help maintain frequency through signals that automatically increase generation output from certain resources to accommodate instances of short-term changes in demand.[181] As part of a recent study, Lawrence Berkley

176. GE ENERGY CONSULTING, ANCILLARY SERVICES DEFINITIONS AND CAPABILITY STUDY 1 (2012).

177. *Id.* at 8

178. *Id.* at 3-4.

179. *Id.* at 10.

180. FERC, Energy Primer: A Handbook for Energy Market Basics 55 (2020).

181. *Id.* at 56.

National Laboratory recommended that, in order to enhance reliable operations within each interconnection, frequency response services be provided by as many resource types as technically possible.[182] FERC paved the way for this through Order No. 842 by requiring all new generating facilities, including energy storage, have equipment that allows these facilities to provide primary frequency response as a prerequisite for interconnection.[183]

Traditionally, frequency response services have been categorized as primary, secondary, and tertiary based on response times, with providers of primary frequency response able to react within tens of seconds.[184] However, there is a growing need for a new type of frequency response service, fast frequency response, to counter a projected future decrease in system inertia[185] within interconnections as a result of increased reliance on renewable generation resources.[186] While there is no standardized timeframe for the concept of fast frequency response within the United States, the service is categorized by the near instantaneous ability to inject or absorb power from the electric grid in response to signals indicating frequency deviations.[187] Given these characteristics, energy storage resources, especially BESS units, are aptly suited to provide this type of grid service.

Several entities have already taken steps to expand their grid services to include fast frequency response and could serve as models for others in the electric industry. In 2018, the Hawaiian Public Utility Commission approved a request by Hawaiian Electric Companies[188] to modify its Demand Response Portfolio Tariff to, in part, establish a technology-neutral framework by which resources can provide four grid services: fast frequency response, regulating response, regulating reserve, and capacity.[189] The following year, Hawaiian Electric Companies issued

182. JOSEPH H. ETO ET AL., FREQUENCY CONTROL REQUIREMENTS FOR RELIABLE INTERCONNECTION FREQUENCY RESPONSE 82 (2018).

183. Order No. 842, *Essential Reliability Services and the Evolving Bulk-Power System–Primary Frequency Response*, 162 FERC ¶ 61,128 (2018).

184. Joseph H. Eto et al., *supra* note 182, at 88-89.

185. System inertia refers to the kinetic energy stored within conventional generators (such as fossil fuel fired power plants) that operate using rotating machinery. In instances of sudden generation loss, the kinetic energy stored within any conventional generator causes the rotating machinery of any generator still online to autonomously and instantaneously increase, helping to momentarily maintain grid frequency and serve as a stopgap until primary frequency response services respond. *See* PAUL DENHOLM ET AL., INERTIA AND THE POWER GRID: A GUIDE WITHOUT THE SPIN (May 2020).

186. NORTH AMERICAN. ELEC. RELIABILITY CORP., FAST FREQUENCY RESPONSE CONCEPTS AND BULK POWER SYSTEM RELIABILITY NEEDS, at iv (Mar. 2020).

187. *Id.* at 7, 17.

188. Hawaiian Electric Companies is the name by which Hawaiian Electric Company (HECO) and its subsidiaries Maui Electric Company (MECO) and Hawaii Electric Light Company (HELCO) are collectively known. Together, Hawaiian Electric Companies provide power for about 95% of the population of Hawaii. *See*, Hawaii State Energy Office, *Utility Resources*, https://energy.hawaii.gov/developer-investor/utility-resources (last visited Sept. 17, 2021).

189. *Hawaiian Elec. Co.*, Pub. Util. Comm'n of Haw., Decision and Order No. 35238 at 20, Docket No. 2015-0412 (Jan. 25, 2018).

a request for proposal specifically seeking fast frequency response[190] and capacity[191] grid services from distributed energy resources, including energy storage.[192] In May of 2020, Hawaiian Electric announced the selection of winning bids that are expected to add almost three gigawatt hours of electric storage across the islands of Oahu, Maui, and Hawaii, including thirteen solar-plus storage projects.[193]

While not subject to FERC jurisdiction, ERCOT recently developed a new category of frequency response service. In the early 2010s, ERCOT began exploring how its ancillary services market could be redesigned to shift from services that were tailored to the characteristics of large steam generators in order to be more accommodating of emerging technologies, including generation by renewable resources and battery storage.[194] These efforts resulted in ERCOT introducing a new ancillary service identified as fast frequency response and, with it, the creation of technology-neutral service procurement requirements.[195] The redesign is aimed at removing barriers to entry for newer resource types, like energy storage, improving market efficiencies, and addressing the changing resource mix within the Texas Interconnection.[196] In 2019, ERCOT began the first implementation phase for the fast frequency response service with procurement of the service specifically from resources classified as battery storage.[197] In the short time that ERCOT has been obtaining fast frequency response from battery storage, there already may be immediate impacts on the use of the resource within its footprint. A 100 megawatt battery storage system began construction in 2020 and is expected to begin commercial operations this year.[198] Giving credence to the adage that everything is bigger in Texas, once fully online, this unit will not only be the largest battery storage facility within ERCOT's market but also "one of the largest in the world."[199]

Utilizing energy storage systems to provide grid services could also potentially provide cost savings. In a project funded by the U.S. DoE, Green Mountain

---

190. Hawaiian Electric Companies defined fast frequency response as "a local discrete response at a specified frequency trigger . . . [which] acts to limit the frequency drop resulting from a frequency disturbance, such as the loss of a generator . . . [and] assists in arresting the decline in frequency as a result of a contingency event." *See*, Hawaiian Elec. Companies Request for Proposal No. 103-119-02, *Delivery of Grid Services from Customer-sited Distributed Energy*, Exhibit A at 79 (Aug. 22, 2019).

191. *Id.* (identifying generation resources, energy storage, and controlled load as capacity resources).

192. *See*, Hawaiian Elec. Companies Request for Proposal No. 103119-02, *Delivery of Grid Services from Customer-sited Distributed Energy Resources* (Aug. 22, 2019).

193. Press Release, Hawaiian Elec., Hawaiian Electric Selects 16 Projects in Largest Quest for Renewable Energy, Energy Storage for 3 Islands (May 11, 2020), https://www.hawaiianelectric.com/documents/about_us/news/2020/20200511_RFP_selections_announced.pdf.

194. ERCOT, FUTURE ANCILLARY SERVICES IN ERCOT 8-9 (Draft Version 1.1, 2013).

195. ERCOT, TECHNICAL ADVISORY COMMITTEE REPORT NPRR 863: CREATION OF ERCOT CONTINGENCY RESERVE AND REVISIONS TO RESPONSIVE RESERVE 3-4 (Jan. 30, 2019).

196. *Id.*

197. ERCOT, TECHNICAL ADVISORY COMMITTEE REPORT NPRR 960: PHASED APPROACH AND CLARIFICATIONS FOR NPRR863 1-3 (Sept. 25, 2019).

198. Andy Colthorpe, *'Largest Standalone Battery Storage Project' in Texas' ERCOT Market Begins Construction*, ENERGY STORAGE NEWS (Aug. 25, 2020), https://www.energy-storage.news/largest-standalone-battery-project-in-texas-ercot-market-begins-construction/ (last visited Sept. 17, 2021).

199. *Id.*

Power operated a microgrid powered by 2.5 megawatts of solar generation with an integrated 4 megawatt battery storage system in central Vermont.[200] When the microgrid was operating in connection with the electric grid (i.e. not islanded), Green Mountain Power was able to generate renewable energy from the solar panels and store that power in the battery system for use during peak demand.[201] The output from the microgrid saved Green Mountain Power approximately $200,000 in annual capacity charges as well as cut "monthly transmission peaks, general peak shaving, and frequency regulation."[202] In total, Green Mount Power estimated that its energy storage network reduced customer costs by approximately $3,000,000 between January and September 2020.[203] Building on this project, Green Mountain Power is now operating a pilot program that aggregates residential batteries in order to provide frequency regulation service within ISO-NE.[204]

Although Order No. 841 focused on the participation of electric storage as a generation resource, energy storage is also capable of operating as a transmission asset. Developing market rules to treat energy storage as a transmission facility while simultaneously acting as a generation resource can provide a financial incentive that would likely serve to encourage greater participation. Under established FERC rules, the rate at which a resource earns revenue differs depending upon the type of service the resource is providing. Resources providing capacity and ancillary services can recover costs at the market-based rate established in the tariffs of RTOs and ISOs while those that provide transmission services are eligible to recover at a cost-based rate, which includes compensation for the services provided by the resource as well as the recoupment of capital investments.[205] However, energy storage resources operating as transmission assets would not just be a financial boon to resource owners. The ability of energy storage to rapidly absorb electricity from the grid means that these resources could provide relief in areas of high congestion without having to build new transmission lines.[206] Additionally, the strategic deployment of energy storage along the grid can serve to extend the life of aging transmission infrastructure, reducing the need for RTOs and ISOs to take on often costly upgrades to transmission lines and transformers.[207] The market has already started to capitalize on this possibility with the installation of a battery storage system by National Grid on Nantucket Island to

200. SUSAN SCHOENUNG ET AL., GREEN MOUNTAIN POWER (GMP): SIGNIFICANT REVENUES FROM ENERGY STORAGE 8-9 (May 2017).

201. *Id.* at 9.

202. *Id.* at 7.

203. Press Release, Green Mountain Power, GMP's Energy Storage Programs Deliver $3 Million In Savings for All Customers During 2020 Energy Peaks (Sept. 29, 2020), https://greenmountainpower.com/gmps-energy-storage-programs-deliver-3-million-in-savings/.

204. Press Release, Green Mountain Power, GMP's Pioneering Network of Powerwall Batteries Delivers First-in-New-England Benefit for Customers & Grid, Cutting Carbon and Costs (May 13, 2021), https://greenmountainpower.com/network-of-powerwall-batteries-delivers-first-in-new-england-benefit-for-customers/.

205. FERC, ENERGY PRIMER: A HANDBOOK FOR ENERGY MARKET BASICS 59-61 (2020).

206. *See e.g.*, Sharon Thomas, *Storage as a Transmission Asset is Gaining Traction in Many RTOs/ISOs*, ENERGY STORAGE ASSOCIATION (Dec. 15, 2020), https://energystorage.org/storage-as-a-transmission-alternative-is-gaining-traction-in-many-rtos-isos/.

207. U.S. DEP'T OF ENERGY, GRID ENERGY STORAGE 8 (Dec. 2013).

help meet demand during the summer months when the island's electricity usage dramatically increases, ensuring continued reliability and deferring the need to build out additional infrastructure between Nantucket Island and the mainland grid.[208]

In 2017, FERC provided guidance through the issuance of a policy statement to clarify that energy storage resources are simultaneously eligible to recover fees for providing market-based services (such as capacity and ancillary services) as well as transmission and other grid support services that are compensated at a cost-based rate.[209] There are obstacles that must be overcome in the development of market rules to implement such participation,[210] but several RTOs and ISOs are in the process of examining the participation of energy storage as a transmission asset. In August 2020, FERC accepted, subject to additional revisions, MISO's proposal to modify its tariff to allow energy storage resources to provide services to resolve identified transmission issues.[211] Although MISO's revised tariff focuses on the singular participation of an energy storage resource as a transmission asset, it is engaging with its stakeholders to develop processes for how to allow storage resources to simultaneously provide transmission and market services.[212] The August 2020 Order marked the first ruling from FERC on energy storage as transmission assets but this could be a growing industry trend as RTOs and ISOs strive to meet FERC's policy goal of maximizing efficiencies in the implementation of energy storage resources within the wholesale markets.[213]

C. Hybrid Resource Participation

One emerging, but important hurdle to be addressed is the integration of hybrid resources within the wholesale markets – particularly hybrid resources that utilize energy storage facilities. Over the past several years, there has been a rising interest in the use of hybrid resources that incorporate energy storage. This is likely attributable to the rise of renewable generation and the decreased cost of batteries which has made the added value of coupling batteries with renewable generation more lucrative.[214] Additionally, co-locating batteries with generation

208. *See*, Press Release, National Grid, Two National Grid Projects Selected as Energy Storage North America 2019 Innovation Award Winner, (Nov. 7, 2019), https://www.nationalgridus.com/News/2019/11/Two-National-Grid-Projects-Selected-as-Energy-Storage-North-America-2019-Innovation-Award-Winner-/.

209. Policy Statement*, Utilization of Electric Storage Resources for Multiple Services When Receiving Cost-Based Rate Recovery*, 158 FERC ¶ 61,051 at P 158 (2017).

210. *See e.g.*, *id.* at P 1 (identifying three areas which RTOs and ISOs would need to address: (1) "protections against the potential for double-recovery of costs from cost-based ratepayers," (2) protections against potential "adverse market impacts," and (3) protections to ensure the RTOs and ISOs remain "independent[t] from market participants").

211. *Midcontinent Independent System Operator, Inc.*, 172 FERC ¶ 61,132 (2020).

212. *Midcontinent Independent System Operator, Inc.*, Proposed Tariff Revisions for Storage as a Transmission Only Asset, FERC Docket No. ER20-588-000, at (Dec. 12, 2019).

213. Policy Statement*, Utilization of Electric Storage Resources for Multiple Services When Receiving Cost-Based Rate Recovery*, 158 FERC ¶ 61,051 (2017).

214. *See e.g.*, Will Gorman et al., *Hybrid power Plants Are Growing Rapidly: Are They a Good Idea?*, UC BERKELEY ENERGY & RESOURCES COLLABORATIVE (Aug. 30, 2020), https://berc.berkeley.edu/news/hybrid-power-plants-are-growing-rapidly-are-they-good-idea. For utility-scale solar generation facilities, the addition

resources represents cost-saving opportunities through shared expenses associated with equipment and the interconnection and permitting processes.[215]

At the end of 2019, within the United States, there were approximately 125 hybrid resources in use representing 14 gigawatts of capacity, of which more than half are generation facilities co-located with energy storage.[216] While there are hybrid facilities that combine fossil fuel and solar or energy storage facilities, the dominant hybrid resource configurations are energy storage co-located with wind or solar generation.[217] Although hybrid resources are just a small fraction of the total resource mix, there are approximately 102,000 gigawatts of solar hybrid capacity and 11,000 gigawatts of wind hybrid capacity, most of which are co-located with batteries, in interconnection queues.[218] The majority of projects in the interconnection queue are proposed in the western portion of the United States, including on parts of the grid overseen by CAISO.[219] The popularization of hybrid resources appears to be growing. At the end of 2020, one estimate identified hybrid projects in interconnection queues as nearly two-thirds of the proposed battery projects within CAISO and over a third of proposed battery projects in ERCOT and SPP.[220]

While all seven of the U.S. RTOs and ISOs are engaged in discussions regarding the participation of hybrid resources within their respective footprints,[221] CAISO has been particularly focused on issues related to hybrid resources. In 2019, approximately 41% of CAISO's generator interconnection queue consisted of hybrid resource configurations.[222] In 2020, this totaled over 30,000 megawatts of energy storage combined with solar or wind resources in various stages of development, on top of an additional 30,000 megawatts of standalone energy storage resource projects in the queue.[223] By July 2021, CAISO had approximately 147,800 megawatts of energy storage capacity in its interconnection queue with 49% of that "capacity associated with hybrid or co-located projects."[224]

---

of a four-hour battery resource costs approximately $4 - $14/megawatt hour but can generate between $13 - $31/megawatt hour in added value in a region like CAISO that operates an energy and capacity market. Comparatively, a developer in the ERCOT region, which only operates an energy market, can only expect to add between $1 - $9 of value.

215. *Id.*

216. RYAN WISER ET AL., LAWRENCE BERKELEY NATIONAL LABORATORY, HYBRID POWER PLANTS: STATUS OF INSTALLED AND PROPOSED PROJECTS 5 (2020).

217. *Id.* at 6.

218. *Id.* at 15.

219. *Id.* at 17.

220. JOSEPH RAND ET AL., LAWRENCE BERKELEY NATIONAL LABORATORY, QUEUED UP: CHARACTERISTICS OF POWER PLANTS SEEKING TRANSMISSION INTERCONNECTION AS OF THE END OF 2020, at 19 (2021).

221. *See*, ENERGY STORAGE ASSOCIATION, STATUS OF HYBRID RESOURCE INITIATIVES IN U.S. ORGANIZED WHOLESALE MARKETS 1 (2020).

222. CALIFORNIA INDEPENDENT SYSTEM OPERATOR, HYBRID RESOURCES ISSUE PAPER 3 (2019).

223. *Cal. Indep. Sys. Operator Hybrid Res. Phase 1 Amendment,* Docket No. ER20-2890-000, at 1 (Sept. 16, 2020).

224. *Hybrid Res. Informational Report Cal. Indep. Sys. Operator Corp.*, FERC Docket No. AD-9-000, at 5 (July 19, 2021) [hereinafter *CAISO Hybrid Res. Info. Report*].

As a result of anticipated future growth of hybrid and co-located resources interconnecting within its footprint, CAISO identified a number of technical questions regarding the market participation, operation, configuration, and settlement of hybrid resources along with operational and forecasting challenges that would need to be resolved in order to better integrate such resource types.[225] These include charging considerations for hybrid resources with storage, the interconnection process, how hybrid resources should be incorporated into forecasting models, and participation in the ancillary services market.[226] In 2020, FERC approved revisions to CAISO's tariff intended to support participation by hybrid resources, including new market rules for the modeling of co-located resources that operate separately and data requirements for hybrid resources that include wind or solar generation facilities.[227]

FERC, recognizing the rise in hybrid resources, initiated proceedings to explore their participation within the wholesale market. In July 2020, FERC held a technical conference to explore the technical and market issues surrounding the growth of generation resources paired with energy storage as a hybrid resource.[228] As highlighted by the issues raised during the technical conference, there are a number of foundational elements regarding the participation of hybrid resources that will likely need to be addressed:

1. A consensus on terminology regarding hybrid resources and the differentiation between generation resources that are co-located at the same facility with energy storage resources but operating separately versus generation resources and energy storage resources that are operating as a singular, hybrid resource;

2. The interconnection process, including modeling and the addition of an energy storage resource to an existing request in the queue;

3. The different types of participation models and market rules applicable to hybrid resources within an ISO or RTO;

4. How the capacity values of such resources are calculated and if new or modified methods are needed; and

5. Metering best practices for hybrid resources participating in wholesale markets.[229]

Following the technical conference, FERC directed the six RTOs and ISOs within its jurisdiction (CAISO, ISO-NE, MISO, NYISO, PJM, and SPP) to submit reports regarding the participation of hybrid resources within their respective markets.[230] These reports showed the ISOs and RTOs are all in various stages of developing definitions for hybrid and co-located resources as well as market rules to effectuate hybrid resource participation.

---

225. *Id.* at 4.

226. *Id.*

227. *California Indep. Sys. Operator Corp.,* 173 FERC ¶ 61,146 at PP 1-3, 6, 12 (2020).

228. Notice of Technical Conference, *Hybrid Resources*, 85 Fed. Reg. 20,493 (2020), FERC Docket No. AD20-9-000 (April 7, 2020).

229. Notice Inviting Post-Technical Conference Comments, *Hybrid Resources*, 85 Fed. Reg. 49,647 (2020), FERC Docket No. AD20-9-000 (Aug. 10, 2020).

230. *Hybrid Resources*, 174 FERC ¶ 61,034 at PP 1, 3, 10 (2021).

CAISO is the only entity that has defined both hybrid and co-located resources within its tariff. Within CAISO, hybrid resources are considered mixed-fuel resources (a generating facility that utilizes more than one fuel source or technology) that are located at a singular point of interconnection, are assigned a singular identification, and are modeled as a singular resource.[231] By comparison, a co-located resource within CAISO is one or more resources situated "at the same generating facility from an interconnection perspective" but operating as independent resources.[232] As of July 2021, CAISO had, by its definition, one hybrid resource and twelve co-located resources in operation with an additional 284 hybrid or co-located projects in its interconnection queue.[233] Later this year, CAISO anticipates filing with FERC additional tariff revisions that are intended to more accurately "represent the real-time capabilities of hybrid resources," including new telemetry requirements and bid parameters.[234]

NYISO does not have any hybrid resources currently participating in its footprint,[235] but is in the process of developing a participation model for hybrid resources that will allow for multiple resources behind a common point of injection to operate as a single resource.[236] This will supplement NYISO's participation model for co-located storage resources that allows a resource participating under NYISO's Energy Storage Resource Participation Model to locate with a qualified wind or solar resource behind a common point of injection, approved by FERC in March 2021 and scheduled to be implemented during the 4th quarter 2021.[237] As currently proposed, the NYISO definition for a hybrid resource would require the combination of "storage and at least one other technology . . . located behind a single [p]oint of [i]njection [that does] not serve behind-the-meter [l]oad."[238]

As of July 2021, PJM identified one resource modeled as an integrated hybrid resource within its market.[239] However, PJM indicated that resources amounting to approximately 24,000 megawatts of capacity within its market are classified as mixed technology resources co-located at a singular point of interconnection but operated separately.[240] While PJM does not specifically define a hybrid resource, its tariff does outline requirements that are applicable to mixed technology resources, including metering and telemetry requirements.[241] Later this year, PJM plans to submit to FERC an additional tariff proposal that, pending stakeholder

231. *CAISO Hybrid Res. Info. Report*, *supra* note 224, at 3-4.

232. *Id.* at 3.

233. *Id.* at 2.

234. *Id.* at 14-15.

235. *Hybrid Res. Report N.Y. Indep. Sys. Operator, Inc.*, FERC Docket No. AD20-9-000, at 4 (July 19, 2021).

236. *Id.* at 2.

237. *Id.* at 1-2.

238. *Id.* at 4.

239. *PJM Interconnection L.L.C. Hybrid Resources*, FERC Docket No. AD20-9-000, at 1, 4 (July 19, 2021).

240. *Id.* at 3.

241. *Id.* at 2-3.

approval, will expand the applicability of its Energy Storage Resource Participation Model to hybrid resources.[242]

Similarly, SPP does not currently define hybrid resources within its tariff but does have participation by co-located, mixed fuel resources, as well as singular resources that switch between fuel types, including resources that are paired with energy storage.[243] These types of resources can currently participate in SPP's energy and ancillary services market by registering as a singular market resource or as "separately modeled market resources that are committed and dispatched independently."[244] SPP is in the process of working with stakeholders to define "hybrid" and to develop a hybrid resource capacity accreditation methodology.[245]

Within MISO's report, it indicated that commercial operations of a registered hybrid resource that combines solar and storage were expected to commence in September 2021 and that there are thirty hybrid resource proposals in various stages of its interconnection queue representing approximately 2,100 megawatts of capacity.[246] Like PJM, MISO also anticipates making a filing with FERC later this year with proposed tariff revisions to better clarify the participation of hybrid resources within its market, including a formal definition of a hybrid resource and rules addressing resource adequacy accreditation for hybrid resources.[247]

Finally, ISO-NE also does not have a formal definition for hybrid resources but does have participation from co-located facilities within its market.[248] Under ISO-NE's interpretation, co-located facilities are "any combination of generation and energy storage connected behind a common interconnection point."[249] The majority of these co-located resources consist of solar generation and lithium-ion batteries that have a "maximum facility output of less than 5 megawatts."[250] Currently, ISO-NE is in the process of evaluating modifications to its resource capacity accreditation methodology, including those for hybrid resources.[251]

While FERC has not indicated how it plans to move forward, the informational reports produced by the RTOs and ISOs demonstrate that there is market interest in combining two or more resource types behind a singular point of interconnection. Clear distinctions between the categorization of these facilities as either a co-located resource or hybrid resource could be an important initial step in ensuring consistent, equitable market participation rules for these resource types.

---

242. *Id.* at 2, 6-7.

243. *Report on Hybrid Res. of Sw. Power Pool, Inc.*, FERC Docket No. AD20-9-000, at 2-3 (July 19, 2021).

244. *Id.* at 5.

245. *Id.* at 3.

246. *Report on Hybrid Res. of the Midcontinent Indep. Sys. Operator, Inc.*, FERC Docket No. AD20-9-000, at 8-9 (July 19, 2021).

247. *Id.* at 16-17.

248. *Hybrid Res., ISO New England Inc. Response to Order Directing Reports*, FERC Docket No. AD20-9-000, at 2 (July 19, 2021).

249. *Hybrid Res., Post-Tech. Conf. Comments of ISO New England Inc.*, FERC Docket No. AD20-9-000, at 1 (Sept. 24, 2020).

250. *Id.* at 2.

251. *Id.* at 17.

D. Utilizing the Policy Tool Box

Shifts in federal and state-level policy have always been a major impetus of change in the energy industry. As exemplified by Order No. 841, federal policy mandating change can be effective, but this is not the only tool in the shed. In 2020, the U.S. DoE launched its Energy Storage Grand Challenge in a bid for the United States to become a leader in the innovation, manufacturing, and utilization of energy storage.[252] To achieve this, the U.S. DoE identified use cases addressing applications, benefits, and functional requirements for energy storage as well as devised cost targets aimed, in part, to improve commercial viability for the use of these resources to meet load during periods of peak demand as well as perform other critical reliability services.[253] This comprehensive energy storage policy developed by the U.S. DoE incorporates a holistic approach that includes strategies for technology development, strengthening the manufacturing and supply chain, workforce education, and assisting policy makers.[254] To this last point, the Energy Storage Grand Challenge seeks to provide data, tools, and analysis in an effort to support the development of energy storage policies and regulations by both federal and state governments. Specifically, the U.S. DoE aims to close identified gaps in policy and regulation development that are unintentionally thwarting growth and inhibiting the energy industry from realizing the full benefits of energy storage.[255]

Several key areas will be of initial focus:

1. Enhancing the understanding of performance characteristics of energy storage resources to assess the resource's potential contributions to system resiliency;

2. Increasing the effectiveness of the planning and operating of energy storage resources both within the energy industry and by other industrial end-users; and

3. Improving the valuation of the types of services energy storage resources can provide.[256]

In addressing these topics, the U.S. DoE anticipates being able to shape new policies and regulations that will act in concert to eliminate market barriers while also increasing market demand.[257] Additionally, the Energy Storage Grand Challenge identified key stakeholders in the policy making process, including utilities, the RTOs and ISOs, state level government officials, like governors and legislatures, and public utility commissions.[258]

Although policy decisions of individual states only directly impact the retail processes, the wholesale market is often shaped by retail activities. One prominent example is the development of renewable portfolio standards, which are used to

252. U.S. DEP'T OF ENERGY, ENERGY STORAGE GRAND CHALLENGE ROADMAP 11 (2020) [hereinafter *Energy Storage Grand Challenge*].

253. *Id.* at 11.

254. *Id.* at 13.

255. *Id.* at 55.

256. *Id.*

257. *Id.*

258. *Id.* at. 57-58.

foster the growth of renewables by utilities through the establishment of procurement goals for generation from renewable resources. Since the turn of the century, renewable electric generation within the United States has grown exponentially, with some estimating that almost half of this increase can be attributed state-level renewable portfolio standard requirements.[259] Given this statistic, it is likely that state level policies supporting energy storage could also spur further integration of storage in the marketplace.

Currently, approximately half the states within the United States have enacted some type of energy storage policy, from specific regulatory requirements and procurement targets to financial incentives.[260] Recently, Connecticut became the eighth state to pass an energy storage procurement target or mandate legislation, setting a goal of establishing 1,000 megawatts of storage deployed by the end of 2030.[261] However, over the past several years, Massachusetts has emerged as a leader in energy storage policymaking. In 2015, the state launched its Energy Storage Initiative, an effort to advance energy storage, in part, through policy and regulation changes.[262] Shortly thereafter, Massachusetts passed the Act to Advance Clean Energy, establishing a 1,000 MWh energy storage target for electric distribution companies by the year 2025, which, as of February 2021, resulted in 179 MWh of installed storage and another 874 MWh of storage in production.[263] While the establishment of target capacity goals is a proven method to increase resource deployments, Massachusetts innovated its policymaking through the passage of the nation's first clean peak standard. As a play on traditional renewable portfolio standards, a clean peak policy mandates that a specified level of electricity used to meet customer demand during peak periods be sourced from renewable generation.[264] With the ability to harvest electricity at the moment of generation and store it until a later time, energy storage resources, especially those that are co-sited with solar generation, have a key role to play in helping utilities meet clean peak goals. The Massachusetts Clean Peak Energy Portfolio Standard took effect on August 7, 2020, requiring electric utilities to obtain generation from qualified resources to cover a certain percentage of its total market obligation through the purchase of clean peak energy certificates.[265] Under the new regulation, energy storage resources can qualify as a clean peak resource if their system is (1) co-located with a renewable resource, (2) contracts with a renewable resource to store

259. GALEN BARBOSE, U.S. RENEWABLE PORTFOLIO STANDARDS: 2018 ANNUAL STATUS REPORT 3 (2018).

260. PAC. NW. NAT'L LAB., ENERGY STORAGE POLICY DATABASE, U.S. DEP'T OF ENERGY (last updated Mar. 2020), https://energystorage.pnnl.gov/regulatoryactivities.asp.

261. Andy Culthorpe, *Connecticut looks to join seven other US states in setting energy storage target*, ENERGY STORAGE NEWS (May 25, 2021), https://www.energy-storage.news/connecticut-looks-to-join-seven-other-us-states-in-setting-energy-storage-target/.

262. MASS. DEP'T OF ENERGY RES., ESI GOALS & STORAGE TARGET (last visited Sept. 15, 2021),https://www.mass.gov/info-details/esi-goals-storage-target.

263. *Id.*

264. LON HUBER & EDWARD BURGESS, EVOLVING THE RPS: A CLEAN PEAK STANDARD FOR A SMARTER RENEWABLE FUTURE 3 (2016).

265. 225 MASS. CODE REGS. 21.07 (2020).

and discharge renewable energy, and/or (3) primarily charges from renewable generation.[266]

Another area in which policy decisions can influence the adoption of energy storage is integrated resource plan (IPR) requirements. Utilities engage in integrated resource planning to identify the resource mix that will be needed in the upcoming years to meet the anticipated demand for electricity.[267] For a majority of the country, this process is guided by state legislatures or public utility commissions, which typically establish requirements to meet identified policy goals, such as reducing emissions and renewable energy generation targets. While several individual utilities incorporate energy storage as part of their individual IPRs, the establishment of state-level IPR rules and regulations that include guidance on energy storage can help to ensure all utilities are appropriately considering the benefits that can be provided by these resources. This can be achieved through legislation, like in California, where the state legislature passed a bill requiring publicly owned utilities, as part of the IPR process, to consider energy storage as a resource to help meet periods of peak demand.[268] Elsewhere, some public utility commissions have chosen to develop guidance regarding the utilization of energy storage resources within existing regulatory frameworks addressing the IPR process. For instance, the Washington Utilities and Transportation Commission (UTC) issued a policy statement that required all utilities within its jurisdiction to consider energy storage as part of resource planning and procurement processes.[269] Guidance provided by the Washington UTC included direction on how energy storage resources should be modeled within the IPR process and encouraged utilities to consider a range of storage mediums.[270] Additionally, the commission established clear regulatory expectations for the resource procurement process with the intent of helping to resolve uncertainty and hesitancy regarding investments in energy storage technologies among its jurisdictional entities.[271]

E. Industry-Wide Standardization Efforts and Benefits of Broad Adoption

With any new technology, there is typically a lag between introduction and high levels of market penetration. This is especially true in the energy industry, where utilization of new technologies, such as energy storage and other distributed energy resources, can carry an unknown level of risk until there is a common understanding of functionality and how the new technology will be adopted by the market. One important step to minimize these risks is the development of commonly accepted, industry-wide standards. Through standardization, regional and

266. *Id.*

267. State & Local Energy Efficiency Action Network, Using Integrated Resource Planning to Encourage Investment in Cost-Effective Energy Efficiency Measures, at vi (2011).

268. CAL. PUB. UTIL. CODE § 454.52 (West 2021).

269. WASH. UTIL. & TRANSP. COMM'N, DOCKETS UE-151069, U-161024, REPORT AND POLICY STATEMENT ON TREATMENT OF ENERGY STORAGE TECHNOLOGIES IN INTEGRATED RESOURCE PLANNING AND RESOURCE ACQUISITION PP 1, 34, 58 (2017).

270. *Id.* at PP 40-48.

271. *Id.* at PP 49-50, 52.

even nationwide uniformity can be established, creating cohesiveness in the market. This consistency improves transparency and lowers participation costs, in turn promoting wider adoption of new technologies by market participants. In recognition of this, the U.S. DoE has long touted standardization as an important tool to remove barriers to the implementation of energy storage.[272]

The initial implementation of energy storage by early adopters has been guided by several existing industry standards as well as other best practice type documentation generally applicable to any distributed energy resource type. For instance, the Institute of Electrical and Electronics Engineers (IEEE) has long-maintained standards addressing the interconnection of distributed energy resources to the power grid,[273] and NERC has issued a series of reliability guidelines covering these resource types.[274] Yet there are still a number of areas critical to supporting wider integration that have not yet been addressed or are only in the infancy stages. In exploring standardization, the industry should make conscious decisions to continue to capitalize upon the similarities between energy storage and other distributed energy resources. Although there certainly may be instances in which narrowly tailored standards are appropriate to address characteristics unique to energy storage, siloed development of standards for each type of distributed energy resource is likely to prove inefficient and redundant. While certainly not an exhaustive list, three important areas that may be of greatest benefit to concentrate immediate efforts in order to jump start more expansive integration of electric storage and distributed energy resources as a whole are (1) model interconnection practices, (2) guidelines advising the modeling and planning processes, and (3) standards defining common communication protocols.[275]

Between 2014 and 2019, utility-scale battery storage capacity more than quadrupled, and by 2023, is expected to exceed 2,500 megawatts.[276] However, a number of states do not have a clear path for how batteries and other energy storage resources connect to the grid. For example, some state-level interconnection procedures for generation facilities may be too narrow in terminology, which can cause ambiguity regarding if energy storage, with its ability to act as generation and load, qualifies to participate as a generation facility.[277] This results in uncertainty for both resource owners and utilities that could be resolved through a spec-

272. U.S. DEP'T ENERGY, GRID ENERGY STORAGE 9, 52 (2013).

273. *See* INST. OF ELEC. & ELEC. ENG'RS STANDARDS ASS'N, IEEE 1547-2003 – IEEE STANDARD FOR INTERCONNECTING DISTRIBUTED RESOURCES WITH ELECTRIC POWER SYSTEMS (2008).

274. *See* N. AM. ELEC. RELIABILITY CORP., RELIABILITY GUIDELINE: DER DATA COLLECTION FOR MODELING IN TRANSMISSION PLANNING STUDIES, at vi (Sept. 2020); N. AM. ELEC. RELIABILITY CORP., RELIABILITY GUIDELINE: DISTRIBUTED ENERGY RESOURCE MODELING 1 (Sept. 2017); N. AM. ELEC. RELIABILITY CORP., RELIABILITY GUIDELINE: MODELING DISTRIBUTED ENERGY RESOURCES IN DYNAMIC LOAD MATERIALS 1 (Dec. 2016).

275. Elec. Power Research Inst., The Integrated Grid: Realizing the Full Value of Central and Distributed Energy Resources 3-5, 32-33 (2014).

276. Patricia Hutchins, *U.S. utility-scale battery storage power capacity to grow substantially by 2023*, U.S. ENERGY INFO. ADMIN. (July 10, 2019), https://www.eia.gov/todayinenergy/detail.php?id=40072.

277. KELSEY HOROWITZ ET AL., AN OVERVIEW OF DISTRIBUTED ENERGY RESOURCE (DER) INTERCONNECTION: CURRENT PRACTICES AND EMERGING SOLUTIONS 54, 57 (2019).

ified energy storage interconnection process. Standardized interconnection procedures for energy storage would also add a level of transparency and help to ensure equitable treatment between resource owners. Moreover, as previously discussed, the industry is experiencing an increase in the pairing of hybrid or co-located resources that utilize energy storage. While there are only a handful of hybrid resources today, the interconnection process for these types of facilities is likely an issue that regulators will be facing with more frequency in the coming years.

Although revising state-level interconnection standards requires action by legislatures and regulatory agencies, the development of industry best practices can set the stage for swift adoption by regulators, while also creating uniformity between jurisdictions. Several industry standard developers have recently released new documentation that could furnish guidance in this area. In 2018, the IEEE released a much-anticipated update to its standard that provides technical guidance on the interconnection of and interoperability for distributed energy resources, including energy storage, with electric power systems.[278] To continue the effort to provide interconnection best practices for energy storage, the U.S. DoE is supporting the Building a Technically Reliable Interconnection Evolution for Storage or BATRIES Project.[279] This effort seeks to bring together industry stakeholders to identify and develop solutions that will streamline the interconnection process for energy storage, as well as storage co-sited with solar generation.[280] This three year effort, which began in 2020, will focus on the development of a solutions toolkit intended to provide guidance to state regulators in the adoption of new energy storage interconnection practices.[281]

Another equally important subject for standardization, given the rising number of energy storage resources deployed on the grid, are best practices to guide the assessment of the impact of these resource types in system operations and planning. The bulk power grid is highly interconnected, meaning that the possibility exists for a singular failure to cause a cascading effect if the grid is not properly managed.[282] Thus, the use of accurate modeling that properly reflects the ability of energy storage to serve as load and generation, as well as provide grid services, is vital to ensuring continued reliability and operational continuity of the electric system. Further, improper accounting for high levels of energy storage penetration

278. INST. OF ELEC. & ELEC. ENG'RS STANDARDS ASS'N, IEEE 1547-2018 – IEEE STANDARD FOR INTERCONNECTION AND INTEROPERABILITY OF DISTRIBUTED ENERGY RESOURCES WITH ASSOCIATED ELECTRIC POWER SYSTEMS INTERFACES (2018).

279. INTERSTATE RENEWABLE ENERGY COUNCIL, BATRIES: STORAGE INTERCONNECTION REFORM (last visited Sept. 15, 2021), https://irecusa.org/regulatory-reform/interconnection/building-a-technically-reliable-interconnection-evolution-for-storage/#Key-tasks.

280. *Id.* This effort is supported by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy and is a partnership between the Interstate Renewable Energy Council, the Electric Power Research Institute, the Solar Energy Industries Association, the U.S. Energy Storage Association, the California Solar & Storage Association, the New Hampshire Electric Cooperative, Inc., PacifiCorp, and Shute, Mihaly & Weinberger, LLP.

281. *Id.*

282. Ning Kang, Ravindra Singh, James T. Reilly & Nicole Segal, Impact of Distributed Energy Resources on the Bulk Electric System 3-4 (2017).

as part of system modeling and planning may result in demand forecasting errors, causing resource adequacy issues or the building out of unnecessary and costly infrastructure upgrades.

In developing new system modeling and planning tools for the bulk power system, there may need to be a shift from traditional approaches to properly accommodate the impact of energy storage and other distributed energy resources on transmission systems. Currently, in many transmission modeling and planning processes, distribution systems are considered static load, an assumption that fails to account for the dynamic capabilities of distributed energy resources deployed on those systems.[283] Modeling, which combines transmission and distribution factors, will likely improve upon the understanding of the true reliability impact on the bulk power system of energy storage and other distributed energy resources.[284] This can be achieved through increased information sharing or the development of new software that combines transmission and distribution system modeling in a singular platform.[285] Regardless, uniform industry guidelines in this area will be an important tool for bulk power system owners and operators to reliably integrate energy storage.[286]

For FERC jurisdictional entities, NERC maintains mandatory reliability standards that, in part, help guide the wholesale modeling and planning processes. Recently, NERC released new guidance that recommends system planners begin preparing for a critical mass of energy storage resources, like BESS units, by conducting studies that will adequately determine the impact of these resources on the bulk electric system so that the size, location, and operating characteristics of these resources can be properly accounted for within the planning process.[287] This was shortly followed by the issuance of a reliability guideline addressing the performance, modeling, and simulations of batteries and hybrid resources connected to the bulk power system.[288] In light of the spike in the utilization of distributed energy resources, like energy storage and other non-traditional generation resources, such as renewables, NERC has also identified five potential areas within its reliability standards for which the need for modifications should be investigated, including changes that will better assist in data reporting requirements for system modeling and transmission planning.[289]

---

283. *Id.* at 1, 3.

284. *Id.* at 17.

285. *Id.* at 2.

286. N. AM. ELEC. RELIABILITY. CORP., DISTRIBUTED ENERGY RESOURCES: CONNECTION MODELING AND RELIABILITY CONSIDERATIONS, at iv (Feb. 2017).

287. N. AM. ELEC. RELIABILITY. CORP., ENERGY STORAGE: IMPACTS OF ELECTROCHEMICAL UTILITY-SCALE BATTERY ENERGY STORAGE SYSTEMS ON THE BULK POWER SYSTEM, at vi (Feb. 2021) [hereinafter *Energy Storage: Impacts 2021*].

288. N. AM. ELEC. RELIABILITY. CORP., RELIABILITY GUIDELINE: PERFORMANCE, MODELING, AND SIMULATIONS OF BPS-CONNECTED BATTERY ENERGY STORAGE SYSTEMS AND HYBRID POWER PLANTS, at vii (Mar. 2021).

289. ENERGY STORAGE: IMPACTS 2021, *supra* note 287, at 23-24.

As discussed earlier in this article, energy storage and other distributed energy resources are uniquely suited to provide an array of grid services.[290] However, in order to be able to procure services from these new resource types, RTOs and ISOs will need to obtain from a resource owner certain critical information about the resource, such as physical location and metering type. Establishing standardized communication protocols for this data would create consistency and common nomenclatures that can be uniformly relied upon by market participants. This should enable wider participation of distributed energy resources by eliminating the complexity of having to navigate multiple sets of procedures to communicate the same datasets.

Relatedly, the U.S. DoE has identified a need for energy storage resource performance metrics.[291] Without a uniform system of measurement and verification, market participants are often dependent on resource manufacturer performance claims, which can create uncertainty around if a given resource can actually supply a needed grid service and may lead to hesitation in use of these types of resources by the more risk averse. However, identifying an industry-wide categorization of resource performance can create a baseline benchmark, resulting in a clear and consistent method for the evaluation of resources. Together, commercial best practices such as data communication protocols and performance metrics can create a standards architecture to assist with the integration of energy storage resources within the wholesale markets.

Currently, the North American Energy Standards Board (NAESB) is undertaking standard development activities intended to support the wholesale electric industry and the participation of energy storage, and more broadly, distributed energy resources in the wholesale markets.[292] As a consensus-based standards development body accredited by the American National Standards Institute, NAESB has a long history of successfully developing business practices for the energy industry, many of which have gone on to become federal[293] or state[294] regulations.

---

290. FERC, ENERGY PRIMER: A HANDBOOK FOR ENERGY MARKET BASICS 52 (2020).

291. ENERGY STORAGE GRAND CHALLENGE, *supra* note 252, at 62-65, 146 app. 5.

292. Press Release, N. Am. Energy Standards Bd., NAESB to Address Battery Storage/Distributed Energy Resources and Renewable Natural Gas in 2021 (Feb. 17, 2021), https://www.naesb.org//pdf4/021721press_release.pdf.

293. *See, e.g.*, Order No. 587-Z, *Standards for Business Practices of Interstate Natural Gas Pipelines*, 176 FERC ¶ 61,015 at P 1 (2021); Order No. 676-J, Standards for Business Practices and Communication Protocols for Public Utilities, 175 FERC ¶ 61,139 at P 1 (2021). The federal government, through the National Technology Transfer Act and the Office of Management and Budget Circular No. A-119, are required to use standards developed or adopted by voluntary, consensus-based bodies to carry out agency policy objectives or goals whenever possible. To date, FERC has adopted through the incorporation by reference process all of the business practice standards NAESB has developed applicable to the wholesale gas and wholesale electric industries with only a few noted exceptions. *See* NAT'L INST. STANDARDS & TECH., KEY FEDERAL LAW AND POLICY DOCUMENTS: NTTAA & OMB A-119 (May 31, 2016), https://www.nist.gov/standardsgov/what-we-do/federal-policy-standards/key-federal-directives.

294. Upon the release of a new publication of business practices applicable to the retail gas and electric markets, NAESB makes the standards available to the National Association of Regulatory Utility Commissioners. Several NAESB Business Practice Standards have been adopted by state commissions or served as the basis for regulatory action – mostly in customer choice states including New York, Pennsylvania, and Texas. See, e.g., N.Y. PUB. UTIL. COMM'N, CASE 12-M-0476, PROCEEDING ON MOTION OF THE COMMISSION TO ASSESS

The NAESB standards development process ensures that all interested parties have a seat at the table, and uniquely situates the organization to address commercial issues spanning wholesale and retail interests, such as energy storage and distributed energy resources. On this topic, NAESB is considering the development of standards in three areas to support the industry's integration of energy storage and distributed energy resources: (1) business practices that define an index or registry for these resource types participating in the wholesale markets; (2) information and reporting requirement business practices; and (3) business practices that establish performance metrics.[295] The initial focus of these discussions has been information exchange interactions and the data that will need to be communicated by various parties in a transaction, such as between resource owners, resource aggregators, and RTOs and ISOs.[296]

V. CONCLUSION

In just the few short years since FERC passed its historic ruling in Order No. 841, the use of energy storage within the wholesale marketplace has significantly increased. It is possible that the energy storage industry is likely to see a similar boost resulting from another landmark FERC Order. As part of Order No. 2222, FERC established a path for all distributed energy resource types to participate in the wholesale electric market through their own participation model.[297] Similar to Order No. 841, to partake in the participation model, minimum size requirements of 100 kilowatts must be met, but as part of Order No. 2222, a market participant can aggregate distributed energy resources to meet the size requirement.[298] Not only does Order No. 2222 pave the way for smaller energy storage resources to participate in the wholesale marketplace, but it also underscores the importance of the need for the electric industry to ensure its market framework can accommodate widespread usage of all distributed energy resources.

Attributable in part to advances in technology that have greatly decreased the costs of BESS units,[299] the majority of new, large-scale energy storage units that

---

CERTAIN ASPECTS OF THE RESIDENTIAL AND SMALL NON-RESIDENTIAL RETAIL ENERGY MARKETS IN N.Y. STATE (Dec. 23, 2015); PA. PUB. UTIL. COMM'N, 52 PA. CODE CH. 62, PROPOSED RULEMAKING BULLETIN § 62.185 (Oct. 17, 2009); TEX. PUB. UTIL. COMM'N, 16 TAC 2.25.I.25.214, ADOPTED RULE NOTICE (June 27, 2014); *see also*, N. AM. ENERGY STANDARDS BD., NAESB OPERATING PRACTICES 5, 21 (Sept. 11, 2015), https://www.naesb.org//pdf/operating_procedures.pdf.

295. *See* N. AM. ENERGY STANDARDS BD., NORTH AMERICAN ENERGY STANDARDS BOARD: 2021 ANNUAL PLAN FOR THE WHOLESALE ELECTRIC QUADRANT 4 (Sept. 2, 2021), http://www.naesb.org/pdf4/weq_2021_annual_plan.docx.

296. Informational Status Update on NAESB Standards Development Efforts to Support FERC Order Nos. 841 and 2222, FERC Docket No. RM05-5-000, at 2 (June 21, 2021).

297. Order No. 2222, Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators, 172 FERC ¶ 61,247 at P 1, 85 Fed. Reg. 67,094 (2020) (to be codified at 18 C.F.R. pt. 35).

298. *Id.* at P 171.

299. Alex Mey, Vikram Linga & Patricia Hutchins, *Utility-scale battery storage capacity continued its upward trend in 2018*, U.S. ENERGY INFO. ADMIN. (Aug. 10, 2020), https://www.eia.gov/todayinenergy/detail.php?id=44696.

are coming online are batteries.[300] While there are unique risks associated with batteries that should be taken into consideration, especially in regard to safety and cost, there are steps that can be taken to mitigate these risks. One risk consideration that must be accounted for is overall safety of the energy storage system and any potential liability for system failures. Over the past several years, there have been several high-profile incidents involving batteries – most recently Australia's Victorian Big Battery site fire in July 2021.[301] However, both existing and emerging technologies are likely to improve overall battery safety. Arizona Public Service's analysis, following the 2019 McMicken Li-ion battery facility accident, determined the initiating cause of the explosion was attributable to a battery cell internal failure that triggered a "cascading thermal runaway event" with one contributing factor being a lack of ventilation for concentrated flammable gases.[302] As found in the analysis report, there are new developments regarding cascading thermal runaway event testing and research that can be included in applicable technical standards and codes, as well as "cost effective and commercially viable" solutions that can "limit or prevent" cascading thermal runaway events.[303] Battery fire safety and prevention is also an area of active research by the DoE through its national laboratories. Earlier this year, Pacific Northwest National Laboratory, in an effort supported by the DoE's Office of Electricity, invented a new sensor system that can be installed in existing battery storage cabinets and will automatically open doors in response to "smoke, heat, or gas alarms . . . to prevent buildup of flammable gases."[304] By being proactive in employing the use of new and innovate technologies in the installation and operation of BESS units, the safety risks can be mitigated.

While the average capacity costs of BESS units have declined in recent years,[305] the ability to recoup costs associated with the utilization of an energy storage system is another important area of consideration, with resource owners needing reliable information to conduct a cost-benefit analysis. Pacific Northwest National Laboratory, as part of the DoE's Energy Storage Grand Challenge, is developing an energy storage technology "cost and performance database" that seeks to:

> 1) provide a detailed analysis of the all-in costs for energy storage technologies, from basic storage component to connecting the system to the grid; 2) update and increase

---

300. U.S. ENERGY INFO. ADMIN., BATTERY STORAGE IN THE UNITED STATES: AN UPDATE ON MARKET TRENDS 8 (July 2020), https://www.eia.gov/analysis/studies/electricity/batterystorage/pdf/battery-_storage.pdf.

301. Lora Kolodny, *Tesla Megapack Caught Fire at Victorian Big Battery Site in Australia*, CNBC (July 30, 2021), https://www.cnbc.com/2021/07/30/tesla-megapack-caught-fire-at-victorian-big-battery-site-in-australia.html.

302. ARIZ. PUB. SERV., NO. 10209302-HOU-R-01, MCMICKEN BATTERY ENERGY STORAGE SYSTEM EVENT TECHNICAL ANALYSIS AND RECOMMENDATIONS 1-2 (July 18, 2020).

303. *Id.* at 46.

304. Nick Hennen, *PNNL Invention Reduces Risk of Battery Explosions*, PAC. NW. NAT'L LAB. (May 18, 2021), https://www.pnnl.gov/news-media/pnnl-invention-reduces-risk-battery-explosions.

305. Between 2013 and 2018, the average capacity cost for BESS units fell from $2,152/kilowatt-hour in 2013 to $625/kilowatt-hour in 2018. See Sara Hoff & Alexander Mey, Utility-scale battery storage costs decreased nearly 70% between 2015 and 2018, U.S. ENERGY INFO. ADMIN. (October 23, 2020), https://www.eia.gov/todayinenergy/detail.php?id=45596.

> fidelity of the individual cost elements comprising a technology; 3) provide cost ranges and estimates for storage cost projections in 2030; and 4) develop an online website to make energy storage cost and performance metrics easily accessible and updatable for the stakeholder community.[306]

Utilization of industry tools, such as this database, will improve understanding of needed capital expenditures and return on investments for energy storage systems, allowing industry participants to make fully informed decisions regarding the deployment of storage technologies.

Although there are inherent risks that must be properly accounted for in the integration of the use of energy storage resources, the possible benefits, especially given the rise in use of renewable generation, are likely to outweigh a large number of concerns if mitigated properly. To be able to realize the full potential of energy storage, the industry should continue to take steps to ensure that these resources are utilized by the market to the fullest extent possible. These efforts, combined with the continued pursuit of market reforms by regulatory authorities, should further incentivize wider integration of energy storage resources.

306. KENDALL MONGIRD ET. AL., PUB. NO. DOE/PA-0204, 2020 GRID ENERGY STORAGE TECHNOLOGY COST AND PERFORMANCE ASSESSMENT 1 (Dec. 2020).

RETOOLING RATEMAKING: ADDRESSING PERVERSE INCENTIVES IN WHOLESALE TRANSMISSION RATES

Katharine M. Mapes, Lauren L. Springett, and Anree G. Little[*]

Abstract: All regulatory systems create incentives; unfortunately, even the most well-intentioned incentives can have perverse consequences. The incentives created by traditional utility rate regulation—for purposes of this article we focus on the regulation of electric transmission rates by the Federal Energy Regulatory Commission (FERC)—are no exception. Under traditional cost-of-service ratemaking, utilities have a powerful incentive to increase capital investments and reduce operating expenses in order to boost returns for shareholders. In this article, we focus on what occurs when utilities act on the perverse incentive to inappropriately reduce operating expenses so as to increase profits. Whether it is tree trimming or work performed on electro-mechanical equipment, maintenance deferred too long can lead to avoidable failures that are more frequent, more prolonged, and more severe than they would otherwise be, resulting in power outages, an uptick in repair or replacement costs—or in the most extreme circumstances, wildfires that can ravage whole towns, with the toll measured not just in dollars, but also in human lives.

In this article, we argue that addressing this perverse incentive is a core component of FERC's obligation to ensure that rates are just and reasonable, and discuss the versatile array of tools at FERC's disposal with which it can ensure that rate regulation acts to maintain safe and reliable service rather than compromise it. In Part I, we discuss the perverse incentives associated with cost-of-service ratemaking and examine the potentially disastrous consequences that can ensue if the perverse incentive to reduce operating expenses leads to behavior that compromises safety and reliability. In Part II, we review both FERC enforcement, generally, and North American Electric Reliability Corporation (NERC) reliability standards, specifically, and conclude that remedying this perverse incentive requires viewing it less as an issue with service quality, and more as a ratemaking problem. In Part III, we discuss the array of ratemaking tools at FERC's disposal—return on equity (ROE) determinations, prudence reviews, performance-based ratemaking (PBR), and trackers or earmarked funds—and examine how FERC could use each of these tools to ensure that authorized rates help maintain, rather than work against, a utility's provision of safe and reliable service. We conclude that FERC should use these tools more rigorously to ensure that utilities are not unjustly and unreasonably securing higher profits for themselves by inappropriately reducing operating costs, and that authorized rates are used to maintain

---

* Katharine M. Mapes is a partner at Spiegel & McDiarmid LLP. Her practice focuses on litigation before the Federal Energy Regulatory Commission and state utility commissions. Ms. Mapes advises clients on ratemaking and market design issues, particularly in the California ISO. Lauren L. Springett is an associate at Spiegel & McDiarmid LLP, where she works with public-sector clients in the electric, telecommunications, and hydropower industries. Anree G. Little is an associate at Spiegel & McDiarmid LLP.

safe and reliable service, thereby protecting consumer interests and ensuring grid reliability.

I. INTRODUCTION

It is well-recognized that "every regulation imposed by government creates limitations on what [regulated entities] can do; but every regulation also gives the [regulated entity] incentives to act in ways (driven generally by the desire to maximize net income, or earnings) that may or may not promote the public interest."[1] Accordingly, even the most well-intentioned incentive can have "perverse consequences—even in some cases, causing [regulated entities] to work against the goal [the regulator was] trying to achieve."[2] The incentives created by traditional utility ratemaking are no exception. This article discusses ratemaking at FERC, which regulates, among other things, electric transmission rates.

Many FERC-jurisdictional rates are derived using traditional cost-of-service ratemaking, which "allow[s] utilities to recover operating costs and a return on

1. Jim Lazar et al., REGULATORY ASSISTANCE PROJECT, *Electricity Regulation in the U.S.: A Guide*, REGULATORY ASSISTANCE PROJECT 6 (Mar. 2011), https://www.raponline.org/wp-content/uploads/2016/05/rap-lazar-electricityregulationintheus-guide-2011-03.pdf.

2. FORBES, *Perverse Incentives* (Feb. 20, 2009), https://www.forbes.com/2009/02/19/incentives-compensation-bonuses-leadership_perverted_incentives.html?sh=5f39f055b3b7.

investment on all capital costs."[3] This structure has always risked incentivizing utilities[4] to skimp on maintenance spending in order to pad their ROEs. To the extent that this perverse incentive leads to behaviors that compromise safety and reliability, the results can include catastrophic equipment failures, destruction of enormous amounts of both public and private property, or even loss of life—as has occurred, most notably in the case of the Camp Fire in Northern California, sparked by Pacific Gas & Electric Company (PG&E) equipment in 2018.

By and large, FERC has lagged behind many states in recognizing and mitigating this issue—and some might argue that FERC is not the appropriate agency to address this particular perverse incentive. For instance, while states can ensure minimum utility performance through state quality standards, the Federal Power Act (FPA) does not give FERC similar authority to enforce general service quality standards at the federal level. Moreover, it may be impractical— and would certainly be expensive—to task FERC—or NERC, the FERC-certified electric reliability organization (ERO)—with setting detailed, comprehensive standards to ensure this type of utility performance, as that would require a drastic expansion of these agencies' scope.[5]

However, while FERC may not have the authority to prescribe service quality standards, it *does* have the authority and obligation to set just and reasonable transmission rates. By their nature, those rates include the costs that utilities request to maintain their transmission facilities. Those same transmission facilities are then integral to safe and reliable service.

Indeed, it is axiomatic that the reasonableness of a rate—literally, the price of service—cannot be judged in a vacuum; as "price really has no meaning except in terms of an assumed quality of service."[6] In other words, because "buyers can be exploited just as effectively by giving them poor or unsafe service as by charging them excessive prices,"[7] "[a] reduction in quality is a hidden price increase."[8] Accordingly, what is needed is less a shift in law and more a shift in perspective. FERC should think of its jurisdiction as encompassing more than just setting rates at a theoretically appropriate numerical level. Ensuring that customers are getting the safe and reliable service that they pay for is just as core a component of FERC's

3. Sidney A. Shapiro and Joseph P. Tomain, *Realizing the Promise of Electricity Deregulation: Rethinking Reform of Electricity Markets*, 40 WAKE FOREST L. REV. 497, 508 (2005).

4. This article focuses on investor-owned utilities, and the incentives they face. Other entities, like generation and transmission cooperatives or municipal utilities, face different incentives because they do not operate under the same rate regulation structures or have the same need to attract capital. *See e.g.* Laurence D. Kirsch et al., *Alternative Electricity Ratemaking Mechanisms Adopted by Other States*, CHRISTENSEN ASSOC.'S ENERGY CONSULTING, at iv, 1, 6 (May 15, 2016), https://www.caenergy.com/wp-content/uploads/2016/02/Kirsch_Morey_Alternative_Ratemaking_Mechanisms.pdf.

5. *See*, *infra*, Part II.

6. ALFRED E. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS, Vol. 1 at 21; *see also Am. Tel. & Tel. Co. v. Cent. Off. Tel., Inc.,* 524 U.S. 214, 215 (1998) (J. Scalia) ("Since rates have meaning only when one knows the services to which they are attached, any claim for excessive rates can be couched as a claim for inadequate services and vice versa.").

7. KAHN, *supra* note 6, at 21.

8. Richard Green, et al., *Resetting Price Controls for Privatized Utilities*, ECONOMIC DEVELOPMENT INSTITUTE OF THE WORLD BANK 82 (Feb. 1999), http://regulationbodyofknowledge.org/wp-content/uploads/2014/02/PriceControlsForPrivatizedUtilities1999WB.pdf.

ratemaking responsibility—i.e., the responsibility to consider price in relation to the service provided.

As a legal matter, FERC already has an array of tools at its disposal with which to ensure rate regulation acts to maintain safe and reliable service rather than compromise it. Most of these stem directly from the FPA, including ROE determinations, prudence reviews, performance-based ratemaking, and trackers or earmarked funds. FERC should use these tools more rigorously to ensure that utilities are not unjustly and unreasonably securing higher profits for themselves by inappropriately reducing operating costs and that authorized rates are used to maintain safe and reliable service, thereby protecting consumer interests and ensuring grid reliability.

II. THE IMPACT OF THE PERVERSE INCENTIVES ASSOCIATED WITH TRADITIONAL RATEMAKING ON SERVICE QUALITY

A. The Interplay between Quality of Service and the Fundamentals of Utility Ratemaking

Over the years, price regulation in many traditionally regulated industries—the aviation and telecommunications industries, most notably— has steadily been replaced by free-market constructs. And in some cases—with the rise of retail choice at the state level and market-based wholesale power sales at the federal level—this is true for electric utilities as well. But it is not true for at least one segment of the utility business: wholesale service over transmission lines is still regulated by FERC using many of the same traditional ratemaking principles that have been employed for generations.

The well-known, oft-repeated mantra of the utility regulator is that rates must be "just and reasonable." FPA section 205,[9] under which FERC regulates interstate transmission rates and wholesale power sales,[10] is entitled "Just and Reasonable Rates" and reads:

> All rates and charges made, demanded, or received by any public utility for or in connection with the transmission or sale of electric energy subject to the jurisdiction of the Commission, and all rules and regulations affecting or pertaining to such rates or charges shall be just and reasonable, and any such rate or charge that is not just and reasonable is hereby declared to be unlawful.[11]

This provision, vague as it may first seem, forms the backbone of FERC rate regulation. Similar provisions provide a parallel mandate to most—if not all—state public utility commissions for their regulation of retail sales and distribution services.

9. 16 U.S.C. § 824d.

10. This article will primarily focus on transmission rates when it discusses FERC regulation; FERC has largely, albeit not entirely, gone over to a market-based rate concept for sales of electric energy.

11. 16 U.S.C. § 824d(a).

The rates awarded by utility commissions are bounded on the low end by the concept of a "reasonable return." In 1923, in *Bluefield*,[12] the Supreme Court explained thusly:

> Rates which are not sufficient to yield a reasonable return on the value of the property used at the time it is being used to render the service are unjust, unreasonable, and confiscatory, and their enforcement deprives the public utility company of its property in violation of the Fourteenth Amendment.[13]

As such,

> [a] public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties, but it has no constitutional right to profits such as are realized or anticipated in highly profitable . . . ventures.[14]

A little more than two decades later, in *Hope,*[15] the Court expounded on this doctrine in the context of reviewing a decision made by FERC's predecessor, the Federal Power Commission (FPC), on natural gas rates. The FPC, it noted, was given "broad powers of regulation," at the heart of which was "[t]he fixing of 'just and reasonable' rates . . . with powers attendant thereto."[16] As such, the Court ruled,

> [r]ates which enable the company to operate successfully, to maintain its financial integrity, to attract capital, and to compensate its investors for the risks assumed certainly cannot be condemned as invalid, even though they might produce only a meager return on the so-called 'fair value' rate base.[17]

But ensuring the seller an opportunity to earn an adequate return is only one side of the "just and reasonable" equation. Rates are bounded on *both* sides to form a "zone of reasonableness."[18] Rates that are too low are unjust, unreasonable, and confiscatory of utilities, just as rates that are too high are unjust, unreasonable, and exploitive of customers. Indeed, as the Supreme Court has repeatedly recognized, the FPA is, above all, a consumer protection statute.[19] For instance, in

---

12. Bluefield Water Works and Improvement Co. v. Pub. Serv. Comm'n of West Virginia, 262 U.S. 679 (1923).

13. *Id.* at 690.

14. *Id.* at 692-93.

15. Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944).

16. *Id.* at 611 (internal citation omitted).

17. *Id.* at 605.

18. Maine v. FERC, 854 F.3d 9, 21 (D.C. Cir. 2017) ("To calculate the ROE for a utility that is not publicly traded, FERC relies on the ROEs for a 'proxy group' of comparable publicly traded companies. After adjusting that range of ROEs to exclude unrepresentative high or low rates, 'the Commission assembles a zone of reasonable ROEs on which to base a utility's ROE.' The zone of reasonableness is intended to balance the interests of investors and consumers, and typically results in a broad range of potentially reasonable ROEs. After assembling this zone of reasonableness, FERC assesses the utility's circumstances to determine whether to make 'pragmatic adjustment[s]' to the rate.") (internal citations omitted).

19. *See, e.g.*, FERC v. Elec. Power Supply Ass'n, 136 S.Ct. 760 (2016); Morgan Stanley Cap. Grp. Inc. v. Pub. Util. Dist. No. 1 of Snohomish Cty., Wash., 554 U.S. 527, 551 (2008); Mun. Light Boards of Reading & Wakefield, Mass. v. FPC, 450 F.2d 1341, 1348 (D.C. Cir. 1971).

FERC v. EPSA, the Supreme Court characterized the FPA's core objectives thusly: "The statute aims to protect 'against excessive prices' and ensure effective transmission of electric power."[20] In other words: in addition to its statutory obligation to set "just and reasonable rates," FERC must also (1) ensure prices are sufficient to secure safe and reliable service while (2) protecting consumers against excessive prices (with "the consumer's interest" ultimately "[being] paramount").[21]

These obligations are sometimes thought of as competing—or even conflicting. But, in these authors' opinion, protecting consumers from being charged excessive prices and ensuring safe and reliable service are not in tension. The reasonableness of a service's price cannot be judged in a vacuum; as "[p]rice really has no meaning except in terms of an assumed quality of service."[22] In other words, because "[b]uyers can be exploited just as effectively by giving them poor or unsafe service as by charging them excessive prices,"[23] "[a] reduction in quality is a hidden price increase."[24] Therefore, price, safety, and reliability are all inextricably connected, and the consumer's receipt of safe and reliable service is a key component of what makes a rate "just and reasonable."

Unfortunately, traditional ratemaking tools, particularly those associated with cost-of-service rates, can create perverse incentives for utilities that can ultimately endanger consumers' receipt of the safe and reliable service that they paid for—or worse.

B. Traditional Ratemaking Can Establish Perverse Incentives

Bluefield and *Hope*, discussed above, clearly delineate the fundamental principle of cost-of-service ratemaking: utilities are entitled to a reasonable opportunity to recover their prudently-incurred costs plus a reasonable return. In the decades that have followed, ratemaking at FERC and at state utility commissions has tended to focus on precisely that: cost. Utilities, of course, argue that their rates and especially their rates of return are too low. Consumers argue that they are too high. Often, settlements are reached somewhere in the middle; if they are not, litigation ensues over each cost item.

Traditionally, and often still, cost-of-service rates are based on a fixed annual revenue requirement.[25] Essentially, when a utility files a stated rate at FERC or at a state commission, it includes an estimate for each component of its cost of service (usually based on a historical test year),[26] such as administrative, general, and

20. *FERC v. EPSA*, 136 S. Ct. at 781 (internal citations omitted).

21. *Williams Pipe Line Co.*, 21 FERC ¶ 61,260, 61,583 (1982), *reh'g denied* 22 FERC ¶ 61,086 (1983).

22. KAHN, *supra* note 6, at 21.

23. *Id.*

24. Green, *supra* note 8, at 82.

25. These rates are also known as "stated rates." *See e.g.* Darryl Tietjen, *Tariff Development 1: The Basic Ratemaking Process*, PUB. UTIL. COMM'N OF TEXAS 1 (2021).

26. *See, e.g.,* Branko Terzic, *Incentive Regulation: Efficiency in Monopoly*, 8 NAT. RES. & ENV'T 3, 28 (Winter 1994) ("In the current ratemaking scheme as practiced in most regulatory jurisdictions, an annual revenue requirement is determined based on projections in a test year and is then divided by the estimate of annual sales, which results in the simplest regulatory ratemaking formula."); *See also* 18 C.F.R. § 35.13 (a),(c),(d),(h) (requirements for certain utility rate change filings, including cost-of-service analysis for defined test periods).

operations and maintenance expenses; taxes; and depreciation.[27] It also proposes a rate of return (its weighted average cost of capital) on the net (depreciated) value of its utility investments (rate base). The sum is a number that is supposed to be the total amount the utility needs to run its operations for the year (i.e., its revenue requirement).[28] To derive rates, the revenue requirement is then "divided among functions (like generation, transmission, distribution, and customer service) . . . allocated among customer classes (like residential, commercial, industrial, and street lighting), and then assigned to billing determinants (like electrical energy consumed, peak power demand, and fixed monthly fees)."[29] Often this is done by using a forecasted load number—i.e., a utility's "reasonable when made" estimate of how much its sales and other load (such as losses) will be in a given year.

Two aspects of this system combine to create particular incentives for the filing utility. First, the rates are not trued up to actual expenditures—the utility recovers its authorized rate regardless of whether its actual costs end up being higher or lower than its forecasted ones and regardless of whether its actual sales end up being higher or lower than forecast. Second, the funds received in rates are not earmarked: the component costs are used to support a rate determination, but the actual revenue collected from rates may be spent on any legitimate business purpose, retained, or even distributed as dividends to investors.

Independently, each of these features could be seen as desirable. For instance, the lack of a true-up can incentivize efficiency by urging utilities to "practice operating economies and to stimulate growth of demand for service."[30] Likewise, the lack of earmarking can give utilities the flexibility they need to operate under real-world conditions and avoid micromanagement of utility operations by regulators.

However, it has long been acknowledged that this structure also creates problematic incentives. Commenters have noted that cost-of-service ratemaking "biases a regulated firm . . . toward more capital-intensive modes of production" where the "purchased capital becomes part of the utility's rate base upon which an allowed or approved rate of return may be earned."[31] Put more simply, utilities may perform unnecessary capital work on which they earn a return rather than cheaper, simpler operations and maintenance work on which they don't. Also, under this system "[a] profit-driven [utility] may pay more attention to short-term gains" or "may cut costs in a way that affects reliability."[32] It is the lack of earmarking that allows the utility the budgetary discretion to shift dollars (whether to

27. Terzic, *supra* note 26, at 28.

28. *Id.*

29. Laurence D. Kirsch et al., *Alternative Electricity Ratemaking Mechanisms Adopted by Other States*, CHRISTENSEN ASSOC.'S ENERGY CONSULTING 3 (May 15, 2016), https://www.caenergy.com/wp-content/uploads/2016/02/Kirsch_Morey_Alternative_Ratemaking_Mechanisms.pdf.

30. JAMES C. BONBRIGHT ET AL., PRINCIPLES OF PUBLIC UTILITY RATES 96 (2d ed. 1988).

31. *Id.* at 356 (discussing Averch-Johnson thesis).

32. Joseph P. Tomain, *The Past and Future of Electricity Regulation*, 32 ENVTL. L. 435, 459 (2002) (citing Charles H. Koch, Jr., *Control and Governance of Transmission Organizations in the Restructured Electricity Industry*, 27 FLA. ST. U.L. REV. 569, 590-97 (2000)).

inefficient capital projects or to dividends). And it is the lack of a true-up that allows the utility to keep any excess profits it reaps.

Specifically, the two features discussed above combine to form the perverse incentive on which we focus: high maintenance costs claimed for ratemaking purposes, followed by actual underspending on maintenance in order to boost profits to the long-term detriment of safety and reliability. This is not a new issue—and as demonstrated above, we are not the first authors to take this question up. However, the risks posed by maintenance failures have only grown with an increased population and associated dependency on electricity, challenging anew the acceptability of this skewed incentive. Moreover, extreme weather conditions due to climate change can make maintenance failures that were once all but unnoticeable catastrophically dangerous.[33] One high profile case in particular illustrates what can happen when these fundamental changes collide with an outdated paradigm of sloppy maintenance practices: seemingly benign lapses can compound over many years before disastrous results surface. We discuss that example and others, and propose some possible tools that FERC can use to mitigate these dangers.

C. Perverse Incentives in Utility Ratemaking Can Lead to Catastrophic Consequences

In the long term, exploitation of cost-of-service ratemaking incentives can lead—and has led—to catastrophic equipment failures, destruction of enormous amounts of both public and private property, and even loss of life, as will be discussed below.

As a rule, though, these instances can (initially) be hard to spot. When customers and customer advocates in rate cases are focused on costs alone, they might not dig into the data to notice when the company is skimping on maintenance. And when they see underspending on maintenance or capital work or any other aspect of utility operations, they might take that as an opportunity to argue for a rate reduction, rather than push for more money to be spent to preserve the system.

For this reason, it is interesting to look at cases where the consequences were not catastrophic, but where the utility's cost-cutting strategy became apparent over the course of several rate cases. This played out in Tennessee and West Virginia, where two subsidiaries of the American Water Works Company, the Tennessee and West Virginia American Water Companies, sought rate increases from the state public utility commissions. In both cases, the two utilities ran relatively small water systems in discrete parts of their state, which allowed the relevant commissions to look at their rate requests on a more detailed level than most large utility requests. It became clear that both attempted to recover the costs of more full-time personnel than they actually retained, all while skimping on maintenance and continuing to pay dividends to their upstream corporate parent.[34]

---

33. *See e.g.,* U.S. DEP'T OF ENERGY, NATIONAL ELECTRIC TRANSMISSION CONGESTION STUDY 23 (2020) (noting that the increase in severe weather impacts (and our increased vulnerabilities to the same) have only underscored that a robust transmission network is critical).

34. One of the authors, Katharine Mapes, was involved in these cases, representing the Utility Workers Union of America and its relevant locals in a series of proceedings at the Tennessee Regulatory Authority and at

For instance, in its 2011 rate case, the Tennessee American Water Company asked for authorization to recover the costs of 110 employees in rates—which would suggest plans to significantly increase staff from existing levels.[35] In fact, the company's authorized personnel levels steadily *decreased* from a high of 107 in 2009 to 87 full-time employees by the time of its 2011 rate request (although it had been authorized to recover the costs of 109 employees in its previous rate request).[36] On the stand, the company's president admitted that maintenance had been behind schedule. As justification for falling behind on maintenance while laying off personnel, he stated: "2010 was going to be a year that did not nearly approach the 10.2% return on equity and we're continuing to decline. So at that point, we had to do what we could to manage the business."[37] Doing what was needed to manage the business did *not*, however, involve decreasing the dividends paid by the Tennessee American Water Company to its upstream corporate parent—the American Water Works Company.[38]

Similarly, in its 2010 rate case, the West Virginia American Water Company testified that it needed 316 full-time employees to maintain "adequate" service to its customers. The company's president went so far as to say on the stand that he did not believe that the company "[could] achieve any additional cost savings in head count."[39] The West Virginia Public Service Commission, relying on this testimony despite requests from other parties in the case that it decrease the authorized headcount, thus granted the company's requested authorization. A few weeks later, the company announced that it was laying off thirty-one employees and significantly decreasing its investment in distribution infrastructure. The company admitted that this would cause reliability problems. In a subsequent investigation by the West Virginia Public Service Commission into the reductions in force, the company's president stated:

> [W]e anticipate that the Staffing Reductions may affect the Company's response time on main breaks. Moreover, over time, the possibility of more main breaks exists, because we have been unable, due to a reduction in discretionary investment, to increase the pace of distribution infrastructure replacement.[40]

---

the West Virginia Public Service Commission. Along with Anree Little, Ms. Mapes also participated in the briefing of PG&E's "TO18" rate case before FERC, FERC Docket No. ER16-2320 (July 29, 2016), on behalf of the Northern California Power Agency and the California Department of Water Resources; she also represented clients in the PG&E "TO18" litigation. All views put forth in this article are the authors' own and should not be attributed to their clients, past or present.

35. Transcript of Direct Test. of John Watson at 21: 14-17, *Tennessee American Water Co.*, Docket No.10-00189 (Tenn. Regulatory Authority Sep. 23, 2010), http://share.tn.gov/tra/orders/2010/1000189a.pdf.

36. Transcript of Direct Test. of James Lewis at 5:1-6:3, *Tennessee American Water Co.*, Docket No. 10-00189 (Tenn. Regulatory Authority Jan. 5, 2011), http://share.tn.gov/tra/orders/2010/1000189ez.pdf.

37. Cross-examination of John S. Watson, Vol. II.C, Tr. 342:20-25, *Tennessee American Water Co.*, Docket No. 10-00189 (Tenn. Regulatory Authority Mar. 1, 2011).

38. *Id.* Tr. 345:6-13, 346:4-13 (Watson conceding that no consideration was given to reducing the dividend in light of the maintenance needs and purported revenue shortfalls).

39. Transcript of Direct Testimony of Wayne D. Morgan at 31:18-32:1, *West Virginia-American Water Co.*, Case No. 10-0920-W-42T (W. Va. Pub. Serv. Comm'n Aug. 2, 2010).

40. Transcript of Direct Testimony of Wayne D. Morgan at 16:10-13, *West Virginia American Water Co*., Case No. 11-0740-W-GI (W. Va. Pub. Serv. Comm'n June 29, 2011).

The company nonetheless justified its decision on the ground that it received less in rate relief (i.e., a lower revenue requirement) than it had asked for and, thus, argued that it needed to make cuts in other places[41]—unstated but yet easily understood was that it needed to do this to maintain profits at an acceptable level for its parent company.

In this case, the company's plan was thwarted, at least temporarily, by the West Virginia Public Service Commission, which put an initial order in place enjoining the layoffs and requiring the company to keep itself fully staffed. Ultimately, after a full investigation, it enjoined some of the layoffs—those that it deemed to bear directly on the safety and reliability of the company's service—until the company's next rate case. The West Virginia Public Service Commission concluded that it would

> not wait for actual service problems to support a finding that the actions of [the company] are unreasonable. The requirement for evidence of unreasonable acts or practices can be based on reasonable expectations and does not require the Commission to wait until the facilities of a utility are so poor that consumer complaints increase to unprecedented levels or result in instances of dangerous conditions or inadequate service.[42]

The Tennessee and West Virginia American Water Company rate cases are interesting because of how specific the evidence was that the companies shorted service quality in exchange for shareholder profits. For larger utilities, state commissions cannot and do not drill down to individual job titles and, of necessity, take a broader view. This is true of rate cases at FERC as well. However, that does not mean that FERC and stakeholders cannot get valuable information in those cases, as PG&E's "TO18" rate case,[43] discussed below, shows.

PG&E provides gas and electric power to large swathes of Northern California. Its service territory includes most of the San Francisco Bay Area, including San Francisco itself, Oakland, and San Jose. It also includes more sparsely populated portions of the state, such as communities located in the Sierra Nevada Mountains.[44] Thus, in addition to maintaining systems in densely populated urban areas (above and below ground), it must also maintain transmission and distribution systems in mountainous areas prone to high winds and wildfires.[45]

---

41. *See, e.g.,* Transcript of Rebuttal Testimony of Wayne D. Morgan at 5:14-18, *West Virginia American Water Co*., Case No. 10-0920-W-42T (W. Va. Pub. Serv. Comm'n Nov. 22, 2010), http://www.psc.state.wv.us/scripts/WebDocket/ViewDocument.cfm?CaseActivityID=309752&NotType=%27WebDocket%27.

42. Commission Order, *West Virginia American Water Co*., Case No. 11-0740-W-GI at 15 (W. Va. Pub. Util. Comm'n Oct. 13, 2011), http://www.psc.state.wv.us/scripts/WebDocket/ViewDocument.cfm?CaseActivityID=330867&NotType=%27WebDocket%27.

43. *Pac. Gas and Elec. Co.*, 175 FERC ¶ 61,040 at P 1 (2021).

44. CALIFORNIA ENERGY COMM'N, *Energy Maps of California: Electric Utility Service Area Map* (2020), https://cecgis-caenergy.opendata.arcgis.com/documents/c69c363cafd64ad2a761afd6f1211442/explore; CALIFORNIA ENERGY COMM'N, *Energy Maps of California: Electric Utility Service Territories and Balancing Authorities* (2017), https://cecgis-caenergy.opendata.arcgis.com/documents/electric-utility-service-territories-and-balancing-authorities/explore.

45. *See, e.g.,* Maggie Angst, *Northern California wildfires scorch more than 158,000 acres: PG&E may be partly to blame*, THE MERCURY NEWS (Jul. 19, 2021), https://www.mercurynews.com/2021/07/19/northern-california-wildfires-scorch-more-than-158000-acres-as-pge-reveals-it-may-have-sparked-the-dixie-fire/(discuss

PG&E has been no stranger to the headlines in general—for instance, in 2001, it declared bankruptcy in the aftermath of the California market meltdown at the turn of the millennium.[46] But PG&E entered a new phase of well-publicized safety troubles in September 2010, when one of its gas pipelines exploded in San Bruno, California, killing eight people, destroying thirty-five homes, and damaging many more. PG&E's gas distribution system is under the jurisdiction of the California Public Utilities Commission (CPUC).[47] Thus, when the San Bruno pipeline exploded, the CPUC initiated a long-running investigation (which itself generated various scandals and controversies).[48] It discovered "that the San Bruno incident was caused by a combination of multiple contributing factors," including PG&E's repeated violations of the Public Utilities Code and federal regulations, and general mismanagement.[49] For instance: "PG&E had collected $224 million

---

ing the Dixie, Tamarack, and Beckwourth Complex Fires, all of which started between late June and mid-July 2021, and which, as of July 19, 2021, "continue to scorch more than 158,000 acres of bone dry forest landscape in Northern California", all in or near PG&E's service territory). By August 27, 2021, the Dixie Fire—only 46% contained—had become the largest fire in California's history, burning over 750,000 acres. Anisca Miles, *Massive Dixie Fire burns over 750K acres, 46% contained*, FOX40 (Aug. 27, 2021), https://fox40.com/news/wildfire-watch/dixie-fire-burns-over-750k-acres-is-46-contained/.

46. John Farrell, *Twice Burned, Once Shy—Why Californians Should Be Wary of Bailing Out PG&E Again*, GREENTECH MEDIA (Jan. 21, 2019), https://www.greentechmedia.com/articles/read/twice-burned-once-shywhy-californians-should-be-wary-of-bailing-out-pge-aga ("The last time Pacific Gas & Electric declared bankruptcy, in 2001, its customers paid billions of dollars in higher rates while company creditors and shareholders lost little. In that case, PG&E's losses were largely due to deregulation and marketplace manipulations by Enron and others.").

47. CAL. PUB. UTIL. COMM'N, *Natural Gas and California*, https://www.cpuc.ca.gov/natural_gas/ ("The California Public Utilities Commission (Commission or CPUC) regulates natural gas utility rates and services provided by Pacific Gas and Electric Company (PG&E) . . . [t]he natural gas services which the CPUC regulates include in-state transportation of natural gas over the utilities' extensive transmission and distribution pipeline systems, gas storage, procurement, metering and billing.").

48. For instance, "PUC commissioners and officials, including former President Michael Peevey, were criticized for improper communications with executives at Pacific Gas & Electric Co.," including ex parte conversations regarding "how much to fine PG&E for the 2010 explosion of a natural gas transmission line that killed eight people in the Bay Area city of San Bruno." *See e.g.,* Ivan Penn, *PUC gets public input on reform amid outcry over its practices*, LOS ANGELES TIMES (Aug. 12, 2015), https://www.latimes.com/business/la-fi-puc-overhaul-20150813-story.html.

49. CALIFORNIA PUB. UTILS. COMM'N, *September 9, 2010 PG&E Pipeline Rupture in San Bruno*, CONSUMER PROTECTION & SAFETY DIVISION INCIDENT INVESTIGATION REPORT 3-4 (Jan. 12, 2012) ("CPSD's investigation conclude[d] that the San Bruno incident was caused by a combination of multiple contributing factors: 1. PG&E's failure to follow accepted industry practices when it constructed Segment 180 in 1956; 2. PG&E's failure to comply with the integrity management requirements 3. PG&E's inadequate record keeping practices; 4. Deficiencies in PG&E's SCADA system and inadequate procedures related to the work at the Milpitas Terminal and PG&E's failure to comply with its own procedures; 5. PG&E's deficient emergency response actions after the incident; and 6. PG&E's corporate culture emphasizing profits over safety. The investigation found the following code violations: 1. PG&E did not follow the accepted industry standards specified in ASA B31.1.8-1955 when it installed Segment 180 in 1956 and therefore violated the Public Utilities Code, Section 451; 2. PG&E violated Code of Federal Regulations (CFR) 49, Part 192, Subpart O, for its failure to comply with the integrity management requirements; 3. PG&E failed to keep adequate records for Segment 180 and failed comply with the industry standards specified in ASA B31.1.8-195 and therefore violated the Public Utilities Code, Section 451; 4. PG&E violated 49 CFR Parts 192.605(c) and 192.13(c) for its failure to establish adequate procedures for recognizing abnormal operating conditions at the Milpitas Terminal and for not following its own procedures; 5. PG&E failed to timely test employees at the Milpitas Terminal for alcohol and therefore violated

more than it was authorized to collect in oil and gas revenue in the decade before the explosion. At the same time, it spent millions less than it was supposed to on maintenance and generally fell short of industry safety standards."[50]

Ultimately, the legal consequences to PG&E were far-reaching. The CPUC fined PG&E $1.6 billion at the conclusion of its investigation, at that point the largest fine ever levied against a utility in the United States.[51] PG&E also committed to making $2.8 billion of shareholder-funded improvements to its gas distribution system.[52] Unusually, PG&E itself was also convicted by a federal jury on five charges of violating federal pipeline safety regulations and of obstructing a National Transportation Safety Board investigation (although none of its individual officers and employees were charged).[53] The judge ultimately sentenced PG&E to the harshest sentence allowable under law: a $3 million fine and five years of probation, to expire in January 2022.[54] Of course, this punishment was dwarfed by the CPUC fines (and damages paid out in individual claims brought by victims and families).[55]

Then, in 2017, twenty-one major wildfires fires swept through California's wine country. The California Department of Forestry and Fire Protection (Cal Fire) found that all but one— the Tubbs Fire[56]—involved PG&E's equipment.[57]

Part 199.225; 6. PG&E violated the Public Utilities Code, Section 451 for allowing deficiencies to exist in its SCADA system which interfered with its ability to detect and respond to the emergency; 7. PG&E violated Parts 192.605 and 192.615 and Public Utilities Code Section 451 for inadequately responding to a major incident and jeopardizing public safety.").

50. Morgan McFall-Johnsen, *Over 1,500 California Fires in the Past 6 years — Including the Deadliest Ever —Were Caused by One Company: PG&E. Here's What it Could Have Done but Didn't*, BUSINESS INSIDER (Nov. 3, 2019), https://www.businessinsider.com/pge-caused-california-wildfires-safety-measures-2019-10.

51. George Avalos*, PG&E Slapped with Record $1.6 Billion Penalty for Fatal San Bruno Explosion*, THE MERCURY NEWS (last updated Aug. 12, 2016), https://www.mercurynews.com/2015/04/09/pge-slapped-with-record-1-6-billion-penalty-for-fatal-san-bruno-explosion/.

52. PG&E would later be fined $1.9 billion for its role in multiple "catastrophic 2017 and 2018 wildfires," which "were unprecedented in size, scope, destruction, and loss of life"—including the deadly Camp Fire in November 2018. Press Release, *California Pub. Utils. Comm'n, CPUC Penalizes PG&E $2 Billion for 2017 and 2018 Wildfires* (May 7, 2020), https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M337/K016/337016958.PDF.

53. George Avalos, *PG&E gets Maximum Sentence for San Bruno Crimes*, THE MERCURY NEWS (last updated Jan. 27, 2017), https://www.mercurynews.com/2017/01/26/pge-gets-maximum-sentence-for-san-bruno-crimes.

54. *Id.* PG&E was also ordered to run a television ad campaign explaining its convictions, punishment, and steps toward remediation.

55. Lisa Pickoff-White, David Marks & Alex Emslie, *PG&E Gets $3M Fine for San Bruno Blast, Must Advertise its Conviction on TV*, KQED.ORG (Jan. 26, 2017), https://www.kqed.org/news/11287618/pge-gets-3m-fine-for-san-bruno-blast-must-advertise-its-conviction-on-tv.

56. PG&E reached a settlement with eighteen victims of the Tubbs Fire who claimed PG&E was responsible for the blaze; under the deal, PG&E agreed to pay $13.5 billion to victims of fires occurring in 2015, 2017 and 2018, including the Tubbs Fire. J.D. Morris, *PG&E: Judge Approves Tubbs Fire Settlements*, SAN FRANCISCO CHRONICLE (Jan. 30, 2020), https://www.sfchronicle.com/business/article/PG-E-Judge-approves-Tubbs-Fire-settlements-15014806.php.

57. PG&E Corp., Quarterly Report Pursuant to section 13 or 15(d) of the Securities Exchange Act of 1934 for the quarterly period ended June 30, 2019, (Form 10-Q) 46 (Aug. 9, 2019).

In total, 22 people died in those fires.[58] Ultimately, Cal Fire found that at least three of the fires were caused by PG&E violations of California law[59]—specifically "Section 4293 of the California Public Resources Code, which requires utilities to maintain a specified clearance between any part of the tree and energized power lines and to remove all hazardous trees or limbs that might fall on the lines."[60] Regarding at least some of the fires, the CPUC's Safety and Enforcement Division (SED) also alleged that PG&E violated numerous CPUC rules and regulations.[61] Nevertheless, PG&E did not face charges in connection with these fires.

One year later, in November 2018, PG&E's equipment sparked the Camp Fire—the deadliest fire in California's history—which raged for seventeen days in Butte County, California. By the time the fire was extinguished, 85 people had lost their lives and the towns of Paradise and Concow were virtually destroyed.

That PG&E's equipment—specifically, one of PG&E's transmission lines—was responsible for starting the fire was readily apparent. Investigators quickly determined that in the early morning of November 8, a suspension hook (C hook) that held up an insulator string connecting an energized power line (or jumper conductor) to the transposition arm of a transposition tower (Tower 27/222)[62] on the nearly 100-year-old Caribou-Palermo line failed, having "worn through after a great deal of time hanging in the windy environs [where it was located]."[63] This failure

> allow[ed] the energized jumper conductor to make contact with the steel tower structure. The ensuing electrical arcing between the jumper conductor and steel tower structure caused the aluminum strands of the conductor to melt as well as a portion of the steel tower structure. The molten aluminum and steel fell to the brush covered

---

58. Order Modifying Conditions of Probation at 2, United States v. Pac. Gas and Elec. Co., No. CR 14-0175 WHA, (N.D. Cal. Apr. 29, 2020) (Doc. 1186) (hereinafter Order Modifying Conditions of Probation).

59. *Id.* (As opposed to other equipment failures that were not necessarily caused by illegal conduct).

60. *Id.*

61. Joint Motion of Pacific Gas and Electric Company (U 39 E), The Safety and Enforcement Division of the California Public Utilities Commission, Coalition for California Utility Employees, and the Office of Safety Advocate for Approval of the Settlement Agreement at 3-4, No. I.19-06-015 (Cal. Pub. Utils. Comm'n June 27, 2019). The alleged violations include:

> (a) [General Order] 95, Rule 19, for disposing of evidence related to a reported incident and Commission investigation; (b) GO 95, Rule 31.1, for failing to identify and abate dying, diseased or weakened trees and tree parts; improper performance of vegetation management activities, such as pruning, removal, etc.; failing to perform a complete patrol of its system and according to best practices described in PG&E procedures; failing to retain documents related to vegetation inspections and a work order; late completion of work orders according to PG&E's own procedures; and for PG&E's records indicating that a work order had been completed when, in fact, the work had not been performed; (c) GO 95, Rule 35, for allowing vegetation to contact energized, bare conductors operating at distribution voltages, and for improperly prioritizing and deferring abatement of vegetation straining and abrading a secondary/service voltage conductor; (d) GO 95, Rule 38, for allowing two energized conductors of the same circuit to make contact thus violating minimum clearance requirements; and (e) Resolution E-4184 for failing to report one of the fire locations in the Potter/Redwood Fire.

Id.

62. BUTTE COUNTY DISTRICT ATTORNEY, *The Camp Fire Public Report: A Summary of the Camp Fire Investigation* 2-3, 9 (June 16, 2020) [hereinafter Camp Fire Report].

63. *Id.* at 2-3.

> ground at the base of the steel tower structure. This molten metal ignited the dry brush.[64]

Aided by high winds, the fire spread rapidly.

California has an unusual legal structure in place called "inverse condemnation," under which utilities can be held responsible for damages caused by fires started by their equipment even if those fires were not caused by negligence or other malfeasance.[65] This doctrine has worried California utilities for years—given the increasingly fire-prone conditions in the state due to climate change, even a prudently-operated utility could spark a catastrophic wildfire.

It soon became clear, however, that PG&E had *not* prudently operated its utility. Though the Caribou-Palermo line had been constructed nearly 100 years earlier, many original components were still in use.[66] For instance, many of the transposition components on Tower 27/222, "including the transposition arms, C hooks, insulator strings and jumper conductor, were original components in service since 1921."[67] In particular, "the insulator string hanging from the C hook that broke on November 8, 2018" was determined to be an original insulator.[68] Subsequent modeling further suggested that the wear on the C hook whose failure sparked the Camp Fire "was consistent with approximately 97 years of rotational body on body wear."[69] Yet PG&E rarely inspected or patrolled the Caribou-Palermo line: in 2005, "the Caribou-Palermo line was reduced to only being inspected once every five years and patrolled once per year in non-inspection years. ([This was a] reduction . . . from the three patrol/inspections *per year* prior to 1995)."[70] To further cut costs, PG&E "reduc[ed] the thoroughness of the inspections and patrols" that they had already reduced in frequency.[71] As explained in the Butte County District Attorney's public report of the Camp Fire investigation:

> Review of internal PG&E documents, including emails, and interviews with PG&E personnel determined that the unit cost for inspection and patrol is calculated based upon the time that a troubleman spends inspecting an individual structure. . . . [E]ach year PG&E determines an average unit cost for each type of inspection or patrol. The unit cost would be translated into time and multiplied by the total number of structures on an individual line. The result would be the time allotted for the inspection or patrol of that transmission line. . . . salary incentives (bonuses) of Transmission Line Supervisors and Transmission Superintendents was [sic], at least partially, based upon compliance with the inspection and patrol budget. Based upon the evidence, PG&E reduced costs of inspection and patrol by reducing the amount of time budgeted for the inspections and patrols.[72]

---

64. *Id.* at 9.

65. Inverse condemnation is in Article 1, section 19 of the California Constitution and has been used against regulated entities since at least 1996. *See, e.g.*, San Diego Gas & Elec. Co. v. Superior Ct. of Orange Cty., 920 P.2d 669, 697-700 (Cal. 1996).

66. Camp Fire Report, *supra* note 62, at 18-19.

67. *Id.* at 19.

68. *Id.*

69. *Id.* at 22.

70. Camp Fire Report, *supra* note 62, at 25 (emphasis added).

71. *Id.* at 27.

72. *Id.*

Between 2001 and 2018, aerial patrol by helicopter was the primary way by which the Caribou-Palermo lined was inspected and patrolled.[73] Interviews with current and former PG&E employees revealed that prior to 2001, "helicopter patrols of the Caribou-Palermo line [took] one to one and [a] half days."[74] By 2011, however, "flight records document[ed]" a mere "3.2 hours for the aerial patrol of the Caribou-Palermo line,"[75] which did not meet either PG&E's professed internal standards or "the requirements of the law or the regulatory agencies."[76] To make matters worse, in interviews with all qualified company representatives who had "inspected or patrolled the Caribou-Palermo line since [2005]," all denied that they "[had received] any formal training on conducting inspections and patrols and assessing wear."[77] They also denied being provided "with any records (for example tower schematics) specific to the transmission lines being inspected."[78] With all that being the case, it is hardly surprising that PG&E failed to identify the dangerous degree of wear on the C-hook that started the Camp Fire—in spite of the fact that the transmission tower on which that C-hook was located "had supposedly been assessed *just days before* the fire."[79]

But even if PG&E *had* identified the wear on the C-hook, it is far from clear that PG&E would have acted promptly to rectify the matter. In a series of Wall Street Journal articles following the Camp Fire, the paper reported that PG&E consistently neglected maintenance on its transmission lines, including the Caribou-Palermo line. On February 27, 2019, it reported that in 2013, PG&E told "federal regulators it had planned maintenance work on the line because it sagged

---

73. *Id.* at 40.

74. Camp Fire Report, *supra* note 62, at 40.

75. *Id.*

76. *Id.* at 37. For instance, the alleged regulatory violations include:

> (a) GO 95, Rule 18, for improperly prioritizing a disconnected insulator hold-down anchor; (b) GO 95, Rule 31.1, for failing to maintain equipment for its intended use and regard being given to the conditions under which it was to be operated; (c) GO 95, Rule 31.2, for failing to thoroughly inspect equipment and identify an immediate Safety Hazard or Priority A condition; (d) GO 95, Rule 44.3, for failing to replace or reinforce equipment before its safety factor was reduced to less than twothirds of the safety factor specified in Rule 44.1; (e) GO 165, Section IV, for failing to follow PG&E's internal procedures; (f) Resolution E-4184 for failing to report in a timely manner a reportable incident; and (g) PU Code Section 451 for failing to maintain an effective inspection and maintenance program to identify and correct hazardous conditions on transmission lines in order to furnish and maintain service and facilities.

Joint Motion of Pacific Gas and Electric Company (U 39 E), The Safety and Enforcement Division of the California Public Utilities Commission, Coalition for California Utility Employees, and the Office of Safety Advocate for Approval of the Settlement Agreement at 4, No. I.19-06-015 (Cal. Pub. Utils. Comm'n June 27, 2019).

77. Camp Fire Report, *supra* note 62, at 29.

78. *Id.* While "PG&E documents and management personnel assert[ed] that troublemen receive training on the requirements of the position," it should be noted that the Camp Fire investigation turned up evidence that PG&E records were routinely missing, incomplete, or sometimes falsified. *Id.* at 30, 37-39.

79. Order Modifying Conditions of Probation at 9, United States v. Pac. Gas and Elec. Co., No. CR 14-0175 WHA, (N.D. Cal. Apr. 29, 2020) (Doc. 1186) (emphasis in original).

too close to the ground and vegetation. It planned to complete the work by February 2016. Instead, it delayed the $30.3 million project several times."[80] Similarly, the Butte County District Attorney dug into PG&E's financial situation, noting that while "[f]inancial records from 2007 through 2018 obtained from PG&E, the CPUC and FERC clearly established PG&E had consistently increased its budget for maintenance, repair and replacement of transmission assets . . . PG&E was not using the money to replace the oldest and most deteriorated transmission assets."[81]

The results of PG&E's criminally negligent actions were catastrophic. In the end, PG&E pled guilty to 84 counts of involuntary manslaughter.[82] The liability associated with the fire also led PG&E to declare bankruptcy in January 2019[83] (PG&E reached a settlement with creditors and emerged from bankruptcy in July 2020).[84]

A public utility being convicted of felonies springing from two separate incidents in under a decade is notable however you look at it.[85] But from a FERC ratemaking perspective, the Camp Fire disaster was particularly revealing. As it happened, the Camp Fire investigations more or less coincided with the litigation of PG&E's "TO18" rate case where PG&E asked FERC for rate relief—including Operations and Maintenance (O&M) spending for the transmission line that failed in the Camp Fire. And discovery and testimony in that case bore out on a large scale what the Wall Street Journal and Butte County District Attorney also found regarding the Caribou-Palermo line. In short, it became clear that each year,

80. Katherine Blunt & Russell Gold, *PG&E Delayed Safety Work on Power Line That is Prime Suspect in California Wildfire*, THE WALL STREET JOURNAL, (Feb. 27, 2019, 1:42 PM), https://www.wsj.com/articles/pg-e-delayed-safety-work-on-power-line-that-is-prime-suspect-in-california-wildfire-11551292977?mod=article_inline.

81. Camp Fire Report, *supra* note 62, at 48.

82. Vanessa Romo, *PG&E Pleads Guilty on 2018 California Camp Fire: 'Our Equipment Started That Fire,'* NPR.ORG (June 16, 2020, 11:09 PM), https://www.npr.org/2020/06/16/879008760/pg-e-pleads-guilty-on-2018-california-camp-fire-our-equipment-started-that-fire.

83. Katherine Blunt & Russell Gold, *PG&E Files for Bankruptcy Following California Wildfires*, THE WALL STREET JOURNAL, (Jan. 29, 2019, 1:06 PM), https://www.wsj.com/articles/pg-e-files-for-bankruptcy-following-california-wildfires-11548750142.

84. Bloomberg, *PG&E Emerges from Bankruptcy*, LOS ANGELES TIMES, (July 1, 2020, 5:29 PM), https://www.latimes.com/business/story/2020-07-01/pge-exits-bankruptcy.

85. PG&E could face further convictions. At the time of this article's publication, PG&E was "being criminally prosecuted in Sonoma County" for its role in the 2019 Kincade Fire, "which Cal Fire blamed on the power company's failure to properly decommission a transmission line near Geyserville that eventually fell in high winds." It was also under criminal investigation for its role in the 2020 Zogg fire, which killed four. *See* Jaxon Van Derbeken, *PG&E Settles With Counties and Cities Over 2019, 2020 Wildfires*, NBCBAYAREA.COM, (last updated May 26, 2021, 9:42 PM), https://www.nbcbayarea.com/investigations/pge-settles-with-counties-and-cities-over-2019-2020-wildfires/2555734/. So far, PG&E has agreed to pay affected local governments "a combined $43.3 million to compensate for starting" the fires. *Id.* On July 18, 2021, PG&E reported that "blown fuses" atop a PG&E utility pole may have started the 2021 Dixie Fire. Adeel Hassan, *The Utility PG&E Says its Equipment May Have Led to a 30,000-acre Wildfire*, THE NEW YORK TIMES, (July 19, 2021), https://www.nytimes.com/2021/07/19/us/pge-dixie-fire.html.

PG&E asked FERC for significantly more money in O&M expenses than it ultimately spent.[86]

By the time of PG&E's "TO18" rate case, PG&E had just settled over a decade's worth of rate cases in a row. Parties to those rate cases had seen detailed spending data provided voluntarily by PG&E in settlement negotiations under the auspices of a FERC Administrative Law Judge (ALJ); however, that discovery was all produced subject to settlement confidentiality (and sometimes an additional non-disclosure agreement).[87] Thus, it wasn't until "TO18" was litigated that hearing discovery and testimony was on public view. The testimony showed a consistent pattern of over-forecasting in a way that would increase PG&E's effective profits—for instance, it consistently asked for more O&M money than it spent, and it forecast its gross load to be lower than it was (thus increasing the rates approved by FERC).[88]

In testimony, PG&E offered what it viewed as an explanation for its underspending on O&M:

> In each of these years, PG&E voluntarily agreed to settle on a lower revenue requirement than it had supported in its application (including supporting testimony and workpapers). PG&E typically files in July of the year preceding the [test year] of its TO rate cases. PG&E and the Parties have reached uncontested settlements of the revenue requirement in each of those cases, well before the end of the operating year for which PG&E was seeking funding. Therefore, it is reasonable that PG&E would target its spending, based on an uncontested settlement, when the proposed settlement would grant approval of a revenue requirement lower than as-filed.[89]

By the time of litigation in that case, however, the test year in question had concluded; and PG&E had still underspent on its O&M expenses, despite the fact that it had not settled on a voluntary decrease in rates. Instead, a PG&E witness explained at hearing, PG&E had essentially created a "litigation reserve" anticipating it would not receive its full rate request at hearing:

> A. In the course of this litigation, we've received challenges to our forecasted O&M expenses, and we know at the conclusion of this proceeding, that there may be a refund obligation. And therefore we plan for that event. . . .

---

86. Summary of Testimony of David Marcus at 25, *Pacific Gas and Elec. Co.*, FERC Docket No. ER16-2320-002 (July 5, 2017) (Revised on Jan. 15, 2018), Ex. SWP-0056, (internal citations omitted) (hereinafter Testimony of David Marcus). "Looking at the multi-year pattern, there have been eight years since 2005 for which PG&E both forecasted a network transmission O&M expense component of its Period II TRR and subsequently reported an actual Period I network transmission O&M expense. In seven out of eight of those years, the network transmission O&M expense component of PG&E's forecasted Period II TRR was higher than the actual network O&M transmission expense subsequently reported. In a ninth year, PG&E has not reported its actual network transmission O&M expenses, but it has reported overall network transmission expenses, which were far below its forecast for that year." *Id.* at 25-26.

87. *See* 18 C.F.R. § 385.602(e) (2021) (preventing the discovery or admission of evidence of settlement offers not ultimately approved by FERC, including comments and discussions thereon).

88. *See* Direct Testimony of David Marcus, *supra* note 86, at 25, 40-42 (internal citations omitted) ("Over the last decade before its TO18 Filing, PG&E had under-forecasted its Period II sales eight times out of ten, including in the five most recent years . . . And indeed, when PG&E has *not* under-forecast its loads, it has faced extraordinary outside circumstances, such as in 2009 when it reasonably failed to predict the recession.").

89. Prepared Rebuttal Testimony of Brian J. Hitson at 3-4, FERC Docket No. ER16-2320-002 (Oct. 9, 2017), Ex. PGE-0040.

> Q. Would there be less O&M performed so there was an amount of dollars available in the event of a refund?
> A. Yes.[90]

This testimony, even in a vacuum, raised concerns that PG&E was submitting an honest O&M budget and then failing to perform necessary maintenance in order to instead earn a higher effective rate of return,[91] enabling PG&E to "enlarge dividends, bonuses, and political contributions."[92] As it turned out, while "fail[ing] to correct problems" that ultimately "sparked deadly wildfires," PG&E spent enormous amounts on campaign contributions and shareholder dividends.[93] Between 2012 and 2017, PG&E issued $5.1 billion in dividends to shareholders.[94] The company spent another $5.3 million on contributions to "political campaigns and candidates," and claimed that this spending was needed to "ensure that the concerns of customers, shareholders, and employees are adequately represented before lawmakers and regulators."[95]

Intervenors in the "TO18" proceeding represented the majority of wholesale customers in California. And the CPUC, which represents the interests of retail customers, was also an active party. None of those entities argued that PG&E should be required to spend its full request on O&M; instead they argued that PG&E's O&M request should be reduced. FERC ultimately agreed, finding:

> Our review of the evidence in the record and the analysis of the Presiding Judge in the Initial Decision shows that PG&E over-forecasted its O&M expense. Additionally, PG&E's practice of holding an amount in reserve for litigation risk, as confirmed by PG&E's witness, further increases the amount by which its O&M expenses are over-forecasted.[96]

FERC then ordered PG&E's rate request reduced by $48 million for the O&M components.[97]

As such, PG&E's consequence for over-forecasting its O&M spending in previous rate cases was a natural one—it received less money to spend on O&M in the "TO18" period.[98] In many ways, this is the rate setting process working as it should. However, when a utility is not fulfilling its basic maintenance obligations, granting it less money for maintenance makes it even *more* likely to skimp

---

90. Tr. at 165:10-23 (Kozlowski).

91. Testimony of David Marcus, *supra* note 86, at 54-55. Evidence also adduced in that hearing suggested that PG&E was, in fact, earning a higher effective rate of return than would normally be authorized by FERC. *Id.*

92. Order Modifying Conditions of Probation, *supra* note 58, at 1.

93. Nicholas Iovino, *PG&E Defends Spending on Investors, Politicians as Fires Sparked*, COURTHOUSE NEWS SERVICE (July 31, 2019), https://www.courthousenews.com/pge-defends-spending-on-investors-politicians-as-fires-sparked/.

94. *Id.*

95. *Id.*

96. Opinion No. 572, *Pac. Gas. & Elec. Co.*, 173 FERC ¶ 61,045 at P 215 (2020) (internal citations omitted).

97. *Id.*

98. *Id.*

going forward to some degree. Without oversight or intervention, FERC may be unwittingly risking throwing the company into a downward spiral.

Meanwhile, the PG&E story continues. During the 2019 fire season, PG&E de-energized power to large portions of its system during high-fire risk conditions,[99] which might well have spared Californians another catastrophic wildfire.[100] Even so, it also meant that millions of Californians were without power for significant amounts of time.[101] While acknowledging that PG&E deserved credit for taking that step, PG&E's probation judge—Judge Alsup—noted that the conditions that necessitated it "remain proof positive of how unsafe PG&E had allowed its maintenance backlog to become."[102] In a scathing order, Judge Alsup laid out what he viewed as PG&E's failures to fulfill its obligations as a public utility:

> A fundamental concern in this criminal probation remains the fact that Pacific Gas & Electric Company, though the single largest privately-owned utility in America, cannot safely deliver power to California. This failure is upon us because for years, in order to enlarge dividends, bonuses, and political contributions, PG&E cheated on maintenance of its grid—to the point that the grid became unsafe to operate during our annual high winds, so unsafe that the grid itself failed and ignited many catastrophic wildfires.[103]

To be sure, PG&E is an extreme example of the consequences that can result when utilities cut corners in order to maximize their profits. In all likelihood, the Tennessee and West Virginia American Water Company cases are more reflective of the "average" impact of such corner cutting. Nevertheless, the point remains that if utilities have a perverse incentive to maximize profits by reducing spending in other areas, such as system maintenance, basic economic theory suggests that

---

99. Order Modifying Conditions of Probation, *supra* note 58, at 4. As PG&E's probation judge noted "[A]fter each [power shut-off], crews discovered, in total, 365 fallen limbs and trees strewn across PG&E distribution lines. Even according to PG&E, 291 of those fallen limbs and trees would've likely caused arcing, meaning that sparks and molten metal flashed upon the dry grass or whatever lay below." *Id.* at 5 (internal citations omitted).

100. How much credit PG&E should receive for this de-energization is up for debate. At the end of the day, it only came about after PG&E's probation judge "strongly urged" PG&E to "temporarily de-energize any power line unsafe to operate during dry-season windstorms." PG&E "protested the idea and resisted any order to engage in such temporary de-energizations;" ultimately, however, it "voluntarily" de-energized portions of its system. Order Modifying Conditions of Probation at 3-4, U.S. v. Pac. Gas & Elec. Co., No. 3:14-cr-00175-WHA (N.D. Cal. Apr. 29, 2020), ECF No. 1186.

101. *See, e.g.*, Olga R. Rodriguez & Janie Har, *Millions Face Power Outages in Northern, Central California*, DENVER POST (Oct. 9, 2019), https://www.denverpost.com/2019/10/09/california-power-outages/ ("The utility announced that it was shutting off power to 800,000 customers . . . It could take as many as five days to restore power after the danger has passed"); ASSOCIATED PRESS, *millions remain without power in northern california as fires spread*, KPBS (Oct. 28, 2019), https://www.kpbs.org/news/2019/oct/28/fires-spread-amid-power-outages-northern-californi/ ("Pacific Gas & Electric Co. has notified more than 1.2 million people that they may have their electricity shut off for what could be the third time in a week and the fourth time this month."). Since then, PG&E has unveiled an ambitious decade-long plan to place 10,000 miles of its most risk-prone lines underground at a cost ranging from $15 to $40 billion. *See* Ivan Pen, *PG&E Aims to Curb Wildfire Risk by Burying Many Power Lines*, N.Y. TIMES (Aug. 6, 2021), https://www.nytimes.com/2021/06/24/us/politics/what-is-in-the-infrastructure-plan.html.

102. *PG&E*, No. 3:14-cr-00175-WHA, at 4.

103. *Id.* at 1.

some utilities will choose to do so. Every time that occurs, ratepayers suffer some degree of harm—whether that be a reduction in reliability or, in the worst cases, significant harm to public safety. Ultimately, the more often corners are cut, the likelier it is that sooner or later another system will fail catastrophically. And while few failures are as catastrophic as the Camp Fire, utility failures on a lesser scale may still be enormously disruptive to life and livelihood. Protecting customers from devastating service failures is a core component of being a state or federal regulator. However, what can FERC do when its typical response—reducing the money a utility receives as a consequence for over-forecasting O&M expenses—risks exacerbating the utility's perverse incentive to cut costs?

III. FERC ENFORCEMENT, IN GENERAL, AND RELIABILITY STANDARDS SPECIFICALLY, ARE NOT DESIGNED TO ADDRESS THE INCENTIVES ASSOCIATED WITH TRADITIONAL RATEMAKING.

When thinking about how to address inappropriate utility cost-cutting, it may seem self-evident to approach it as a service quality issue and, perhaps, prescribe and enforce minimum service standards. After all, most jurisdictions empower utility commissions to "investigat[e] and issue findings on whether the service offered under their jurisdiction is 'unjust, unsafe, improper, inadequate or insufficient,' and to promulgate rules for its improvement."[104] At the state level, minimum performance is ensured through regulations referred to generally as "quality standards."[105] However, the FPA does not give FERC similar authority, at least explicitly, to enforce general service quality standards at the federal level.[106]

Mandatory reliability standards, the focus of the remainder of this section, are only a subset of service quality, but come the closest to providing objective criteria. However, these standards were never designed to police utility maintenance budgets or address individual utility performance issues that do not implicate the reliability of the larger grid.

Mandatory reliability standards originated with the Energy Policy Act of 2005 and were incorporated in section 215 of the FPA,[107] which made FERC responsible for the reliable operation of the interconnected electric grid, and greatly expanded its role and jurisdiction in that area. Where FERC "had previously addressed electric grid reliability in an indirect manner, such as allowing the cost

104. KAHN, *supra* note 6, at 21.

105. *Id.*

106. We acknowledge that section 207 of the FPA, 16 U.S.C. § 824f, states that upon a complaint by a state commission, ''[w]henever the Commission . . . shall find that any interstate service of any public utility is inadequate or insufficient, the Commission shall determine the proper, adequate, or sufficient service to be furnished, and shall fix the same by its order, rule, or regulation . . . .'' However, FERC has only invoked that authority once since the FPA was enacted in 1935. *See District of Columbia Pub. Serv. Comm'n*, 114 FERC ¶ 61,017 at PP 28-31 (2006) (ordering PJM Interconnection, L.L.C. and Potomac Electric Power Company to file a transmission plan to provide adequate reliability to the Washington D.C. area). There, the Department of Energy had already used its FPA section 202 emergency powers to order the Mirant Potomac River plant, which had threatened to shut down, to continue generating electricity. *Id.* at P 1.

107. 16 U.S.C. § 824o (added by Energy Policy Act of 2005, Pub. L. No. 109-58, § 1211, 119 Stat. 594, 941-46).

recovery of public utility expenditures that address discrete reliability matters,"[108] FERC now had the authority to certify and oversee the ERO; the organization charged with developing[109] and enforcing the mandatory reliability standards[110] against users, owners, and operators of the bulk power system.

In 2006, FERC used its FPA section 215 authority to certify NERC as the ERO.[111] Like regional transmission organizations (RTOs) or independent system operators (ISOs), NERC is a non-governmental agency. Today, through six regional entities, it enforces over one hundred reliability standards meant to "provide for an adequate level of reliability of the bulk-power system."[112]

NERC's Reliability Standards undoubtedly serve a critical purpose, but they were not designed for the task of ensuring minimum performance of individual utilities. Instead, FPA section 215 mandates that FERC (and as certified by FERC, NERC) protect against "instability," "uncontrolled separation," and "cascading failures."[113] As reflected in the statute's language, Congress was concerned with "reliable operation of the bulk-power system"[114] and focused regulation of its individual elements only to the "extent necessary to provide for reliable operation of the bulk-power system."[115]

The FPA has drawn jurisdictional lines between state and federal regulation of electricity. As mentioned above, FPA section 215 provides for federal jurisdiction only to the extent necessary to provide for reliable operation of the bulk electric system.[116] While there has been controversy over the years about how far down the chain this extends, as a general rule, FERC and NERC have not promulgated standards over every transmission facility that is included in FERC-jurisdictional transmission rates. For instance, NERC's Vegetation Management Standard[117] does not apply to all FERC jurisdictional transmission lines; those minimum clearance requirements generally only apply to lines operating above 200 kV.[118] The reliability standard, titled "Transmission Maintenance" (FAC-

108. FERC, RELIABILITY PRIMER 5 (2020), https://www.ferc.gov/sites/default/files/2020-04/reliability-primer_1.pdf.

109. FERC cannot directly issue Reliability Standards; it can only direct NERC to do so, and either approve the standards as proposed or remand them to NERC. *See* 16 U.S.C. § 824o(d).

110. *See Id.* at § 824o(e). Though FERC has delegated its enforcement authority to the ERO (*i.e.*, NERC), FERC retains the ability to directly enforce reliability standards and may review any penalty assessed by NERC.

111. Order No. 672, *North Am. Elec. Reliability Corp.*, 116 FERC ¶ 61,062 at PP 1, 3 (2006).

112. 16 U.S.C. § 824o(c)(1).

113. *Id.* at § 824o(a)(3).

114. *Id.*

115. *Id.*

116. 16 U.S.C. § 824(a)-(b) (2012) (specifying that the Act provides for federal jurisdiction over "the transmission of electric energy in interstate commerce and the sale of such energy at wholesale in interstate commerce" but not "over facilities used for the generation of electric energy or over facilities used in local distribution").

117. N. AM. ELEC. RELIABILITY CORP., STANDARD NO. FAC-003-4, TRANSMISSION VEGETATION MANAGEMENT 1 (2016), https://www.nerc.com/_layouts/15/PrintStandard.aspx?standardnumber=FAC-003-4&title=Transmission%20Vegetation%20Management&Jurisdiction=United%20States.

118. This is why it is believed the power lines involved in the PG&E fires have not been found to be subject to FERC's jurisdiction. RICHARD J. CAMPBELL, CONG. RSCH. SERV., IN11189, CALIFORNIA WILDFIRES AND BULK ELECTRIC SYSTEM RELIABILITY 2 (2019) (noting that NERC's vegetation clearance requirements apply to

501-WECC-2), only applies to lines along major transfer paths identified by Western Electric Coordinating Council (WECC), a NERC regional entity.[119]

Even where maintenance standards apply, the requirements are written to afford utilities considerable flexibility in planning and executing needed maintenance, to say nothing of the amount management may spend. For example, FAC-501-WECC-2 requires that the utility develop and maintain a transmission maintenance and inspection plan containing certain elements (*e.g.*, list of facilities, maintenance methodology, periodicity, etc.), but leaves its design and execution largely up to the utility.[120] The utility's maintenance plan may be "performance-based," "time based," "condition based," or some combination thereof.[121] The utility must comply with its own plan and update it annually—maintenance budgets are not discussed at all.

The standards are tailored to address the risks to the grid that animate FPA section 215's statutory purpose, but also highlight the practical challenges of a more granular, prescriptive approach. For instance, NERC has not tried to set detailed, comprehensive standards that ensure utilities—each with its own unique equipment, configuration and circumstances—are performing O&M on a sustainable cycle.

Nor are we arguing that it should. Such a top-down approach would be an enormous undertaking, particularly in light of the lengthy, stakeholder driven process NERC uses to develop standards. Requiring NERC to come up with detailed standards to ensure that every aspect of utility maintenance is performed properly, regardless of how attenuated its impact would be on the overall grid, depends on a fairly broad view of the authority granted to FERC/NERC under FPA section 215. Even assuming it could be done, ensuring NERC and FERC have the enforcement capability needed to oversee those standards would require a drastic expansion of their scope and, undoubtedly, their funding.

This is not to say that FERC is the wrong entity to address this problem. To the contrary, FERC is the agency empowered to review transmission rates and, thus, is the only entity that can address a mismatch between the rate charged and the service provided. As will be discussed in the following section, FERC already has the tools to do that under existing law.

---

overhead transmission lines operating above 200 kV, and some that operated below 200 kV, if those lines are designated by the Western Electric Coordinating Council (a NERC regional entity); however, distribution lines, usually 100 kV, are regulated by state utility regulatory commissions).

119. N. AM. ELEC. RELIABILITY CORP., STANDARD NO. FAC-501-WECC-2, TRANSMISSION MAINTENANCE 1 (2018), https://www.nerc.com/_layouts/15/PrintStandard.aspx?standardnumber=FAC-501-WECC-2&title=Transmission%20Maintenance&Jurisdiction=United%20States (limiting application of the standards to the WECC paths listed in Attachment B).

120. *Id.*

121. *Id.*

IV. FERC SHOULD TAKE ADVANTAGE OF EXISTING TOOLS TO ENSURE THAT AUTHORIZED RATES HELP MAINTAIN, RATHER THAN WORK AGAINST, SERVICE QUALITY.

As was discussed in Part I, FERC has an obligation under section 205 of the Federal Power Act to ensure that rates under its jurisdiction are just and reasonable. As noted there, the reasonableness of a rate—literally, the price of service—cannot be judged in a vacuum, as "[p]rice really has no meaning except in terms of an assumed quality of service."[122] Thus, FERC should think of its jurisdiction as encompassing more than just setting rates at a theoretically appropriate numerical level. Ensuring that customers are getting the safe and reliable service that they pay for is just as core of a component of FERC's ratemaking responsibility. In fact, FERC already has an array of ratemaking tools at its disposal that it could use to more rigorously ensure that (1) utilities are not increasing their profits by inappropriately reducing operating costs and (2) that authorized rates are used to maintain safe and reliable service. Though the fundamentals of ratemaking (ROE methodology aside) tend to remain fairly static, FERC is "not bound to the use of any single formula or combination of formulae in determining rates."[123] Instead, "[u]nder the statutory standard of 'just and reasonable' it is the result reached not the method employed which is controlling."[124] In other words, FERC and other utility commissions have a variety of tools at their disposal to address service and reliability issues.

One option that can change the incentives for utilities, often for the better from a customer standpoint, is transitioning from a stated rate to a formula rate (in which estimated costs and sales are trued up to actuals through operation of the formula).[125] For example, PG&E transitioned to a formula rate in 2018 upon filing its "TO20" rate case, and this has been the trend for many other utilities as well. For instance, PG&E's peers in California (the Southern California Edison Company (SCE) and San Diego Gas and Electric) also made that transition over the last decade.[126] Under a formula rate, utilities cannot increase their effective rate

---

122. KAHN, *supra* note 6, at 21; *see also Am. Tel. & Tel. Co.*, 524 U.S. at 215 ("Since rates have meaning only when one knows the services to which they are attached, any claim for excessive rates can be couched as a claim for inadequate services and vice versa.").

123. Wisconsin v. Fed. Power Comm'n, 373 U.S. 294, 309 (1963) (quoting Fed. Power Comm'n v. Hope Nat. Gas Co., 320 U.S. 591, 602 (1944)); *see also* Fed. Power Comm'n v. Nat. Gas Pipeline Co., 315 U.S. 575, 586 (1942) ("The Constitution does not bind rate-making bodies to the service of any single formula or combination of formulas.").

124. *Fed. Power Comm'n*, 373 U.S. at 309 (quoting *Hope Nat. Gas Co.*, 320 U.S. at 602).

125. A formula rate is a cost-of-service ratemaking method in which "pre-specified formulas" are used "to calculate automatic rate adjustments to keep the utility's actual rate of return on equity (ROE) within or near a specified band around the authorized ROE." LAURENCE D. KIRSCH ET AL., ALTERNATIVE ELECTRICITY RATEMAKING MECHANISMS ADOPTED BY OTHER STATES, at v (2016) (emphasis removed); *see also* KEN COSTELLO, NRRI BRIEFING PAPER NO. 10-11, FORMULA RATE PLANS: DO THEY PROMOTE THE PUBLIC INTEREST?, at ii (2010) ("[T]he utility adjusts its base rates outside of a general rate case, usually annually, based on an actual or projected rate of return (ROR) on rate base or equity . . . .") (emphasis removed).

126. *See, e.g.*, Appendix X Formula Rate Tariff Filing, *San Diego Gas & Elec. Co.*, FERC Docket No. ER21-243-000, at 2 (Oct. 29, 2020); Paul Dumias, *Southern California Edison Requests Changes to Transmission Formula Rate for Wildfire Risk*, ENERGY CENT. (Apr. 16, 2019), https://energycentral.com/c/tr/southern-

of return by underspending on items like O&M; instead, their rate of return is a fixed component in the formula. For this reason, they are sometimes preferred by ratepayers and their advocates, who have spent years fighting with utilities about over-forecasting in stated rates. However, they are not universally preferred by customers or ratepayer advocates, who sometimes believe that the formula can leave components, such as ROE, in place after they are no longer just and reasonable since the burden of filing a complaint rests on the customer. Some also believe that the utility has more control in a formula rate review process, which is relatively opaque, where customers are dependent on an "annual update" process each year to review the inputs and true-ups. At the end of the day, formula rates have a tendency to shift financial risks from utilities to customers.[127]

Further, formula rates are not devoid of perverse incentives for utilities. Customers may worry that utilities will spend unnecessarily, knowing they are virtually sure of recovering that money.[128] While utilities with formula rates may have less reason to skimp on maintenance, they might also have less incentive to control costs than they would under a stated rate, and, because their rates adjust automatically, there is arguably less regulatory review of the prudence of these costs.[129]

These are all real concerns. That said, that formula rates reduce the incentives for utilities to skimp on maintenance should not be ignored either and should be considered as part of the calculus when a stated rate utility seeks to transition to a formula rate. All the same, formula rates in and of themselves should not be considered a panacea. In the following section, we discuss a number of other options that FERC can employ with fewer potential downsides for consumers—some of which may sometimes be appropriate in the formula rate context as well.

A. FERC Could Account for Utility Malfeasance in Evaluating Utility Riskiness and Setting ROEs

As a general matter, the costs of remediating maintenance failures—and certainly penalties resulting from those failures—should come from shareholder profits, not from ratepayers. Commissions, including FERC, must be vigilant about this; it sometimes means a close examination of a utility's capital costs to ensure it is not covertly recovering the cost of a penalty.

Specifically, the question of how utility malfeasance weighs into the determination of ROEs has not been sufficiently considered. FERC is obligated under *Hope* and *Bluefield* to ensure that utilities earn ROEs "commensurate with returns

---

california-edison-requests-changes-transmission-formula-rate-wildfire. It should be noted, however, that FERC has always left it up to utilities whether to file a stated or formula rate. While FERC could probably use its authority to mandate specific rate structures, the approaches we suggest are more targeted, and meant to preserve management discretion.

127. KIRSCH ET AL., *supra* note 125, at 10; KEN COSTELLO, NRRI REPORT NO. 14-03, ALTERNATIVE RATE MECHANISMS AND THEIR COMPATIBILITY WITH STATE UTILITY COMMISSION OBJECTIVES 39 (2014).

128. *See, e.g.*, ELEC. CONSUMERS RES. COUNCIL, FORMULA RATES, https://elcon.org/formula-rates/ (identifying as problematic the "reduced incentives to control costs" and "reduced scrutiny and transparency" associated with formula rates).

129. KIRSCH ET AL., *supra* note 125, at 10-11; COSTELLO, *supra* note 127, 38 n.106 ("[A] formula rate place could increase the chances of a utility passing through imprudent cost to customers.").

on investments in other enterprises having corresponding risks."[130] How FERC determines the risk of a given utility has changed over the years as it has revised its ROE analyses. In general, it involves an examination of a utility's credit ratings and ability to attract capital and comparisons to utilities deemed "proxies."[131] However, this analysis fails to account for the fact that a utility's excess risk may, in some cases, be largely of its own creation.

For instance, just one year after the Camp Fire, PG&E asked the CPUC for a significant rate hike, arguing that its ROE should be raised "from the current 10.25 percent to 16 percent."[132] PG&E justified this increase as necessary to allow it to "invest billions in wildfire safety and system reliability"[133] and "to give investors a higher return to lure capital," given the "utility's financial woes."[134] In recent FERC rate cases, PG&E has likewise asked for a higher ROE than comparable utilities located outside of California, arguing that it is riskier than other utilities due to its wildfire risk.[135]

Some of this risk—particularly prior to the 2019 passage of legislation in California creating a joint liability fund[136]—is due to California's particular inverse condemnation system, mentioned in Part I, under which utilities can be liable for damages for fires started with their equipment even when those fires were not negligently caused.[137] Other California utilities, such as SCE, have also pointed to this in their FERC and CPUC filings.[138]

But neither PG&E's elevated risk level, nor its particular "financial woes," are equally shared by all California utilities. PG&E's 2019 bankruptcy[139]—the "biggest utility bankruptcy in U.S. history"[140]—was declared while the company

130. *Hope Nat. Gas Co.*, 320 U.S. at 603.

131. *Maine*, 854 F.3d at 20-21.

132. Dale Kasler, *Gavin Newsome blasts PG&E's request to raise rates and profits as debate over wildfire costs rages*, SACRAMENTO BEE (Apr. 23, 2019), https://www.sacbee.com/news/politics-government/capitol-alert/article229556149.html.

133. *Id.*

134. *Id.*

135. *See, e.g.*, Initial Brief on Paper Hearing Concerning Return on Equity, *Pac. Gas & Elec. Co.,* FERC Docket No. ER16-2320-002, at 1, 9-10 (Dec. 14, 2020).

136. Ivan Penn & Peter Eavis, *California Lawmakers Give Utilities a Backstop on Wildfire Liability*, N.Y. TIMES (July 11, 2019), https://www.nytimes.com/2019/07/11/business/energy-environment/wildfire-california-utilities.html.

137. *Id.*

138. *See, e.g.*, Transmission Owner Tariff Transmission Rate Filing (TO2019A), *Southern Cal. Edison Co.,* FERC Docket No. ER19-1553-0000, at 5, 17, 20 (Apr. 11, 2019); CAL. PUB. UTIL. COMM'N, PROCEEDINGS A1904014, APPLICATION OF SOUTHERN CALIFORNIA EDISON COMPANY (U338-E) FOR AUTHORITY TO ESTABLISH ITS AUTHORIZED COST OF CAPITAL FOR UTILITY OPERATIONS FOR 2020 AND TO PARTIALLY RESET THE ANNUAL COST OF CAPITAL ADJUSTMENT MECHANISM 3 (2019).

139. Katherine Blunt & Russell Gold, *PG&E Files for Bankruptcy Protection Following California Wildfires*, WALL STREET J. (Jan. 29, 2019), https://www.wsj.com/articles/pg-e-files-for-bankruptcy-following-california-wildfires-11548750142?mod=article_inline.

140. Bloomberg, *PG&E Emerges from Bankruptcy*, L.A. TIMES (July 1, 2020), https://www.latimes.com/business/story/2020-07-01/pge-exits-bankruptcy.

anticipated incurring enormous amounts of liability *because its negligently-maintained equipment sparked the "single most destructive wildfire in California history and the worst in the United States in a century."*[141] Thus, PG&E's elevated risk level is unique even among California utilities, and its risk level and "financial woes" are, at least in this instance, entirely self-inflicted. As of press time, the issue of how PG&E's risk should factor in determining PG&E's ROE has been briefed before FERC in PG&E's "TO18" rate case.[142] This case could be an opportunity for FERC to make it clear that it will not grant an ROE premium to a utility on the grounds that it is an unusually risky investment *when its own bad behavior is the reason it is a risky investment in the first place*.[143]

The law is clear that there is a "zone of reasonableness [that] creates a broad range of potentially lawful ROEs" (as opposed to a single just and reasonable ROE).[144] To that end, it is clear that FERC has the authority to refrain from rewarding utility malfeasance with higher ROEs. As one FERC ALJ put it, "efficient management is assumed in setting a rate of return."[145] And indeed, in the natural gas context, FERC has been more explicit and has long held that it will not "reward" a utility for inefficiencies that put it at risk.[146] That logic applies equally to electric utilities.[147] Allowing bad actors to profit at the consumers' expense is unjust, unreasonable, and contrary to the duty of regulatory agencies charged with protecting the consumer interest. It also provides utilities with little financial incentive to ensure they properly maintain their systems.

B. FERC Could Make Greater Use of the "Prudent Investment" Standard

The "prudent investment" standard—under which a utility need only be "provided the opportunity to recover its actual legitimate or prudent costs—determined

---

141. Kirk Siegler, *The Camp Fire Destroyed 11,000 Homes. A Year Later Only 11 Have Been Rebuilt*, NAT'L PUB. RADIO (Nov. 9, 2019), https://www.npr.org/2019/11/09/777801169/the-camp-fire-destroyed-11-000-homes-a-year-later-only-11-have-been-rebuilt (emphasis added).

142. *See, e.g.*, *Pac. Gas & Elec. Co.*, FERC Docket No. ER16-2320-002 (Dec. 14, 2020). Note that although the Camp Fire postdates the period under consideration in the "TO18" rate case, the 2017 wine country fires happened right in the middle of it. And as seen, the maintenance failures were ongoing. *See Pac. Gas & Elec. Co.*, *supra* note 135, at 7, 10; Bill Gabbert, *A list of some of the fires attributed to PG&E powerline equipment*, WILDFIRE TODAY (Apr. 6, 2021), https://wildfiretoday.com/2021/04/06/a-list-of-some-of-the-fires-attributed-to-pge-powerline-equipment/.

143. *Maine*, 854 F.3d at 27-28, 30.

144. *Id.* at 23, 26.

145. *Cities of Greenwood & Seneca, S.C. v. Duke Power Co.*, 77 FERC ¶ 63,017, at p. 65,077 (1996) (citing Bluefield Waterworks & Improvement Co. v. Pub. Serv. Comm'n of W. Va., 262 U.S. 679, 692-93 (1923) ("[T]he return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, *under efficient and economical managements*, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.")) (emphasis added).

146. *Transcon. Gas Pipe Line Corp.*, 85 FERC ¶ 61,323, at pp. 62,270-72 (1998) ("when a pipeline's higher risk is due to its own inefficiencies, FERC will not increase its ROE.").

147. *Northern Nat. Gas Co.*, 175 FERC ¶ 61,059 (2021) (Danly, Comm'r, dissenting at P 1 n.2) ("[T]he courts have treated the [Natural Gas Act (NGA)] and FPA as analogous in substance.). *See Ark. La. Gas Co. v. Hall*, 453 U.S. 571, 577 n.7 (1981) (following its "established practice of citing interchangeably decisions interpreting the pertinent sections of the [FPA and NGA]" due to the relevant provisions being "'substantially identical'" (citations omitted)).

by a public examination of the utility's outlays"[148]—has been a long-standing part of utility ratemaking. The prudent investment standard requires:

> '[A] utility [to] demonstrate that it went through a reasonable decision making process to arrive at a course of action and, given the facts as they were or should have been known at the time, responded in a reasonable manner.' Further . . . a utility is compensated for all prudent investments at their cost when made, irrespective of whether they are deemed necessary or beneficial in hindsight. That is, the focus in a prudence inquiry is not whether a decision produced a favorable or unfavorable result, but rather, whether the process leading to the decision was a logical one, and whether the utility company reasonably relied on information and planning techniques known or knowable at the time . . . . Finally, the inquiry encompasses a public utility's continuation of an investment as well as its decision to enter into that investment, and requires the utility to respond prudently to changing circumstances or new challenges that arise as a project progresses.[149]

The flip side of that is that a utility commission need not—and in fact, should not—allow recovery of *imprudently* incurred costs.

Prudence challenges are often discussed as a way to curb utility "gold plating"—circumstances where utilities upgrade their system unnecessarily. But they can also be employed when utilities fail to do maintenance year after year, and then must over-spend to address a backlog or remediate a disaster. They might also prove useful where utilities are doing the *wrong* work—for instance, where they are overspending on capital projects on which they earn a return and underspending on bread-and-butter maintenance to keep the system running. For this reason, they are a useful tool in the arsenal of ensuring reliability. Unfortunately, as a practical matter, this tool has slipped into obsolescence at FERC.

To that end, there are only rare examples of successful prudence challenges at FERC. For instance, in *Public Service Company of New Hampshire,*[150] the Public Service Company of New Hampshire (PSNH) was found to have acted imprudently when it "made spot purchases of coal from [suppliers other than its main supplier] for the purpose of bringing its coal reserve up to 45 days supply."[151] PSNH made these spot purchases at times when (1) *force majeure* prevented its main supplier from providing the full shipment *and* (2) its reserves were low (meaning it had less than a 45 day supply).[152] However, FERC noted that, under PSNH's contract, the main supplier was obligated to make up delayed shipments—even if the delay were caused by a *force majeure* event—should the delay cause PSNH's reserve level to fall below a 45 day supply.[153] The contract further made it clear that "PSNH had the right to call upon [the main supplier] to ship

148. KARL MCDERMOTT, COST OF SERVICE REGULATION IN THE INVESTOR-OWNED ELECTRIC UTILITY INDUSTRY: A HISTORY OF ADAPTATION 6, 9 (2012).

149. Gulf States Utils. Co. v. La. Pub. Serv. Comm'n, 578 So. 2d 71, 84-85 (La. 1991) (internal citations omitted).

150. 1 FERC ¶ 63,039, at pp. 65,297-98 (1977).

151. *Id.* at 65,296-97.

152. *Id.*

153. *Id.* at 65,297.

additional carloads of coal, regardless of whether the reserve pile had fallen below 45 days."[154] FERC thus held that

> the cost of spot purchases were imprudent and unreasonable to the extent the total of these costs exceeded the total price (including freight) which would have been paid . . . [the main supplier] for coal had it been delivered by . . . [the supplier] under the contract with PSNH instead of the coal obtained by spot purchases. [155]

It thus required PSNH to refund its jurisdictional customers.[156] That case, however, was an interesting anomaly and FERC's long-standing presumption that costs are prudent unless shown otherwise has generally not been successfully rebutted.[157] It is, of course, not the role of a regulator to second guess the day-to-day decision-making of utility management.[158] As FERC has held, "managers of a utility have broad discretion in conducting their business affairs and in incurring costs necessary to provide services to their customers."[159] But perhaps due to this underlying doctrine, the outcome is that prudence challenges have succeeded so rarely at FERC that they are rarely attempted and are generally discussed among practitioners as a futile endeavor.

For example, in *Williston Basin Interstate Pipeline Company*,[160] FERC applied the prudence doctrine to a pipeline's capital costs. In *Williston*, several state agencies challenged the Williston Basin Interstate Pipeline's proposed cost of long-term debt. Pursuant to FERC's general policy, the appropriate cost of long-term debt should be determined based on data acquired during a test period. [161] Williston proposed a cost of long-term debt of 10.24 percent; in response, the state agencies argued "that the cost of Williston's long-term debt should be reduced to 8 percent because it should have refinanced its debt in 1992 down to that level."[162] Instead, Williston refinanced and lowered its debt costs in 1993, after the test period concluded, at which point those lower costs would not affect its rate case.[163] FERC analyzed the facts under the prudence standard but ultimately sided with the pipeline. Finding that "even if Williston [had refinanced] during the test period

154. 1 FERC ¶ 63,039, at 65,297.

155. *Id.* at 65,298.

156. *Id.*

157. Richard J. Pierce, Jr., *Public Utility Regulatory Takings: Should the Judiciary Attempt to Police the Political Institutions?,* 77 GEO. L.J. 2031, 2050 (1989) ("When I researched this topic for other purposes in 1983, I conducted an exhaustive search for regulatory disallowances based on imprudence. The Federal Energy Regulatory Commission (FERC) and its predecessor, FPC, had never disallowed an investment on the basis of imprudence in the agency's fifty year history. I could find only a few cases in which state agencies had disallowed investments based on a finding of managerial imprudence. Even in those rare cases—about one per decade—the magnitude of the disallowance was relatively trivial."); *See also* MELISSA WHITED ET AL., UTILITY PERFORMANCE INCENTIVE MECHANISMS: A HANDBOOK FOR REGULATORS 12 (2015).

158. KARL MCDERMOTT, COST OF SERVICE REGULATION IN THE INVESTOR-OWNED ELECTRIC UTILITY INDUSTRY, A HISTORY OF ADAPTATION 12-13 (2012).

159. *New England Power Co*., 31 FERC ¶ 61,047 (1985) (emphasis added).

160. 72 FERC ¶ 61,074 (1995) [hereinafter *Williston*].

161. *Id.* at 61,373.

162. *Id.*

163. *Id.*

of this case, it only could have gotten down to a 9.85 percent rate,"[164] FERC concluded that the difference between a 10.24 percent rate and a 9.85 percent rate was "not so significant as to demonstrate imprudence in failing to renegotiate the debt at that time, rather than a later, as it did."[165]

It is noteworthy that the cases mentioned above are quite old. For whatever reason—perhaps because practitioners have long viewed FERC as resistant to prudence challenges, combined with general trends towards higher numbers of settlements—relatively few have actually been litigated at FERC in recent years. PG&E's "TO18" litigation, once again, provides a rare example. In that case, the CPUC challenged the prudence of PG&E's Embarcadero-Potrero project—a transmission project that PG&E had told the CPUC would cost some $196.8 million when it sought a Certificate of Public Convenience and Necessity. PG&E then proceeded to file at FERC for recovery of $288.3 million.[166]

The CPUC alleged a number of errors, including that:

> [T]he complexity and magnitude of the Embarcadero-Potrero cable warranted a longer time line than PG&E prescribed for the project; PG&E embarked on a "high-risk" execution strategy simultaneously conducting design, permitting and procurement; during the planning, permitting and most of the design phase, PG&E assigned a single project manager who was also managing two other projects; the project experienced an unspecified "governance" problem in 2013, as well as inadequate schedule development, and difficulties in effectively managing several large engineering, procurement and construction contracts; and PG&E effectively chose to act as the prime contractor without understanding the associated responsibilities and risks.[167]

While this seems like a daunting litany of complaints, the ALJ who issued an initial decision in the case dismissed them in two paragraphs, and FERC concurred. In fact, the ALJ concluded, if that were

> sufficient to raise serious doubts as to the prudency of PG&E's expenditures, then any utility that undertakes an expensive, complex, unfamiliar project can expect to have to prove the prudency of large portions of its project expenditures. Any reasonable utility manager would thus think twice about undertaking such a project, at least if it were avoidable. Yet the optimal efficiency of the electric transmission grid depends upon utilities' willingness to undertake just such projects.[168]

Without weighing in on the merits of that case, it does seem noteworthy that even a state regulator raising the issue of an overrun of nearly 50% and not far short of $100 million did not raise many eyebrows at FERC. Combined with the rarity of such challenges, this appears to support the common assumption held by practitioners that prudence challenges are simply not a route to success at FERC.

---

164. 72 FERC ¶ 61,074, at 61,374.

165. *Id.*

166. In "TO18", the CPUC brought an additional prudence claim related to PG&E transmission projects which did not go through the ISO transmission planning process. FERC also dismissed this claim. However, the legal arguments involved in that claim were complicated and related to a separate complaint filed by a number of entities (including the CPUC) against PG&E on its transmission planning standards and FERC Order No. 890, so we do not discuss it here as a representative example. *Pac. Gas and Elec. Co.*, 175 FERC ¶ 61,040 at P 632 (2021).

167. *Id.* at P 642.

168. *Id.* at P 643.

But that means that FERC is essentially making a tool unavailable that could allow it to incentivize utilities to spend money in ways that helps ensure service quality.

A rulemaking or even a policy statement[169] by FERC announcing a closer look at prudence issues could alter the prudence standard such that it becomes a real option for customers looking at how their jurisdictional utilities spend money. This does not need to supplant any state oversight or utility management prerogatives. Instead, it would ensure that when there is long-standing evidence that utilities have neglected maintenance for years leading to more expensive maintenance later on, ratepayers could object. Likewise, if utilities are performing less necessary capital work on which they earn a return rather than maintenance work on which they don't, ratepayers again would have recourse. None of this would necessarily be used often—but the existence of the option could have an incentive effect in and of itself.

It is also worth noting that a challenge of this type will never be cheap or easy to mount. It is likely to require a significant investment in discovery and engineering witnesses or experts to even be credible. For those who are concerned about the expanded scope of prudence challenges, this should be of some comfort.

C. FERC Could Use its FPA § 219 Authority to Implement Performance-Based Ratemaking.

Section 219 of the FPA—added to the statute in 2005—enabled, and indeed in some cases mandated, that FERC implement "incentive-based (including performance-based) rate treatments"[170] for a variety of behaviors (e.g., joining a RTO/ISO). Rate incentives quickly became a much used, often-litigated tool in FERC's arsenal. The same cannot be said for PBR. Though FERC understood FPA § 219 "to require the Commission to consider [PBR] as an option among incentive ratemaking treatments,"[171] it declined to adopt PBR measures when promulgating Order 679 (which implemented FPA section 219), concluding that doing so would be "premature."[172] In declining, however, FERC did not foreclose

169. As explained in *Pac. Gas & Elec. Co. v. Federal Power Comm'n*, 506 F.2d 33, 38 (D.C. Cir. 1974), "[a]n agency may establish binding policy through rulemaking procedures by which it promulgates substantive rules . . . The critical distinction between a substantive rule and a general statement of policy is the different practical effect that these two types of pronouncements have in subsequent administrative proceedings. A properly adopted substantive rule establishes a standard of conduct which has the force of law. . . . A general statement of policy, on the other hand, does not establish a 'binding norm.' . . . The agency cannot apply or rely upon a general statement of policy as law because a general statement of policy only announces what the agency seeks to establish as policy. . . . When the agency applies the policy in a particular situation, it must be prepared to support the policy just as if the policy statement had never been issued."

170. 16 U.S.C. § 824 (2005).

171. Order No. 679, *Promoting Transmission Investment through Pricing Reform*, 116 FERC ¶ 61,057 at P 270 (2006).

172. *Id.* at P 272.

the possibility of adopting PBR at a later time.[173] In fact, FERC held a technical workshop to discuss certain PBR approaches in September 2021.[174]

For the most part, PBR emerged as an idea at FERC[175] in the early 1990s, precisely because it was intended to help address some of the issues raised in this article—namely, that under traditional ratemaking "utilities face few explicit rewards for taking risks to cut their costs aggressively, and few penalties for excessive spending."[176] Accordingly, traditional ratemaking mechanisms arguably do not "foster long-run productive efficiency."[177] PBR, in contrast, is meant to "create links between regulated utility financial rewards (or penalties) and desired outcomes."[178] In other words, under PBR, a utility might receive a financial reward for producing a desired outcome (i.e., meeting or beating a performance target); similarly, it may be penalized for failing to meet that outcome.[179] Ultimately, a properly designed "PBR framework rewards utilities for achieving well-defined outcomes (performance metrics) as opposed to simply incentivizing capital investment (inputs), which is the primary driver today of utility revenue and profits,"[180] ideally better "align[ing] the goals of customers, regulators, and utilities."[181] This can take numerous forms, many of which are controversial, and some of which could actually *exacerbate* the problems discussed in this article.[182] In Hawai'i, for example, a five-year multiyear rate plan "sets tight limits on the annual rate increases [Hawaiian Electric] will be allowed and largely divorces them from rate-of-return on capital investments."[183] The utility is thus incentivized to keep costs low in order to keep a greater proportion of its rates as profit. However, at the

173. *Id.*

174. *See Workshop to Discuss Certain Performance-based Ratemaking Approaches*, FERC (Sept. 10, 2021), https://ferc.gov/news-events/events/workshop-discuss-certain-performance-based-ratemaking-approaches-09102021.

175. Though incentive or performance-based ratemaking is relatively new to FERC, the concept dates back to the early 1900s. Branko Terzic, *The Incentive Theory*, FORTNIGHTLY, https://www.fortnightly.com/fortnightly/2015/12-0/incentive-theory.

176. *Policy Statement on Incentive Regulation*, 61 FERC ¶ 61,168, at p 61,588 (1992).

177. *Id.*

178. Benjamin Stafford & Liza Frantzis, *Performance-based Regulation: Aligning Utility Incentives with Policy Objectives and Customer Benefits,* UTILITYDIVE (Oct. 5, 2017), https://www.utilitydive.com/news/performance-based-regulation-aligning-utility-incentives-with-policy-objec/506498/.

179. In a particularly harsh variant, a utility may merely avoid a penalty by meeting the desired outcome. *See* Peter Navarro, *The Simple Analytics of Performance-Based Ratemaking: A Guide for the PBR Regulator*, 13 YALE J. ON REG. 105, 111 (1996).

180. Stafford & Frantzis, *supra* note 178.

181. Herman K. Trabish, *Can Performance-based Ratemaking Save Utilities?*, UTILITYDIVE (Apr. 17, 2014), https://www.utilitydive.com/news/can-performance-based-ratemaking-save-utilities/252683/.

182. For instance, absent a quality control mechanism, a performance-based rate could conceivably result in the utility "pursu[ing] cost savings at the expense of system reliability, safety, customer satisfaction, or other measures of quality." Navarro, *supra* note 179, at 105, 113.

183. Jeff St. John, *Hawaii's Bold Step into Utility Performance-Based Ratemaking*, GREENTECH MEDIA (Feb. 10, 2021), https://www.greentechmedia.com/squared/dispatches-from-the-grid-edge/hawaiis-bold-step-into-utility-performance-based-ratemaking.

same time, separate incentives can reward utilities for excellent service and penalize them for underperformance, thus, mitigating the effects of the rate structure as a whole.[184]

It seems neither likely nor particularly desirable for FERC to entirely transition to performance-based ratemaking. However, it need not be an all-or-nothing proposition. Currently, some 19 states and the District of Columbia use PBR for individual performance issues—particularly issues that are segmented and easily quantifiable (for ease of verification).[185] The incentives (termed Performance Incentive Mechanisms or PIMs) adopted by the Hawai'i PUC are good examples. These include:

- Mechanisms to incentivize utilities to exceed Hawai'i's renewable portfolio standards. Utilities that fail to meet these standards will receive a $20 per megawatt-hour penalty; they will also receive an incentive of up to $20 per megawatt-hour for exceeding the standards (which will decrease over time).
- Mechanisms regarding customers' interconnection experience, meant to incentivize faster interconnection times for certain distributed energy resources (DERs).
- Mechanisms regarding low-to-moderate income energy efficiency, meant to promote customer engagement, equity, and affordability.
- Mechanisms regarding advanced metering infrastructure utilization, meant to accelerate the number of customers with advanced meters (thereby encouraging customer engagement and promoting DER effectiveness and grid efficiency).
- Mechanisms regarding grid services, also meant to promote DER effectiveness and grid efficiency.[186]

In Massachusetts, the Department of Public Utilities has "require[d] each distribution utility to submit a ten-year grid modernization plan that [would] reduce outages, optimize demand, integrate distributed resources, and improve workforce and asset management," as well as a "more specific, five-year, short-term investment plan that outlines the business case for the utility's capital investments in grid modernization."[187] Initially, performance metrics were mainly used to track utilities' progress; neither incentives nor penalties were used.[188] As of 2017, however, a rate case involving Massachusetts utility Eversource resulted in the creation of "a five-year [multiyear rate plan] with penalties of about '$50 million annually'

184. Whited et al., *supra* note 157, at 12-13; Trabish, *supra* note 181.

185. Chloe Holden, *Hawaii's More States Explore Performance-Based Ratemaking, But Few Incentives Are in Place*, GREENTECH MEDIA (June 13, 2019), https://www.greentechmedia.com/articles/read/more-states-explore-performance-based-ratemaking-but-few-incentives-in-plac.

186. Jeff St. John, *Hawaii's Bold Step into Utility Performance-Based Ratemaking*, GREENTECH MEDIA (Feb. 10, 2021), https://www.greentechmedia.com/squared/dispatches-from-the-grid-edge/hawaiis-bold-step-into-utility-performance-based-ratemaking.

187. William Boyd & Ann E. Carlson, *Accidents of Federalism: Ratemaking and Policy Innovation in Public Utility Law*, 63 UCLA L. REV. 810, 859 (2016).

188. *Id.*

for failing to meet existing safety and reliability standards."[189] The plan drew some criticism for failing to include new metrics or PIMs.[190]

Finally, in Illinois, PIMs are "layered on to existing [cost-of-service] rates"; they "impose[] penalty-only incentives for failing to improve reliability."[191] If utilities meet their performance metrics, they are allowed to "recover . . . actual costs plus a fixed return on equity;"[192] if they don't meet their performance metrics, they are penalized.[193] More recently, Illinois has also "added reward and penalty PIMs for energy efficiency programs."[194]

It may be equally appropriate for FERC to use similar performance metrics to supplement cost-of-service ratemaking, targeting areas where cost-of-service ratemaking fails to properly incentivize behavior. Utilities should not merely be rewarded for doing what they are supposed to do (provide safe and reliable service to customers), but a combination of incentives and penalties could balance the scales at reasonable costs to consumers. This would not be doable without some investment of time and resources by FERC. FERC could, for instance, track equipment failures—measuring things like the duration, frequency, and scale of the failures—and penalize utilities that experience more than a pre-determined number of failures per year. Likewise, FERC could penalize utilities for incidents where members of the public are injured or killed as a result of utility action or inaction. On the other hand, utilities could be rewarded for providing unusually reliable service (as measured by an unusually low number of equipment failures).

It is also important, though, to ensure utilities are doing what they need to do on a prospective basis so that maintenance backlogs do not build up to a point where catastrophic failures occur. FERC could, for instance, provide incentives to utilities who are replacing their transmission poles on a sustainable cycle. To promote public trust, the question of whether or not utilities have met their metrics could be evaluated by a neutral, independent third party that reports its findings directly to FERC.[195]

In certain cases, performance-based rates could be a powerful tool to ensure compliance. However, it is worth noting again the two major disadvantages that were mentioned above. First, they require a level of time and oversight that would probably require additional staffing and funding by FERC, or a (perhaps even more expensive) contract with an independent overseer. Second, if implemented poorly, they could even become a sinecure, rewarding utilities for conduct that it has always been their obligation to undertake in exchange for the opportunity to

189. Trabish, *supra* note 181.

190. *Id.*

191. *Id.*; Whited et al., *supra* note 157, at 84.

192. Boyd & Carlson, *supra* note 187, at 810, 858.

193. Whited et al., *supra* note 157, at 84.

194. Trabish, *supra* note 181.

195. Whited et al., *supra* note 157, at 31 ("Where commissions have implemented performance tracking and reporting, commission staff frequently review and verify data, but independent third-party evaluators are also used, particularly when financial rewards or penalties are at stake. Greater use of third-party evaluators may help to prevent performance incentive gaming, such as that which occurred in California in the 1990s-2000s.").

earn a reasonable return. (This is, of course, an oft-mentioned criticism of incentive rates). They may still be appropriate, particularly in cases where FERC needs to encourage very specific conduct.[196] But the tracker mechanisms we discuss next may, in many cases, achieve the same goals at reduced cost.

D. FERC Could Adopt Earmarked Funds for Particular Cost Items.

Tracker mechanisms—sometimes known simply as "cost trackers"—"allow utilities to use a formula or predefined rule to recover specific costs from customers outside of general rate cases" and are meant to "provide timely recovery of significant costs that are beyond utility control . . . reduc[ing] utilities' financial risk without compromising their performance and without, in the long run, increasing costs to customers."[197] Examples of tracker mechanisms include fuel adjustment and purchased gas adjustment clauses;[198] asset replacement riders; inflation riders; asset development riders; energy efficiency riders; renewable energy riders; environmental cost riders; weather normalization clauses; and revenue decoupling riders.[199] Tracker mechanisms and earmarked funds have been semi-regularly used by state commissions but have generally not been used widely at FERC.

Historically, FERC policy has generally "disfavor[ed] trackers for costs other than fuel."[200] In the pipeline context, that began to change in 2014, when FERC issued a "Proposed Policy Statement [that] would permit interstate natural gas pipelines to establish a tracker or surcharge mechanism to recover facility upgrade costs related to anticipated pipeline safety, reliability, and environmental regulations, if certain standards [were] met."[201] In 2015, FERC issued a second policy statement, which "closely tracked" the first statement—including the standards that must be met for a pipeline to recovers its modernization costs via a tracker mechanism—and which went into effect in October 2015.[202] To date, however, FERC has yet to use these widely in the transmission context.

---

196. Too often incentives are tied to the amount of utility investment alone, probably because that is a metric that may be easier to define and measure than outcomes or performance. And in many cases the level of investment may be a good proxy for performance, but that correlation need not hold and certainly not indefinitely.

197. Laurence D. Kirsch et al., ALTERNATIVE ELECTRICITY RATEMAKING MECHANISMS ADOPTED BY OTHER STATES, CHRISTIANSEN ASSOS. ENERGY CONSULTING LLC, at vii (2016), https://www.caenergy.com/wp-content/uploads/2016/02/Kirsch_Morey_Alternative_Ratemaking_Mechanisms.pdf.

198. Ken Costello, ALTERNATIVE RATE MECHANISMS AND THEIR COMPATIBILITY WITH STATE UTILITY COMMISSION OBJECTIVES, NAT'L REGIONAL RSCH INST., at vi (2014) ("[A] formula rate place could increase the chances of a utility passing through imprudent cost to customers.").

199. David E. Dismukes, Regulatory and Ratemaking Issues Associated with Cost and Revenue Tracker Mechanisms (Sept. 2010).

200. Emily Pitlick et al., *FERC Offers Analytical Framework for Pipeline Recovery of Costs Related to Safety, Reliability, and Environmental Compliance Costs and Requests Comments*, VAN NESS FELDMAN LLP (Nov. 21, 2014), https://www.vnf.com/339.

201. *Id.*

202. David L. Wochner et al., *FERC Policy Statement Regarding Pipeline Recovery of System Modernization Costs,* K&L GATES LLP 1 (Apr. 29 2015), https://www.klgates.com/FERC-Policy-Statement-Regarding-Pipeline-Recovery-of-System-Modernization-Costs-04-29-2015.

It is time to revisit that reluctance. Earmarked funds in particular could be a powerful tool to ensure that utilities—particularly utilities with a history of reliability problems—are actually spending the money necessary to maintain their system. Had the money PG&E requested for O&M each year in its rate cases gone into an earmarked fund instead of into the company's general funds, perhaps the maintenance backlog would not have persisted and the Camp Fire might never have occurred. That may (one hopes) be an extreme case. But FERC could create narrower funds as well—for instance, FERC could require earmarked funds for vegetation management or transmission line and pole replacement. Utilities that know they will only recover money for a specific purpose will be greatly incentivized to spend it for that purpose.

V. CONCLUSION

Our goal in this article is not to present a singular solution to the problematic incentive we have discussed, but rather to highlight the array of ratemaking tools FERC could use to address this problem if addressing it were viewed, fundamentally, as part of FERC's obligation to ensure just and reasonable rates. In fact, all of the tools we just discussed—ROE determinations, prudence reviews, performance-based ratemaking, and trackers or earmarked funds—can be powerful tools with which to counter the perverse incentives imbedded in traditional ratemaking tools and the resulting harms. In many cases, they might be most powerfully used in combination. For instance, many of the concerns that ratepayers and their advocates have with formula rates could be partially allayed by a robust culture of prudence challenges at FERC. Separately, earmarked funds for particular accounts will likely only come into play when potential wrongdoing by a utility has already been spotted; narrowly framed performance-based mechanisms, on the other hand, could work to head that wrongdoing off at the pass.

Critically, this versatile array of tools is already at FERC's disposal, as FERC's authority to use most—if not all—of these tools stems directly from the FPA. In other words, FERC does not need to wait for others, such as Congress, to act in order to be able to mount an effective response. Accordingly, what is needed is less a shift in law and more a shift in perspective— FERC should consider that its statutorily-mandated task is not only setting the rates at a theoretically appropriate numerical level. It is, as well, to use its broad jurisdiction to ensure that customers are also getting the safe and reliable service they pay for— i.e., it should consider price in relation to the service provided. As such, FERC should use the tools at its disposal more rigorously to ensure both that utilities are not unjustly and unreasonably securing higher profits for themselves by inappropriately reducing operating costs, and that authorized rates are used to maintain safe and reliable service, thereby protecting consumer interests and ensuring grid reliability.

Energy Law Academy
ENERGY BAR ASSOCIATION

In 2020 EBA introduced the **EBA Energy Law Academy,** a series of courses focused on the core legal and regulatory concepts and basic industry fundamentals that every energy law practitioner needs for success!

The overall goal of the Academy is to provide a comprehensive foundation of the various aspects of the energy law sector.

Upon completion, Academy students will have a greater understanding of the major subject matter areas so they can better approach, research, and evaluate the issues their clients face.

EBA Energy Law Academy Courses

101: FERC Regulation of Natural Gas
102: Electricity and Electric Rate Regulation
103: Federal Oil Pipeline Regulation
104: Cost-of-Service Ratemaking
105: Cybersecurity in the Energy Industry
106: Electric Technology for Attorneys
107: Energy Trading
108: Environmental Law
109: Introduction to Hydro Power
110: Electric Reliability

LEARN MORE:
https://www.eba-net.org/education-events/energy-law-academy/

FUEL ASSURANCE, RELIABILITY, RESILIENCE, AND THE GENERATION RESOURCE MIX: REPAIRING VULNERABILITIES EXPOSED IN THE CRISIS

Panel Discussion from the Energy Bar Association's Texas Symposium: The Texas Energy System at the Crossroads: Lessons in the Wake of Major Storms.[*]

PANEL DISCUSSION

Becky Klein: I'm just really pleased to have this robust panel to talk about the issue for this session on resilience fuel assurance and reliability.

Like Michael Jewel, I'm not going to introduce each and every one of them, but I would like them to take just a minute or two and we've prepped this already, so hopefully it'll be under two minutes to tell us and share with us really, given their experience, because we have really diverse experiences here in these chairs. Given those experiences, you know what is their perspective about this particular topic, so I'll just go Lanny can we start with you and go round robin?

Lanny Nickell: Alright, well, thank you Becky and it's good to be here. Good to see all of you in the room. It's been a while since I've been in a in-person meeting and so it's kind of nice being able to actually see the whole body, and not just the upper body of many people. I will not be imagining what you might look like on a zoom call.

Here we go, got a little derailed there thanks.

My name is Lanny Nickell. Southwest Power Pool is my employer. I'm the Chief Operating Officer for the company.

And I have been with the organization for 25 years, a long time, and I have never experienced what we experienced back in February. Something I don't want to ever experience again.

---

* This is a transcript of the "Fuel Assurance, Reliability, Resilience, and the Generation Resource Mix: Repairing Vulnerabilities Exposed in The Crisis Panel" at the Energy Bar Association and University of Texas School of Law's symposium exploring all aspects of the lessons learned from major storm Uri. The Panel discussed the gaps revealed in the Texas energy cloth and how it can be mended back together to ensure that the lights mostly stay on in the midst of a crisis.

Becky A. Klein, the moderator of the panel, is a Principal of Klein Energy, LLC, an energy and water consulting company based in Austin, Texas.

Julia Harvey, one of the panelists, is Vice President, Government Relations and Regulatory Affairs at Texas Electric Cooperative.

Lanny Nickell, one of the panelists, is Executive Vice President and Chief Operating Officer for Southwest Power Pool, a FERC-approved Regional Transmission Organization.

Alison Silverstein, one of the panelists, is a consultant, strategist, researcher and writer on electric transmission and reliability, energy efficiency and technology adoption issues.

Rick Smead, one of the panelists is Managing Director, Advisory Services, for RBN Energy LLC, a oil, gas, and NGL market analytics firm, providing consulting and testimony services to entities in the natural gas industry.

Having said that, these kinds of events have become more frequent and I'm not going to count on not having to experience something like that again. We're going to do everything we can, as an organization, to learn from that experience and to change and improve where change and improvement is needed.

What I hope to be able to do today is to be able to share with you some of my insight that I gathered from the event. Some of the things that we're thinking about doing. We are developing a report that is the summary of a comprehensive review the organization undertook.

Shortly after the event ended, we have not yet published that report, you will see that published by the end of this month. Happy to share with you at least some of those preliminary findings albeit, they're in draft format, right now. So any insight I can share I'd be happy to do so.

Becky Klein: Good, look forward to that insight too, Rick.

Rick Smead: I'm a consultant analyst with RBN Energy, which is an oil and gas fundamentals analytics firm, very well known. My boss was Cramer's featured guest last night. So, we spend a lot of time looking at the Permian Basin.

I personally have been a big advocate of gas power generation for about 13 years. My team at my last consultancy, my team put together the first comprehensive study of what shale gas was really going to be worth and what abundance of natural gas would mean in the United States. And of the potential for what it could do for power generation.

So with that background, I gotta say natural gas was the failure in this whole thing that started it, helped it, kept it going, and that doesn't feel good, so why did it happen?

As I said, we focus on the Permian Basin. It is about one eighth of the United States natural gas supply. It's almost as large as the state of Qatar in terms of production, so it is enormous-- and the Permian lost 73% of its deliverability between Friday and Tuesday. Of its eastbound deliverability that feeds the power generation in the eastern cities in Texas, it lost 85% of its deliverability.

And so you know when that happens, it doesn't matter what you do to all the downstream stuff and with the power generators and everything else. They're like a Soviet grocer with nothing on the shelves.

It was a mess. But there's a report submitted to the Texas Senate on behalf of the Texas Oil and Gas Association by Enverus, which surveyed a lot of suppliers and asked "why did this happen?" And they placed much more blame on loss of power generation than on freeze-offs at the production end of the market.

The Bloomberg Report had a rebuttal, saying "no, they were already losing production before the power went off, so it was really something else." So everybody's pointing fingers but the fact is, it was both things.

Uri hit, you had what in Colorado we used to call a guillotine front, it just slammed into West Texas. It froze the windmills, it simultaneously froze the Permian Basin. They had a lot of freeze-offs, a lot of formation of hydrates that blocked the line, the gas when it comes out of a well in the Permian is extremely wet.

This loss of supply was about 27 percent, that ganged up with wind freezing, coal freezing, plants freezing, to force a blackout. So at 1:30 in the morning on Monday we all got to find out what it was like to live in front of your fireplace.

Basically the other 46% loss of the Permian happened after power went off. So essentially everything had been fixed on the freeze-offs at that point, but it was the loss of power that caused the gas industry not to be able to recover. So there still would have been blackouts but they would have been much shorter term if there had not been a problem with power .

Becky Klein: Thanks Rick. I am anxious to delve into it because you have such a rich background, and I think you're the only oil and gas guy, not only obviously on this panel, but throughout the day that's going to be on the panel. So I'll be going back to you several times here. So more to come on that. To Alison.

Rick Smead: Now Alison's gonna tell me I'm wrong.

Alison Silverstein: No, actually, I agree with everything he said it was very confessional. I don't have that much to share. I feel like I'm in an AA meeting or something, but I agree with everything he said. My background: I'm an economist. I have worked for Pacific Gas and Electric twice. Most recently, as wildfire and PS preparation coordinator and for the Texas Public Utility Commission, where I was Pat Wood's advisor for the six years when we restructured electric and telecom markets.

At FERC I was advisor to the chairman for three years where I led the US and Canada blackout investigation in 2003.

I have worked as a consultant since 2004, working on teams that did system planning across the western and the eastern interconnections. I have advised on a variety of clean energy initiatives. I have worked a ton of disasters before and after. I have run a number of things that get into planning and operations, including North American initiative to bring a whole new technology to bear to facilitate operations and planning on the North American and international grids. I led, organized, and wrote the 2017 Rick Perry DOE study that explained that maybe evil renewables and burdensome environmental regulations were not what was totally, at the time that Perry wrote this, killing coal and nuclear plants. And I have done a lot of work on energy efficiency, market design, redesigned resilience, and lately, been a pretty noisy critic on winter storm Uri

And I plan to continue being a real noisy voice on everything to do with energy efficiency and demand response and their value and sensible solutions, as opposed to knee jerk nonsense, on what affects reliability and how do we make operations and systems more robust and resilient in sensible, operational practical ways.

Becky Klein: Thanks, Alison. Julia?

Julia Harvey: Okay, thanks Becky and thanks to the Energy Bar Association for having me at this meeting.

Julia Harvey: I'm Julia Harvey. I'm Vice President of government relations and regulatory affairs for Texas Electric Cooperatives.

That's the statewide association that represents electric co-ops in the regulatory agencies in the state legislature and interfacing with our national trade group in the US Congress.

A little bit about TEC: I think this year is our 81st anniversary. We represent 75 co-ops in Texas and they take several forms. Most co-ops are distribution utilities, with a service area and the right to serve end users in that area at retail. There

are co-ops that also own transmission and generation assets. So we are kind of part of all of the functions of the power system in and out of ERCOT.

Our advocacy generally supports the co-op business model, and you know, highlights the value that we bring to rural Texas. We also manage a political action committee that supports candidates that support the co-op business model and prioritize rural issues.

So a little bit about me: I've been with TEC for a little over three years. Prior to that, I was over the wholesale market group at the Public Utility Commission. So Becky, I think you asked what would be the primary factor, or what is our kind of one takeaway from the event.

And I guess if we're talking about the event, I would have to agree that it was this kind of supply chain breakdown, failure of the natural gas system, and the interrelated nature of the electric and natural gas system. I know there's been some other events recently that, you know, required conservation appeal and things like that. So to me, these are kind of two separate phenomena, possibly related, but for the more recent kind of scarcity events, you know, I wouldn't necessarily point to fuel supply breakdown or resiliency type problems more just kind of a function of the economic underpinnings of our market design, which relies on scarcity from time to time. Thank you.

Q&A Becky Klein

Becky Klein: Let me start again I want to go back to you Lanny about the SPP.

As I recall, the SPP is about 14 States now including the tips of Texas. So, during ice storm Uri, you had a lot going on outside of Texas. We tend to be rather myopic as far as thinking about ERCOT as big as it is that, you know, it was the brunt of the storm and so much focus on it, but there was a lot more going on outside of ERCOT. And I wonder if you could just give us this broader perspective about what you were having to deal with outside of ERCOT during that week, given the fact that you also had terrible weather.

Lanny Nickell: Well, for me, a lot of sleepless nights that's what I was having to deal with. But I will say you know, just to correct you just a bit, we actually do have a presence in Texas, primarily in the panhandle and then of course northeastern Texas as well.

Becky Klein: Outside of ERCOT

Lanny Nickell: Outside of ERCOT, that's correct. And we are connected to ERCOT via DC ties. We have about 820 megawatts of capability that we can share energy among ERCOT and SPP across those DC ties.

We began the week of February 14th by asking customers to conserve energy. We knew it was going to be bad and we just didn't yet know how bad it was going to be. Even before then, we actually began to commit all available resources we had.

That was Thursday before the Monday in which we actually had to start shedding load. We wanted to make sure that these resources were available to run, that they could procure gas because we knew that it was going to be tight.

Ultimately, during the event on the 15th we had to shed load for about 50 minutes, so a little less than an hour. And it only represented about one and a half

percent of the load across our footprint, which at the time was about 43,000 megawatts.

This was an all-time winter peak for us, in fact, it could have been as high as 47,000 megawatts had we not had the generation unavailability. Which would have increased our previous winter peak by 8%. That's how bad it was in terms of load. All-time record winter temperatures across pretty much the entire SPP footprint. You mentioned 14 states from the tip of Texas, all the way up to the Canadian border.

A lot of that footprint experienced record winter low temperatures. So a lot of load. More load than we've ever seen in the wintertime, and it could have been even worse. We have 94,000 megawatts of nameplate generating capacity. You would think 94,000 megawatts would be plenty.

We have 62,000 megawatts of that 94,000 megawatts is accredited as capacity. The term accredited capacity means that this is how much of the nameplate capacity you should be able to count on when you need it the most. 62,000 megawatts, but we had 43,000 megawatts of load. What's the difference? Why didn't it show up?

Well, 59,000 megawatts of the 94,000 megawatts of nameplate capacity was just simply not available. During the time we needed the most, 30,000 megawatts was on forced outage. Of that 30,000 megawatts that was on forced outage, the biggest contributor was lack of fuel.

Primarily, lack of gas. The gas shortages affected about 13,000 megawatts of our nameplate gas generation. Okay, to put that in perspective, in SPP, we have 28,000, I know I'm throwing out a lot of numbers. This is the important number when we're talking about gas, though, 28,000 megawatts of accredited gas capacity. That means we ought to be able to count on 28,000 megawatts showing up when we need it. 12,000 was produced. That's less than half, just a little more than 40% of what we count on to be there when we need it most to preserve reliability, that's all that showed up. And that's largely because of lack of fuel. That was our problem. That's what was really the primary root cause of our event.

Alison Silverstein: How much of your fuel comes from Texas, Lanny?

Lanny Nickell: That I don't know, but I'm guessing a lot of it. We have a lot of gas in Oklahoma and a lot of gas in Texas.

Rick Smead: Oklahoma is where you saw the thousand-dollar prices too ,on OGT.

Lanny Nickell: So, we've got an accreditation problem. You know, clearly. We've got to address that and we've got to fix it. Now, I've heard a lot of finger pointing about the different fuel types so to be fair I'll talk about it.

Coal. Coal, we've got about 24,000 megawatts of accredited capacity, about 17,000 megawatts showed up. So it performed a little better than gas.

Wind, we have about 27,000 megawatts of nameplate but only 3,500 megawatts of accredited capacity. We've actually done a pretty good job of figuring out how much wind will show it when you need it, because that's about how much did show up.

So, when you hear, "wind didn't show up". You're right when you compare that against nameplate capacity, but it showed up pretty much as we expected it and needed it to show up.

That's an important factor and an important fact to remember in all of this.

Becky Klein: How about the weatherization aspect? You know, ERCOT has said that the predominant percentage of issues here in ERCOT have been related to weatherization. To what extent was that a factor in the other SPP States?

Lanny Nickell: I don't think it was as much of a factor, and I'll tell you why. You know a lot of our footprint is in the northern part of the country, so North Dakota, South Dakota, Nebraska to some extent. They expect to see pretty cold temperatures. So that's another factor, I want to just point out, we benefited from two additional things that maybe ERCOT didn't. One is we have a large geographically diverse footprint. 14 states, all the way to the Canadian border. That diversity helped us, because some of those resources are used to that kind of weather and they were adequately winterized.

We also benefited tremendously from our interconnections with the rest of the eastern interconnect and to a lesser extent, even the Western interconnect. We were importing as much as 7,500 megawatts, now we were also exporting a little bit to ERCOT. So on a net basis we were the beneficiary of about 6,000 megawatts of power from our neighbors.

I mentioned 820 megawatts of capacity between SPP and ERCOT, and then I think there's some capacity between ERCOT and Mexico. But the ability to rely on others to help, ERCOT didn't have as much as what we had, and we truly benefited from that.

We thank God every day for the fact that our neighbors had excess energy and the capability to get it to us because that prevented us from having to shed more load for a longer period of time.

Becky Klein: So I want to follow this theme of weatherization this part, the resilience aspect of this topic. And Alison, given the fact that you've worked with that issue, you've worked closely with NERC and FERC before on outages. I wonder if you could take us back to 2011 and the NERC recommendations there and the standards that they had recommended that ERCOT incorporate. One, in a nutshell would they have been sufficient had we incorporated those fully to get us through storm Uri?

Alison Silverstein: They would have been better. One of the biggest problems with NERC standards is that they always leave too much to the interpretation of the owner. And certainly, the new NERC standards that are, let's check our watches, a decade after 2011, will only be going into effect next year. They still leave too much to the interpretation of the generation owner. And they are also backward looking, so that they never look at forward threats with respect to weather. And I'm pretty tired of hearing everybody say that this winter storm, Uri was unprecedented because it wasn't.

We've had storms like this before in Texas. We've had storms like this everywhere else. There's a British saying, or you know some of those obnoxious people who got caught in every unfortunate weather possible, that there's no such thing as bad weather only inappropriate wardrobe choices.

Almost every single generator in Texas also made inappropriate wardrobe choices. And, if you look at the UT report, that just came out two days ago, you will see that they did a test of which generators failed at what temperatures. And

you will see that many of them did not bother, even though they say, "I am weatherized to such and such an adequate point", they in fact failed well before they are rated or claimed thermal readiness.

And if all you do is check to see, are you winterized in some fashion that ain't enough. So, there is way too much discretion and way too much, "I'm going to do my interpretation of what it takes to be ready to serve at 16 degrees, but if my plant failed at 32, big deal."

So, verification of plants is not enough, and voluntary plants is not enough. And one of the things that makes me crazy is blaming this on a market, and on energy prices, when one of the things that we should know as good regulators and ex-regulators is sometimes you need a mandate.

And something like winterization is too important to leave to the voluntary decisions and insurance bets of generators or of their gas suppliers. We need a mandate there to come in.

Julia Harvey: Just to update the group on where the PUC is with their rulemaking to implement the weatherization mandates in the new law in SB3. They've issued a request for comment, but they haven't published a formal proposal yet. And I think they're actually doing a workshop on this in a couple of weeks at the Commission, and that should be pretty informative because I do think, maybe along the lines of what Alison is saying. I think it's important to bring in independent experts to, you know, provide recommendations as to how the Commission comply with the new law, which also does require that they consult with the state's office of the climatologist.

So, I believe those resources will be brought in, and I can imagine that will be a forward-looking analysis that, you know, what SB3 requires basically is that transmission providers and generation owners and some portions of the natural gas supply chain weatherize or implement measures to prepare to perform during extreme weather, as determined by reliability standards established by the Commission.

So, it's really around these reliability standards that are supposed to reflect extreme weather. That's kind of the crux of this rulemaking.

On the transmission side, I think we would prefer a lot of specificity, as to what is required there, what measures, you know, what are the standards and how to implement the measures to meet them. So that we have a little bit more assurance when we come in for cost recovery. You know that those were prudent measures.

I think, on the generation side, it does get a lot more complicated. There's regionality and facility type and facility age even or maybe even some kind of cost benefit analysis that might be appropriate there.

Because you know it is sort of a mandate. It's apparently not something that's potentially already supported by the market. There may be incentives in the market to weatherize to perform to collect a high price, but if you expect weatherization to something more extreme than, you know, a reasonable resource owner would implement, it's not consistent with, an outcome supported by the economics of the market.

And so, it's true, I mean it's not, a threat or anything, it's just possible that a unit owner might look at the mandate and decide, that it made more sense to retire the unit, rather than, the capital expense of whatever the new measures might be.

Lanny Nickell: If I could just add, we've spent several minutes now talking about winterization. You can harden the armored truck all you want, if it doesn't have gas in it, you're not getting from A to B. It's not going to do you any good. So, I think if we're going to talk about winterization, we have to talk about it across both industries, the electric and the gas.

Becky Klein: Great segue because Rick has been very patient over here.

And I think that's so important for a couple of reasons. Number one is, that side of the house has a very asynchronous, regulatory regime than what the electric power sector is accustomed to. So, I would love to get your insights, Rick, on how you see, at least in ERCOT with the Railroad Commission, this Supply mapping and winterization process coming to bear, especially since our legislation doesn't really have a compliance deadline for any of that.

Rick Smead: Send me in, coach. The fragmented regulation is obviously a problem. And when you look at it from the power generation upstream, the generator and the specific physical pipeline connected to it can be identified and whichever agency does it can be forced to do whatever they need to do. Get a little bit farther upstream, some processing can be forced, but the Railroad Commission's regulatory oversight starts diminishing just sort of fading the farther upstream you go.

The other wrinkle that makes it very difficult is that most of the gas that was delivered to the generators was delivered by marketers who aggregated from liquid points, so you don't know which wells it came from.

And essentially, unless all of the wells or the vast majority are hardened, you still have multi-hundred-dollar prices if there's a major shortage, if there's just no gas available. So, from a regulatory perspective, the folks at the Railroad Commission have told us that everything's fine, everybody did their job, and we can all go play golf.

I think something else has to happen. For it to be effective, it would have to be collaborative with the major producers in the major gas fields. Some standards have got to be developed, because essentially what happened was, at least in the first phase where freeze offs became one of the dominoes along with, at the same time, the plants freezing and stuff happening in the pipeline systems and all that. We lost 26% of the production out of the Permian Basin. And that by itself didn't cause everything to happen. But it was one of the dominoes that caused it to happen up front, then loss of power to the producers became the thing that made it such a prolonged and deep outage after everything else was fixed.

So somehow, producers have to have a different design condition. The weather simply went way beyond their design condition for their freeze-off prevention measures at their wells.

The heating and antifreeze injection, all that, just wasn't big enough. And so, if they don't collaborate, just enforcing something like that over thousands and thousands of wells all over West Texas, that would be a lot of people who are going to get shot.

So it's a hard problem and until it's solved, the rest of this is all just getting really ready to receive all the gas you're going to get then not having it show up.

I think, you know, the thing that gets lost in this is in the horrible temperature and ice storm conditions out in around Midland, in that area, producers that were fighting their way to the well heads, they were beating on things with sledgehammers, they were doing everything they could to get back online. But basically, it should have been more protected against in the first place in their design.

Alison Silverstein I'd like to pile on with two or three more points. One of them is the reason why this gas supply mapping proposal is going to be so ineffective is that it focuses on what are the points in the gas supply that feed ERCOT power plants. So that doesn't help you guys, Lanny. And, apart from the fact that you can't, because of marketers, identify which gas supply points there are, the fact that part of the Texas wells are shutting-in in advance of a freeze or freezing off means that we are going to affect the entire Midwest. One of the reasons that people act like this is a surprise now is because they didn't pay attention to the fact that we did this to the entire Southwest in 2011. So everybody's horrified that this time we just shut ourselves off instead of screwing over some other states.

Second thing is that, hard to imagine that was only one thing, the second thing is that if we lose enough production we're going to lose linepack. Which means that we have delivery problems no matter what to power plants everywhere in Southeast Texas and in points North.

The third is, I want to go back, lest we forget the outrage of gas compressor stations and production points that do not have their own generation and that do not have backup supplies of some fashion. And it didn't occur to them to fill out a piece of paper that everybody knew existed (except apparently the Chair of the Railroad Commission) that said, "you are a critical facility and tell your distribution utility about it."

Back when I was at the Public Utility Commission of Texas, there was an outrage in the press because senior living centers, old folks homes, some of them were signing up to be voluntary curtailment because there was a price break, so I'm going to let my local utility shut me off, and then the utilities did and everybody was outraged because old people were sitting in the dark and there was this big to-do.

This is your job to keep the lights on, to protect people, if you are a gas producer you think you're so damn important why the heck are you signing up to be on voluntary curtailment. That's an outrage and I don't understand why people aren't outraged and you know why should people be blaming ERCOT for the shock of discovering that these people were on it.

If you think you're that important and your business depends on having electricity then for God's sake stand up and make sure you've got electricity and don't sign up for voluntary load down.

Rick Smead: But we can't lose sight of the fact that at 1:30 in the morning on Monday, nobody got power. It doesn't matter what priority you were, or what you signed, or anything, the world had just stopped. And so I really believe that the standard for production platforms and processing plants and everything, the standard ought to be that they all have backup generation.

Alison Silverstein: yes please.

Julia Harvey: I'll just briefly add, you know, what Alison's referring to are the critical natural gas facilities that happened to be compensated by ERCOT to curtail during an emergency, because they participate in the emergency response program.

And so that was discovered later, I think that's in the UT report, it was 67 facilities. I'm not sure how important they were in the supply chain, but I think that's another kind of symptom along with this failure to register truly critical load as critical. Of this discontinuity in the regulatory apparatus, because we know the industries are just deeply interrelated and if one piece fails, there are compounding problems. But the regulatory regime is not, and so that's part of what I think the legislature was trying to address, and some of the provisions of Senate Bill 3 that formalized like a venue for communication between the agencies. And so we're hopeful, you know, as a result of that we just get this better coordination.

Becky Klein: You know one other question on this line before we go to another topic, and that is so, to what extent do y'all feel the current supply stack priority of gas supply going prioritize to you know, not to generation, but to residential thermal uses, to what extent do you think that should be changed?

Rick Smead: Not.

As far as gas distribution to residential and commercial loads and in cities or towns, wherever, one thing you can never ever let happen is to lose pressure to those customers.

Boston had that happen once, they lost the whole city and it took every appliance service man from every utility from Florida to Maine to come relight and purge that system. It took months.

Alison Silverstein: I was at PG&E after an earthquake and we had to, in fact, go back and visit every single gas customer in the residential area and every gas customer in northern California. It was a nightmare. So there are valid cost and safety reasons. You don't want citizens going out and messing with their gas feed and trying to fix it if they think it's gone wrong. It's just a nightmare, as well as the cost.

Rick Smead: I also got to say our gas fireplace saved my family that night.

Becky Klein: Okay, so I want to go back to you Lanny and talk about, you know, the difference between ERCOT and SPP, lot of differences there as far as regulatory structures and also governance structures. But what would you say are some of the top, you know, three tradeoffs between those two areas?

Lanny Nickell: Wow I wasn't expecting you to quantify a number of tradeoffs there.

Becky Klein: Well even if there's just one that's fine.

Lanny Nickell: I'll do my best, I'll come up with the top three. So let's talk a little bit about what the differences are just so everybody understands.

One, SPP is FERC regulated. And we have delegated certain responsibilities to what we refer to as a regional state committee. So it's a committee that's composed of the regulators of 11 of our 14 states. Three have just simply chosen not to participate. We haven't excluded them, they've just chosen not to participate.

We have 11 regulators from our 14 states that do participate on that committee, and they make pretty important decisions for the organization. Those decisions

include how to allocate costs for transmission expansion, they include how to define the resource adequacy policies of the organization which is really critical here in light of the winter event. And then they have some other responsibilities as well, including congestion hedges and transmission rights and so forth.

But to me, that difference is pretty critical, because what it does is it allows that organization to work together to come up with policies that are good for everybody. So I would say the diversity of the multiple states that participate in our footprint, recognizing, understanding each other's differences and yet being able to come together to make some pretty key policy decisions, is very helpful for us. I've already mentioned the geographic diversity.

I think diversity is going to be very important. We benefit from an engaged, diverse, stakeholder-driven process, and our regulators are a key part of that, our state regulators.

So I mentioned the geographic diversity, I mentioned the diversity of opinions of our stakeholders, our regulators. I guess the third thing is just, and I've already actually talked about this, we benefit tremendously from being highly interconnected with the rest of the Eastern Interconnect.

Becky Klein: With that backdrop, if there's a couple of things that you think ERCOT could learn from the SPP region, and especially what happened during that week, what would those items be?

Lanny Nickell: All right, anybody that is so pro ERCOT that they won't want to hear anything from an SPP guy, feel free to leave the room.

As I said, to me diversity is really important. You have to have different perspectives at the table or otherwise you're going to keep doing the same things that you've been doing forever that may not be what's in your best interest. So I highly suggest and encourage having diversity at the table. It's just so critical. I

think, from a technical perspective I would love to see more interconnection between ERCOT and SPP. Now granted, I understand the regulatory issue and the fact that ERCOT doesn't want to be regulated by FERC. I think we can still achieve more interconnection, even if it's just a matter of expanding the DC ties. There are ways to avoid that concern and yet be able to provide more emergency assistance in times of need between the two organizations.

Becky Klein: That would be good. You know I want to continue on along the lines of lessons learned and turn to you, Julia.

You know from your catbird's seat, interacting as much as you do with the different electric co-ops here in Texas. What do you think after Uri are some of the future things that the electric co-ops are going to take away from all this and incorporate differently?

Julia Harvey: Thanks Becky. So there are, as you know, 75 co-ops in our association, about 50 in ERCOT, and so the experience was pretty varied, I would say. Really kind of the core of the co-op program is the distribution provider and by and large, they actually had pretty good outcomes during the storm just in terms of following ERCOT's directives and the ability to successfully rotate outages.

There was a University of Houston study, I think Mark Jones is speaking later, which kind of surveyed the experience of different end users, and cooperatives did actually fare favorably in comparison to IOU and MOU counterparts. So we're proud of, you know, how we managed the event in terms of communication

with our members, transparency, and just effectively rotating outages and managing the system reliably.

Obviously, it's known that some of the generation providers that are cooperatives were more exposed than others. There were mixed results on that side, and you know, from that perspective we're still kind of learning the path forward there.

I would say, as far as lessons learned, I think this may be a topic we're going to address in this panel, but just more of how to grow resiliency on the demand side, on the distribution system, what are the options there given the current regulatory framework and the variety of market participants.

So one change actually that happened as a result of last session is there's a change in the law where now grocery stores in cooperative and MOU areas can partner with DG providers to provide backup power during an emergency and during certain other times and that DG provider can sell into the grid at other times.

The change in the law was needed because it's not permitted for a third party to come in and sell at retail in what we call a -non-opt-in area in a co-op or MOU. So, we needed some tweaks in the law to create this new business model for securing the food supply chain. I didn't know we were going to do that, but that's what we're doing. And it's kind of an innovative, unique approach to DG that we're hoping increases resiliency for these specific end users and helps contribute to that ongoing decentralization of the market that we're seeing in a productive and fair way.

Becky Klein: Great. Alison, you've already mentioned a little bit early on in the panel discussion about your affinity for demand response and energy efficiency. You want to tell us more about that, given the fact that we didn't really see any legislation on that this go round? What do you think needs to happen there, and what do you think the PUC ought to be focused on in that regard here, in the near medium term?

Alison Silverstein: Thank you, my favorite topic. So, listen y'all—energy efficiency—think of ERCOT and meeting extreme weather events as an athlete trying to do the high jump. You train and you train, and you get a couple inches higher every time if you keep working at it.

Extreme weather events, there's more and more of them. If I'm ERCOT and I'm used to doing six-six, clearing that pretty easily and steadily. All of a sudden, a heat dump or winter storm Uri moves the bar from six-six to seven-six, which, by the way, is what happened with the last couple of heat dumps that are going on last month and this month, as we speak, or winter storm Uri that did this for winter.

Then, all of a sudden, I am completely—as ERCOT with all the assets that we have— unable to make that jump instantly. Particularly given ERCOT's weaknesses in weather forecasting and in demand forecasting, part of why we have not had the supply assets ready is because they weren't warned how bad it was going to be consistently by ERCOT in a quality way.

So, you get ready. You know, if I'm told I'm going to be thrown into a track meet at the last minute, the kind of prep that I do to get ready for it, I didn't have a chance to do.

The reason that energy efficiency and demand response are so important, not only on a long-term asset basis, because we cannot build ourselves up as an interconnection; we can't build the level of transmission and generation that we need

to move load peak from six-six to seven-six overnight or within a few years. It takes years to build your capability to do that. And, we don't have the regulatory steadiness; we don't have the cap-backed steadiness; we have extraordinary country risk here, in Texas, right now, frankly, y'all.

And so, the thing is—and everybody who is a customer within ERCOT, we are held—if ERCOT and all of our friends who run our assets succeed, then we do okay. But, we're betting on them, and if they fail we lose as customers, as many of you know from personal experience.

So, the thing about energy efficiency is—go back to the high jump analogy—energy efficiency permanently reduces the bar or it holds the bar down from rising as quickly.

And while it does that, it protects you and me as customers because it keeps us from being some of the 210 people who died in Uri, or some of the 500 people in the Pacific Northwest who died in the heat wave last month. And demand response, not only—energy efficiency slows the height of the bar and protects the poor saps who are victims of ERCOT.

And demand response essentially is like a button that the athlete pushes that says, "That six-six or six-seven-foot bar? I'm going to drop it six inches. I'm going to drop it by a whole foot." So, that I can use the assets and capabilities that I've got in this emergency.

And, the benefit of all of them is they're not going to fail, for as many reasons and due to as many failure modes as we've seen repeatedly. And, they're going to be there, whether it's a surprise, or whether it's well anticipated.

So, energy efficiency and demand response permanently improve operational capabilities, as well as give us more time to figure out how to operate a grid this complicated, and to wait until those of you who are working the supply side can figure out how to do it well.

Rick Smead: So, if I understand it, if you don't use as much you don't need as much— is that about it?

Alison Silverstein: And, it makes it a lot easier for the ERCOT operators or for the SPP operators to do their jobs because they don't have to jump as high.

Rick Smead: Give me an easier job; I can do it better.

Becky Klein: So Rick, is there any such concept in the gas world?

Rick Smead: Ah, well, I guess, you know, the gas market has been effectively unregulated on the commodity for so long now that it is basically price that drives conservation and drives the seeking of alternatives. We don't have the real time problems that the electric industry does.

I'm often reminded by my electric colleagues that they move at the speed of light; we move at 20 miles an hour. But, what I try to tell him is no, our problems move at the speed of light, because when you put an MMBtu in a pipeline it comes out the other end at the same time, a thousand miles away. It's our *solutions* that move at 20 miles an hour. So, the advance planning, it doesn't do much good to cut off, or to be able to shed some gas load for a little while, the line pack gives you a tremendous amount of flexibility to move gas around.

Actually, oddly, when I was in Colorado on the front range with the Public Service Company of Colorado, they would use rolling blackouts as a way to conserve gas supply when it got tight because if you turn off the furnace, it won't burn

any gas. This was how they managed their gas load when they had severe events, sort of forcible demand response.

Basically, demand response is not a not an explicit thing in the gas industry, but it's been happening anyway.

Becky Klein: Julia, how would you describe—whether it's energy efficiency or demand response programs—how would you characterize their ubiquity among electric Co-ops here in ERCOT?

Julia Harvey: Yeah, that's a good question Becky. Definitely some of the larger kind of faster growing, more suburban Co-ops have integrated those types of programs.

You know, the power rush hour type programs and incentives for, you know, energy efficiency, weatherization, and things of that nature, it's growing. I would say, it's not ubiquitous, but there is interest. You know, the decisions that a Co-op makes are driven by the interests of their members. So, once you get kind of a critical mass of interest among the membership of a Co-op, they embark on that type of program.

Becky Klein: What would motivate those members to deploy some of those services and technologies more?

Julia Harvey: I mean, I think it would be the prospect of saving money on their electric bill would be a motivator. Or, just you know interest in having a more efficient home and lifestyle.

I did want to comment a little bit on one aspect of demand response. You know, there was a piece of legislation that passed the session, HP 16, which banned a certain type of retail product, a wholesale index product, that I guess the main provider was Griddy. And, I completely understand why that needed to happen; however, I do think it's kind of a little bit of a shame that, you know, that type of product or similar products can't be kind-of built on and innovated on in ERCOT going forward. Because that, you know, price responsive demand, I've been told, is, you know, one missing piece of the energy only market puzzle.

Alison Silverstein: So, if I can add two more thoughts, one of them is, I wanted to distinguish between old fashioned energy efficiency, which was about saving kilowatt hours and MMBtu.

What we need today is peak targeted energy efficiency that's very specific about heating, cooling, and weatherization, which keeps people alive, and peak adjacent uses that can be controlled and managed like EV charging, water heaters, pool pumps, things that can actually make a difference to how high peak goes—whether it is, you know, classic summer peak or a surprise peak.

Every single event that ERCOT has had, in the last three years, has been a confluence of unexpected demand spike, hint forecasting problems, and b) a generation shortfall. It doesn't matter why you're missing, if you're missing, you need the tools.

The second part of that is, I am a big fan of having demand response markets that are price driven, but, at the moment, I'm much more driven by reliability. So, I want a lot of demand response tools that we can use in emergency situations.

And, one of the most important is I'd like to see every retail electric provider and every large customer be able to drop 20% of its load on a remote basis on call from the ISO. And oh, by the way, I want to start with the state and have every

state facility be a mandatory 25% drop—and actually, I'd like to drop all state loads by 20, by 10%, because I'm tired of freezing every time I walk into the capital or any other state building.

Lanny Nickell: But, I was wondering if I could ask Alison a question because it's not often I get to be on the same panel with the smartest person in the room—

Alison Silverstein: And you're still not.

Lanny Nickell: But, so you know, to me and, I do agree, demand response, energy efficiency can provide a lot of value and it can avoid a lot of cost.

My question as to how do we, as utilities, RTO's, regional organizations, anybody who's responsible for reliability, know what we can count on? And it's the same issue that I just pointed out with gas. You know, if we don't have mandates, that's just simply up to the market to figure out that maybe the value isn't there. And it'll eventually self-correct. I agree with you, you made a statement earlier that I think it takes a combination of mandates and market signals. But, even without mandates, eventually, as long as the RTOs do a good job, or whoever it is that's responsible for capacity accreditation, we understand what it can provide and won't provide. Eventually, people figure out, "Maybe it's not as valuable as I thought it was," and it will shift to some other resource.

How do we do that on demand response? Do we have the ability to know exactly what we can count on when we need it the most?

Alison Silverstein: Yes, and a lot of it depends. Price responsive demand not so much, but there's a lot of work that's been done with dispatchable demand response. And that's why, having remote control—you know, DG aggregators managed things like battery storage, distributed generation turn-ons, EV charging management, and building energy management systems—there's telemetry that you can use. And you can do things, like monitoring at distribution and transmission substations, to tell how the feeder responded in terms of load within "X" minutes of when the dispatch signal was sent out. So yeah, there's lots of ways to verify that a particular load drop occurred and did happen after you called for it.

Lanny Nickell: So, if I could summarize, as long as we correctly forecast what that load is going to look like when we need it the most, and we know how much we can control, then, it's just as effective as any resource?

Alison Silverstein: Yes, and in particular, has done work verifying that I called for it, and this feeder dropped in response within five minutes, kind-of thing. So yeah, it's doable.

Becky Klein: Okay, I'm mindful of our time. What I'd like to do is maybe just take some time now and pause if there's any questions, not only from the room, but also virtually.

Audience Question: I would like to have you address the social implications of if we had gone into black start because one of the things that the group that I'm working with has discussed, is that black start, here in Texas, appeared to have been conveyed almost like just a brown out or a blackout when, from our perspective, it's a significantly greater social impact. Can one of you speak to that, please?

Oh, my name is Oliver Smith and I am here representing the American Society of Civil Engineers.

Alison Silverstein: I have not seen the final numbers, this is why we've been so insistent in the Alison and Commissioners group about the need for a full root cause analysis. I have not yet seen final numbers on how many of Texas's official and ERCOT official black start units were completely unavailable because they were frozen or lack gas, but it's a pretty big number. And all the happy people who assume that hydro is a black start capability—sure if you've got hydro, but in Texas, not so much so. And we don't have the benefit of being able to restart from Niagara Falls or from an aircraft carrier in the port of Alameda in California, which we did after an earthquake.

So Texas lost a whole lot of black start capability. We did not—as far as I can tell, there were minimal numbers of drills. There was minimal specification of what it takes to be a black start unit and to earn compensation for being a black start unit. And, had we actually, God forbid, gone down, we would have been out for probably several weeks for the time that it took to get all of those units back and pasted together and bring the grid back up.

So one of the things that we called for in our "never again" report is a complete rethink about how Texas—how ERCOT—defines, and qualifies, and compensates black start units and what their obligations are. And one of, in my personal view, the single most important reasons that Texas—ERCOT—should have interconnection, significant robust interconnection with the rest of the United States and Mexico, is so that we can import black start capability the next time we get a major hurricane, or a Uri, or something else.

Rick Smead- Also, the other element of that is a lot of people are calling for a capacity market to beef things up, but in Uri, a capacity market where you had spinning reserve all ready to go but it was running on gas, it would have gone off too so it wouldn't have helped.

Becky Klein: What else you got?

Audience Question: Hi, Elliott Roseman with the US energy association. I appreciate all of the different solutions that have been proposed: standards for weatherization, energy efficiency and demand response, greater interconnection. Is there any way that we can, at this point, or is it too soon, to begin to put together some kind of a prioritization or a hierarchy that looks at the cost versus the benefits? I mean there's got to be a cost for the different solutions that have been proposed. Is it possible yet to put together some kind of an order of what we should do first, second, and third based on what the costs? And if $9,000 or whatever is the value of lost load, you know, compare—excuse me—that to what the benefit would be if we do those things?

Becky Klein: I'd love to hear that from whoever wants to address it from a ERCOT perspective, but also Lanny from SPP, given your report is going to be coming out, if y'all have done anything like that?

Lanny Nickel: Well I'll just let a little bit of the cat out the bag, just enough so you can see the little furry whiskers.

We have 22 directional objectives that we will be recommending to the board. They're directional in nature, and what I mean by that is, they don't necessarily—there's a lot more evaluation, assessment, discussion, debate that has to occur to understand what the costs and benefits are of fully implementing all of those directional objectives. I will tell you that four of the 22 are what we deem to be

urgent, critical, work has to begin immediately. And those four have to do with fuel assurance and resource adequacy. And I also know that both of those are going to be expensive. Depending on the extent to which you implement them and how you implement them, but we got to get started thinking about it, we got to get started debating it, and we got to get started figuring out exactly how to increase fuel assurance and how to improve resource adequacy. Recognizing that billions of dollars of costs could have been avoided in just this one event, if we had done a better job in those two areas.

Yep. Absolutely. And I will tell you that our regional state Committee, those are the 11 regulators across the footprint, have been very involved in our comprehensive review and generally support, well they support the direction. Now the question is, will they support the detailed implementation answers? That's to be determined, but we got to get started moving down that path.

Becky Klein: Julia, it'd be great to hear from your perspective because you're close, you know, co-ops are so much closer to the end use customer. How would you see some of those resiliency measures, reliability measures, being prioritized and especially given the cost benefit analysis?

Julia Harvey: Sure yeah thanks for the question, Elliot. I mean, I think, it would make a lot of sense to approach the problem in that way. You know, there are some directives we've already gotten as far as closing this resiliency gap that we just have to move forward with, and there's not really going to be a lot of opportunity for cost benefit.

I mean there's kind of low hanging fruit like, requiring critical natural gas load to register with their utility so that they're not inadvertently curtailed. And then there's other, you know, more ambiguous directives that are kind of like: direct ERCOT to procure ancillary services to ensure dual fuel capability or direct ERCOT to streamline incentives to support additional thermal generation. It's really unclear right now what the magnitude of the costs will be on those types of mandates. It's that tension: sort of, markets, and mandates, and can you just direct the market to produce a certain result? So I think if you create the right incentives, you can. But that's the debate that's going to happen in the next few months at the public utility Commission as they evaluate these market design changes.

And I'm sure we'll hear a lot from consumers. You know, co-ops, we represent load, but we also have generation assets, so we do take kind of a balanced view. And so we'll see. I think there's a lot of analysis yet to be done. And some of it, like I said, some of the mandates don't really allow for a lot of cost benefit analysis, but with market changes, I think that that will be part of the discussion for sure.

Alison Silverstein: And I want to remind everyone that a small group of people who have some experience in ERCOT costs and benefits and policy prioritization did issue the "never again" report with 20 recommendations. Most of which are nowhere near the governor's and legislature's immediate priority list. Which is unfortunate because many of the things that we recommend have relatively low cost, highly practical implementation and improvement capability that addresses a lot of the heart of the resilience issues that we screwed up in winter storm Uri. And most of the measures that we recommend will help ERCOT and advance equity for all of the citizens of ERCOT and all the electric customers who

got harmed. And those things don't have the same sort of headline glamour as pounding your fist on the table and saying, "give me more power plants," but they're going to do a lot more to help people day to day on a low cost basis here.

Becky Klein We have like two-and-a-half minutes left, but I think instead of me asking a question, I would love it if each one of you can just go down the line and give a closing remark about this topic.

Lanny Nickell: Awesome, this is my last chance. So, as we were talking about cost and the benefits of spending money to improve our reliability posture, I recall an administrator of a local university in Arkansas describing how oftentimes parents of students or prospective students would come to him and say "oh my gosh," just lament the cost of education: "Education costs are just so expensive, it's just too expensive". And he would always respond, he said to them in this way, he would say, "if you think the cost of education is expensive, try the cost of ignorance. That's really expensive."

And so, I think the same thing can be said about our electric industry, right, I mean, "it just costs so much to be reliable," well try experiencing the cost of not being reliable—that's worse. And we have done it, and we got to recall that because, unfortunately, two months, three months, two years, three years passes, and we forget about the cost of not being reliable.

Alison Silverstein: And I'm pretty sure Texans are going to stay angry for a long time.

Rick Smead: Well, they'll just stay angry, they still won't be willing to spend. Yeah, they'll stay angry but with each month that passes they'll be less willing to spend money, and that's the challenge.

I guess from the gas perspective, natural gas is a wonderful generation fuel: it follows load, it's low carbon, it's so responsive, you can site generation just about anywhere because it's not very intrusive like a giant coal plant, it's a wonderful fuel. But the suppliers, the people that actually get it out of the ground, especially in the Permian, they're oil producers. Gas is something they just want to get rid of. And so, they don't have any of the same objectives or priorities that we're talking about here, because that's not their business model.

There's always been a competition between utility reliability, and competitive commodity markets, trying to operate in the same systems. And here, we've got to have a way that the role of natural gas in the reliability of the electric grid is recognized differently in the oil and gas community than it is right now. Right now it's just something they sell to get rid of it.

In fact, you know, you'd think that if you were the guy sitting in a producer—who his boss suddenly runs in and say "mother of God, we can get 500 bucks an mcf for our gas, how we doing?" And you say "well sorry boss, we're all shut in, we're not selling any." You'd think you'd be in a lot of trouble, but most of the producers, being oil producers, they hedge their gas. It's their hedge partners, it's Banc Paribas, it's people like that that made all the money because the producer just wanted a fixed price for the gas so they wouldn't have to worry about it. So it's got to be a whole different model with them.

Becky Klein: Okay I'm gonna have Julia go next, and Alison, you can close it out.

Julia Harvey: Well, I think it was on Tuesday that—at the Senate hearing—the Chair of the PUC said that we're going to move away from a crisis-based market business model. And so, we are undergoing a dramatic change to our market design I would say, and there's going to be this ongoing kind of balance of mandates, which are a lot easier to do on the regulated infrastructure side, and then changes to the competitive side. And as we kind of trend towards a more fully regulated approach, I think we're going to continue to kind of try to make that balance work for ERCOT.

Becky Klein: Wow, that's a big statement you just said. Alison?

Julia Harvey: Ha, thank you?

[Audience laughter]

Alison Silverstein: I want very high reliability and resilience at moderate costs with high equity. And what that means is we need both supply and demand side.

I'm reminded of the first rule of holes: when you're in a hole, stop digging. The reason that we need energy efficiency, and demand response, and distributed generation, and distributed storage is it's a way to keep from digging the reliability hole and the potential consequences of reliability and resilience failure from getting deeper and deeper every year as Texas population grows and as climate change grows even more terrifying.

And it can buy us time while we figure out how to make all the supply side work and how to make all the investments happen, and what all these fancy-pants market redesigns are going to mean in terms of people's willingness and ability to invest and get their money back. Because that's a giant unknown. As well as, how do folks like Lanny operate a growing number of unknown resources and resource combinations that don't always behave the way we want to. So we need every possible option, and we need to do them all aggressively. Thank you. And thank you all for being here.

Becky KIein: Thank you and thank you all for being here folks. I saw a lot of pen scribbling away and no tomatoes thrown so thank you very much, that is a good sign.

75 YEARS
ENERGY
BAR ASSOCIATION
1946 - 2021

For 75 years, EBA has helped attorneys and energy professionals meet current and future challenges by connecting and engaging with one another.

HAVE YOU CONSIDERED JOINING EBA?

LEARN MORE: https://www.eba-net.org/membership/member-benefits/

SUSTAINABLE FUTURES: AN AGENDA FOR ACTION

By Raphael Kaplinsky
Reviewed by Warigia M. Bowman and Rhyder Murree Jolliff[*]

In this sprawling monograph, Raphael Kaplinsky demonstrates that sustainability measures cannot be both practical and inspiring.[1] *Sustainable Futures: An Agenda for Action* ambitiously attempts to span numerous social science disciplines with particular emphasis on environmental studies, sociology, and economic analytics. His thesis is that the issues of sustainability across these three areas are interlinked and structurally related to one another in ways that require them to be understood as such in order to effectively address sustainability going forward.[2] The author thus attempts to lay out an integrated program spanning economic, social and environmental agendas which he asks governments as well as other stakeholders to participate in.

Kaplinsky argues that the past several centuries have been punctuated by surges in economic growth which he terms techno-economic paradigms that reflect different ways of organizing production and society.[3] He identifies four preceding paradigms: water power, steam power, iron/steel/steamships/telegraph, and mass production.[4] Each of these flourished then passed into crisis, to be succeeded by a new paradigm. Kaplinsky hones in on the world's environmental tension—humans have damaged our environment, and the environment is damaging us. These crises are in part a function of the decay of the most recent techno-economic paradigm, Mass Production. He pins his hopes on the emergence of a new paradigm he calls Information, Communications and Technology ("ICT"), which he suggests offers the potential for a more inclusive society, a more sustainable economy, and a more equal polity.[5]

At some points, the author's approach may romanticize the past. For example, Kaplinsky suggests that after World War II, a relatively cohesive period of liberal democracy that he titles the Golden Age, transitioned after 1970 into the contemporary era of endemic conflict, culture wars, and the rise of populism.[6] Perhaps the author's argument is more nuanced than the reviewers observe. Yet, the period of liberal democracy from 1900-2000 inside the United States and Eu-

---

* Warigia M. Bowman earned her law degree at University of Texas at Austin and her doctorate in public policy at Harvard University. She is an Associate Professor and the Director of the Sustainable Energy and Resources Law Program at University of Tulsa College of Law. She has published on water law, energy law and infrastructure. Her co-author on this review, Rhyder Murree Jolliff, is a third-year student at the University of Tulsa College of Law.

1. RAPHAEL KAPLINKSY, SUSTAINABLE FUTURES: AN AGENDA FOR ACTION (2021)
2. *See id.* at 1.
3. *See id.*
4. *See id.* at 100.
5. *See* Kaplinsky, *supra* note 1, at 121-41 (describing ICTs and their potential to drive future economic growth and improve social and environmental sustainability).
6. *See id.* at 8.

rope was one of endemic conflict, and culture wars, if one thinks of Jim Crow, the prevalence of segregation, discrimination against racial and ethnic minorities in both North America and Europe, and of course, the terror of the Cold War. Even his own text occasionally belies this overly simplified narrative when he discusses the dramatic increases in inequality in Thatcher's Britain and the savage crushing of striking coal miners.[7] In a future version of the work, the author may wish to resolve these narrative tensions.

The author does, however, helpfully focus on the importance of infrastructure, observing that energy, water and roads are essential elements which the government must provide to ensure production and distribution.[8] To this extent, Kaplinsky's work is timely and in line with the "zeitgeist," revealing a passion for both infrastructure and efforts to slow climate change.

His discussion of the stark rise of economic inequality in China, Russia, the US, France and the UK since the 1980s is both valuable and thorough.[9] Disturbingly, Kaplinsky documents that in these countries, the top 1% of the nation owns an increasingly disproportionate share of total wealth, far in excess of 25%.[10] Simultaneously, as wealth concentrates in the hands of a small number of people at the very top, so too does poverty increasingly subsume a larger and larger percentage of the world's population.

He also helpfully documents the rise of "absolute poverty" in North America and Europe, observing that Covid-19 has only accelerated these trends.[11] Indeed, in the UK, homelessness has increased 60% since 2010.[12] He also draws connections between increasing inequality, a decline in social well-being, a decline in civic engagement, and poorer health outcomes in the wealthier countries he is studying.[13] Neo-liberal austerity policies, as well as the reduction of corporate tax rates play a key factor in the rise of inequality, argues Kaplinsky.[14] At times, the author's argumentation drifts slightly, combining discussions of austerity policies with musings on the changing communications environment, and anti-immigration fears.

The book focuses on the experience of the dominant high-income economies in North America, Europe and Japan under the theory that these countries continue to dominate the world. This decision to focus on some units of analysis to make the text more accessible is a reasonable editorial decision, but it limits the book's generalizability. Perhaps future versions will include case studies of more countries in Latin America, Africa, and Asia, to make the book's conclusions more generalizable.

Kaplinsky envisions the world through paradigms and sets those against a 3.2-billion-year historical backdrop. His use of illustrative figures breaks up the usual monotony of historical reading on climate and ecological disruptions.

7. *See id.* at 35.
8. *See id.*
9. *See* KAPLINSKY, *supra* note 1, at 37-42.
10. *See id.* at 32.
11. *See id.* at 43.
12. *See id.* at 44.
13. *See* KAPLINSKY, *supra* note 1, at 44-51.
14. *See id.* at 51-58.

These disruptions are compared to societal disruptions caused by the developments of technological and scientific revolutions with which readers are likely to be familiar.

By using real-world examples, such as the environmental impact and useful life cycle of an iPhone, Kaplinsky makes his argument comprehensible by the everyday reader. This same reader can, further, understand the seriousness of environmental crises by Kaplinsky's use of present threats: the rise of zoonotic diseases, such as COVID-19; the catastrophic impact of pollution and climate change on biodiversity in plant and insect species; and the increasing frequency of natural disasters.

The heart of the book's argument is that the current environmental crisis facing Planet Earth is an existential threat.[15] He provides the lay reader with an overview of the biosphere, the last glacial period, and the rise of industrialization. He walks the reader through the creation of the steam engine, the beginnings of electrification, an overview of resource extraction, and advances in energy use. This is an enormous amount of information. *Sustainable Futures* attempts to make the provision of such information more manageable and accessible by providing data and figures that highlight their significance and flaws, and by providing context for their use in sustainability measures individually and in conjunction with other data.

Before launching into his proposed sustainability agenda, Kaplinsky emphasizes, "the way in which societies are organized and governed determines the extent and nature of humankind's environmental footprint."[16] By drawing on personal experiences, Kaplinsky illustrates the importance of the policy process, including the why, what, how, and who of policymaking. He fervently believes that ICTs will provide the capacity to revive productivity growth, that they will bring production closer to the consumer, and provide the capacity for shared products. He evinces faith in the ability of ICTs to play a role in the development of renewable energy. Kaplinsky recognizes that ICTs may cause detrimental effects as well, and notes the importance of what he calls "directionality."[17]

Kaplinsky's recommendations for change cover multiple chapters. He advocates regulating and changing behavior in the financial sector, implementing a Smart Green New Deal, strengthening global and local governance, and redistributing wealth and reducing the power of giant corporations. He suggests decisive action, predicts reactionary power bases, and provides suggestions in response to these bases. Kaplinsky suggests several stakeholders and other society members who might play a role in sustainability policy measures: governments, the private sector, and civil society organizations, to name a few.

These reviewers are somewhat less sanguine than the author about the transformative potential of ICTs for transforming economic and social relations in the sustainability arena. This skepticism emerges from extensive research and publishing on the potential of ICTs in Africa. The author does focus his work on

15. *See id.* at 65.

16. *Id.* at 94.

17. *See* KAPLINSKY, *supra* note 1, at 121.

the Americas and Europe. However, in order to expand these policy prescriptions to Latin America, Asia, and Africa, it is important to acknowledge the unequal distribution of electricity and other infrastructure that are required to power ICTs. This issue blunts the value of Kaplinsky's recommendations for the Global South.

One idea worthy of remark is the "Smart Green New Deal," which the author proposes.[18] This is an amalgamation of existing policies coming out of the Progressive Wing of the Democratic Party combined with the author's techno-utopian ICT vision. The author emphasizes an important point that bears repeating: "many of the 'costs of the green economy' are in fact opportunities for value addition and growth."[19] He also discusses the Circular Economy, which is apparently a popular concept in Europe, and provides some ideas about the role of norms and behavior and changes in design philosophy. Kaplinsky also notes the role of innovation which the Smart Green New Deal could spark, which as a corollary also offers opportunities for economic growth.

Sustainable Futures by Raphael Kaplinksy provides an interesting vision of a techno-utopic future. There is nothing completely new in this book, but the assembly and presentation provokes introspection. If you are looking for practical, hard-hitting, detailed prescriptions on what to do to reach a sustainable energy future, you will not find them in this text. The author provides a vision and a policy agenda, but also attempts to discuss the circumstances under which this policy agenda can be implemented.

The "how" aspect of Kaplinsky's book is truly ambitious and visionary, if not simple to operationalize. Although it will be incredibly challenging to attain the synchronized responses that Kaplinsky lays out, it is a worthy task. These policy goals include "redistributing wealth and incomes and reducing the power of corporations." This policy recommendation, in particular, is likely to meet significant social and political resistance. He believes that the private sector will provide the motivation and that the government will be the leader. The private sector may not be as sanguine about this policy goal as the author. Similarly, "strengthening global and local governance" is certainly a laudable goal, but also a vast one, as is "promoting global development." Any one of these topics could have made an excellent focus, and would allow the author to drill down into the topic. Yet, the author's decision to take these synchronized set of responses and present them in the context of a push towards sustainability is novel and innovative. Kaplinsky offers a long, detailed, vast book of vision, which may inspire readers.

18. *See id.* at 185-88

19. *Id.* at 186.

THE LIMITS OF INTRA-AGENCY PRECEDENT IN ARBITRARY-AND-CAPRICIOUS REVIEW

I. INTRODUCTION

In 2016, Baltimore Gas and Electric Company (BGE) applied to the Federal Energy Regulatory Commission (FERC) for a rate change to recover $38 million in accumulated losses due to a deficiency in BGE's tax deferred account from 2005 to 2016.[1] FERC rejected the application, finding that BGE's proposed change would violate FERC's "matching principle" by charging later ratepayers for earlier-incurred losses by the utility.[2] FERC explained that, under FERC Order

1. Balt. Gas & Elec. Co. v. FERC, 954 F.3d 279, 281 (D.C. Cir. 2020).
2. *Id.*

No. 144, BGE missed its opportunity to recover the deficiency by failing to raise the issue in its 2005 rate change application.[3] After FERC ruled against BGE on rehearing, BGE petitioned the U.S. Court of Appeals for the D.C. Circuit for review, alleging that FERC's order was "arbitrary and capricious" under the Administrative Procedure Act (APA).[4]

In its petition, BGE argued, first, that a settlement agreement it reached with FERC in 2006 reserved its right to recover tax deferred losses at a later time.[5] FERC, however, denied that the settlement's language supported BGE's claim.[6] The D.C. Circuit held for FERC, finding that, while the language from the settlement was vague, denying BGE's application appropriately enforced FERC's matching principle.[7]

In its second argument, BGE claimed that, by rejecting its proposed rate increase, FERC broke with its own precedent, having allowed late recoveries for at least four earlier, "similarly situated" utilities.[8] The court held that FERC adequately distinguished BGE's case from the others, so it ultimately decided in FERC's favor.[9] However, the judges' opinions divided on the issue of whether, under the APA, FERC bore an obligation to distinguish the cases at all.[10] The two-judge majority applied a rule from *ANR Storage Co. v. FERC*, 904 F.3d 1020 (D.C. Cir. 2018), requiring FERC "to provide some reasonable justification for any adverse treatment relative to similarly situated competitors," and determined that FERC owed BGE an explanation for the denial.[11] The late Judge Williams,[12] dissenting, applied a rule from *San Diego Gas & Electric Co. v. FERC*, 913 F.3d 127 (D.C. Cir 2019), stating that, without protests from interested third parties, "the Commission's decision to approve rate increases" in the earlier, seemingly-precedential cases "does not amount to 'policy or precedent.'"[13] Because the cases cited by BGE were not protested while under FERC's jurisdiction, the dissenting judge concluded that they did not qualify as precedential, so FERC owed BGE no explanation for its differential treatment.[14]

Curiously, although Judge Williams and the *Baltimore Gas* majority applied different rules from different cases—*ANR Storage* and *San Diego Gas*—neither the majority opinion nor the dissenting judge considered the rules from those cases

3. *Id.* at 281–82.

4. *Id.*

5. *Balt. Gas & Elec. Co.*, 954 F.3d at 282.

6. *Id.* at 282–83.

7. *Id.*

8. *Id.* at 283.

9. *Id.* at 286–87.

10. *Balt. Gas & Elec. Co.*, 954 F.3d at 285–90.

11. *Balt. Gas & Elec. Co.*, 954 F.3d at 285 (citing ANR Storage Co. v. FERC, 904 F.3d 1020, 1025 (D.C. Cir. 2018)).

12. Judge Williams passed away a few months after the decision. The fall 2020 issue of *ELJ* was dedicated to his memory. *See* Matthew Christiansen, *Dedication: Judge Stephen F. Williams*, 41 ENERGY L. J. xxxii (2020).

13. *Balt. Gas & Elec. Co.*, 954 F.3d at 290 (citing San Diego Gas & Elec. Co. v. FERC, 913 F.3d 127, 142 (D.C. Cir. 2019).

14. *Id.*

to be in conflict.[15] Judge Williams interpreted the language from *ANR Storage* as describing a special case and, therefore, not analogous to *Baltimore Gas*, so he only applied *San Diego Gas*.[16] The majority, on the other hand, stated that the facts and holding from *San Diego Gas* satisfied the rule from *ANR Storage* and, therefore, did not think that *San Diego Gas* could contain an exception to *ANR Storage*.[17] That is, in *Baltimore Gas*, the majority and the dissenting judge agreed that *ANR Storage* was consistent with *San Diego Gas* but only because they twice disagreed about the proper interpretations of those cases.[18] Even more curiously, in the earlier *San Diego Gas* case, the dissenting Judge Randolph interpreted the rule from *ANR Storage* broadly, like the *Baltimore Gas* majority, but he also interpreted the then-new rule from *San Diego Gas* broadly, like Judge Williams.[19] Judge Randolph regarded the limiting of FERC precedent only to protested cases as incompatible with the requirement for FERC to explain all its apparent inconsistencies.[20] Thus, he found the cases at issue in *Baltimore Gas* to be in conflict by agreeing with the *Baltimore Gas* majority about the interpretation of one case and with the *Baltimore Gas* dissent about the interpretation of the other.[21]

Section II of this Note begins with a historical introduction to the Administrative Procedure Act (APA) and its requirement for courts to correct the "arbitrary and capricious" actions of federal agencies, particularly when those actions fail to conform to the agency's own precedent.[22] It then homes in on recent D.C. Circuit cases, like *ANR Storage* and *San Diego Gas*, which address FERC's obligation under the APA to explain its actions in light of alleged inconsistencies with its own precedent.[23] Next, the same section explains the FERC regulation that features in the *Baltimore Gas* case, namely, FERC's requirement that utilities use the "normalization" method to handle their tax depreciation accounts.[24] The section ends with a synopsis of the *Baltimore Gas* case's progression under FERC's jurisdiction that led BGE to petition the D.C. Circuit court.[25]

Section III analyzes the court's opinion on the scope of FERC's obligation to explain its seemingly inconsistent actions. First, it discusses *Baltimore Gas*, wherein the court held that FERC cannot escape its obligation by delegating its authority to staff or others; the court may set aside even delegated actions if it determines that an agency action was "arbitrary and capricious."[26] Second, the

15. *Id.* at 285–86, 288–89.

16. *Id.* at 288.

17. *Id.* at 285–86.

18. *Balt. Gas & Elec. Co.*, 954 F.3d at 285–86, 288.

19. 913 F.3d at 147–48.

20. *Id.* at 147–48.

21. *Id.* ("Our court has rejected this very argument. In *ANR Storage*, FERC attempted to distinguish its prior orders from the one under review on the basis that the former had been unopposed and lacked a reasoned discussion.").

22. 5 U.S.C. § 706(2)(A) (2021); 2 Am. Jur. 2d *Administrative Law* § 477 (2020).

23. *San Diego Gas*, 913 F.3d; *ANR Storage*, 904 F.3d.

24. 18 C.F.R. § 35.24(b)(1) (2020); 954 F.3d at 281–82.

25. *Balt. Gas & Elec. Co.*, 954 F.3d at 281.

26. *Id.* at 284.

discussion contemplates the court's holding that, under *ANR Storage*, FERC owes utilities an explanation for adverse treatment whenever other, "similarly situated" utilities have received more favorable treatment under the same FERC policies.[27] Next, by considering Judge Williams's dissent in *Baltimore Gas*, claiming that the majority failed to correctly apply the rule from *San Diego Gas*, section III raises the question of whether the court rightly decided *Baltimore Gas*.[28] Finally, section III examines Judge Randolph's earlier dissent from *San Diego Gas*, which argued that the rule from *San Diego Gas* stands at odds with the rule from *ANR Storage*.[29] The section assesses these three approaches toward FERC's duty to explain its inconsistencies, ultimately favoring Judge Randolph's perspective.[30] This Note concludes by pointing out that, although the *Baltimore Gas* court did not reverse *San Diego Gas*, its holding likely had the same effect and advanced the same policy aims that concerned the dissenting judge in that case, namely, predictable, intelligible, consistent agency actions.[31]

II. BACKGROUND

A. "Arbitrary and Capricious" in the Administrative Procedure Act

In 1946, Congress enacted the APA with the aim of "improv[ing] the administration of justice by prescribing fair administrative procedure."[32] Politically, the APA represented New Deal Democrats' efforts to reify Roosevelt-era institutions, as they anticipated losing the presidency to the Republicans in the early 1950s.[33] Some scholars see the 1984 court-adopted rule of "*Chevron* deference," which gives federal agencies broad authority to interpret statutes pertaining to their administrative specialties, as the anticipated Republican de-regulative push back against the APA.[34] Despite this seeming policy collision, the APA has weathered the decades well, having been amended only sixteen times in over seventy years.[35]

---

27. *Id.* at 285.

28. *Id.* at 287, 290 (J. Williams, dissenting).

29. *San Diego* Gas, 913 F.3d at 142–48 (J. Randolph, dissenting).

30. *Balt. Gas & Elec. Co.*, 954 F.3d at 284–85 (majority opinion), 287, 290 (J. Williams, dissenting); *San Diego Gas*, 913 F.3d at 142–48.

31. *Balt. Gas & Elec. Co.*, 954 F.3d at 286 (majority opinion); *San Diego Gas*, 913 F.3d at 148 n.8 (J. Randolph, dissenting).

32. Administrative Procedure Act, ch. 324, 60 Stat. 237 (1946).

33. McNollgast, *The Political Origins of the Administrative Procedure Act*, 15 J.L. ECON. & ORG.180 (1999). Cf. Alan Schwartz, *Comment on "The Political Origins of the Administrative Procedure Act," by McNollgast*, 15 J.L. ECON. & ORG. 218 (1999) (arguing that the greatest beneficiaries of the APA were not New Deal Democrats but, rather, lawyers who expected to litigate APA-related cases).

34. Chevron U.S.A., Inc. v. NRDC, Inc., 467 U.S. 837, 844 (1984) ("Sometimes the legislative delegation to an agency on a particular question is implicit rather than explicit. In such a case, a court may not substitute its own construction of a statutory provision for a reasonable interpretation made by the administrator of an agency."). *See also* McNollgast, *supra* note 33, at 215; *but see* Thomas W. Merrill, *The Story of* Chevron*: The Making of an Accidental Landmark*, 66 ADMIN. L. REV. 253 (2014).

35. Christopher J. Walker, *Modernizing the Administrative Procedure Act*, 69 ADMIN. L. REV. 629, 629 (2017). For a pessimistic take on the relationship between the APA and *Chevron*, *see* Patrick J. Smith, *Chevron's*

Among this statute's most enduring features is the court's authority to review "arbitrary" and "capricious" agency actions.[36]

Where an agency departs from established precedent without acknowledging the departure and offering a reasoned explanation, its decision may be overturned as arbitrary and capricious.[37] But what agency actions are precedential and therefore trigger these obligations? Following precedent means that later actions track earlier actions that involved similar circumstances.[38] Accordingly, the Supreme Court has held that a federal agency's disparate treatment of "identically situated" individuals—that is, its failure to follow its own precedent—may violate the arbitrary-and-capricious standard of the APA.[39] As with the constitutional guarantee of equal protection, "similarly situated" entities are to be handled similarly.[40] The sole exception, as previously noted, is if the agency adopts a new policy basis for its decisions, in which case the agency must acknowledge its change in course and offer "good reasons for it."[41] Otherwise, courts refuse to uphold agency actions that "appl[y] different standards" to "similarly situated" entities.[42] As the U.S. Court of Appeals for the D.C. Circuit put it, "It is textbook administrative law that an agency must 'provide[] a reasoned explanation for departing from precedent or treating similar situations differently.'"[43]

Conflict with the Administrative Procedure Act, 32 VIRGINIA TAX REV. 813 (2013) (referencing *Chevron,* 467 U.S. at 843–44).

36. 5 U.S.C. § 706(2)(A). Although *Chevron* gave agencies impressive powers to interpret statutes, the opinion expressly reserved the court's right to review agency actions; *see* 467 U.S. at 44 ("Such legislative regulations are given controlling weight unless they are arbitrary, capricious, or manifestly contrary to the statute."). *See also* Merrill, *supra* note 34, at 256.

37. *E.g., FCC v. Fox Television Stations, Inc*., 556 U.S. 502 (2009) ("The requirement that an agency provide reasoned explanation for its action would ordinarily demand that it display awareness that it is changing position. . . . And of course the agency must show that there are good reasons for the new policy. But it need not demonstrate to a court's satisfaction that the reasons for the new policy are better than the reasons for the old one; it suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the agency believes it to be better, which the conscious change of course adequately indicates.").

38. *Doctrine of precedent*, BLACK'S LAW DICTIONARY (11th ed. 2019).

39. Judulang v. Holder, 565 U.S. 42, 59 (2011) (noting that "this [injustice] is what the APA's 'arbitrary and capricious' clause is designed to thwart.").

40. *See e.g.,* General Motors Corp. v. Tracy, 519 U.S. 278, 299 (1997) (asking whether public utilities and local distributors of natural gas are "similarly situated for constitutional purposes" when one receives a tax exemption that the other does not). *See also* United States v. Armstrong, 517 U.S. 456 (1996) (applying the constitutional requirement for equal treatment of "similarly situated" individual persons). Courts also use a "similarly situated" test to determine membership to class action lawsuits. *See e.g.,* Simon v. E. Ky. Welfare Rights Org., 426 U.S. 26, 32 (1976).

41. *Fox Television Stations*, 556 U.S. at 515.

42. Burlington N. and Sante Fe Ry. Co. v. Surface Transp. Bd., 403 F.3d 771, 777 (2005) (citing Willis Shaw Frozen Express, Inc. v. Interstate Commerce Comm'n, 587 F.2d 1333, 1336 (1978); Ace Motor Freight, Inc. v. Interstate Commerce Comm'n, 557 F.2d 859, 862 (1977)). *See also* Colorado Interstate Gas Co. v. FERC, 146 F.3d 889, 893 (D.C. Cir. 1998).

43. West Deptford Energy, v. FERC, 766 F.3d 10, 20 (D.C. Cir. 2014) (citing *ANR Pipeline Co.*, 71 F.3d at 897, 901 (D.C. Cir. 1995)).

B. How the D.C. Circuit Tests FERC for "Arbitrary and Capricious" Action

The number of D.C. Circuit Court cases and opinions that bear on the topic of *stare decisis* in administrative law far exceed those of any other court.[44] Moreover, the D.C. Circuit often handles judicial reviews of Federal Energy Regulatory Commission (FERC) actions.[45] Thus, the D.C. Circuit's treatment of "similarly situated" entities has a special influence on how the arbitrary-and-capricious standard affects FERC and the public utilities it regulates.

1. FERC Bears a Duty to Treat Similarly Situated Entities Similarly

In *ANR Storage v. FERC*, the D.C. Circuit set aside a FERC action as arbitrary and capricious because FERC failed to explain its disparate treatment of a petitioner's similarly situated competitor.[46] Typically, FERC prefers that natural gas companies charge cost-based, rather than market-based, rates to their customers.[47] To use market-based rates, a company must show that it "lacks power in the relevant markets."[48] Market power, in turn, depends on a geographically bounded assessment of the company's market share, among other factors.[49] The petitioner in this case, ANR Storage, requested a market-based rate, arguing that its 16% market share for working gas and 15% for daily deliverability met the condition for lack of marker power.[50] FERC denied the request based on other market factors, like "lack of current competitors" and ANR Storage's status as a "strong incumbent" in the market.[51] The court found no fault with FERC's factor analysis and corresponding conclusion.[52] However, ANR Storage argued that FERC's ruling was inconsistent with several earlier actions, and the court found one of these comparisons persuasive.[53] Seven years prior to the ANR Storage request, ANR's competitor, DTE Energy Company, requested a market-based rate because of its 18% market share for working gas and 17% for daily deliverability in the same market.[54] The court reasoned that, under the APA, FERC had a "statutory duty . . .

---

44. The D.C. Circuit Court has over 130 relevant cases listed, about triple the number of *stare decisis* case as the U.S. Court of Appeals for the Ninth Circuit. *See* E.H. Schopler, *Comment Note,* Applicability of Stare Decisis Doctrine to Decisions of Administrative Agencies, 29 A.L.R.2d 1126 (1961).

45. David M. Cooper, *The Role of the D.C. Circuit in Administrative Law*, 32 APP. PRAC. J., no. 2, 2013, at 2. Several statutes give the D.C. Circuit Court the authority to review FERC actions regardless of the petitioner's citizenship. *See* 15 U.S.C. § 717r(b) (2021); 16 U.S.C. § 825l(b) (2021); 28 U.S.C. § 2349 (2021).

46. ANR Storage Co. v. FERC, 904 F.3d 1020 (D.C. Cir. 2018).

47. *Id.* at 1022. Companies determine "cost-based" rates by adding a predetermined markup to their costs in acquiring and delivering the product to customers. "Market-based" rates are set at the highest price that customers are willing and able to pay. When a market-based rate would be higher than its corresponding cost-based rate, the company would have higher profits by charging the former rather than the later.

48. *Id.* (citing N. Nat. Gas Co. v. FERC, 700 F.3d 11, 13 (D.C. Cir. 2012)).

49. *Id.* at 1023.

50. *Id.*

51. *ANR Storage*, 904 F.3d at 1023 (quoting *ANR Storage*, 153 FERC ¶ 61,052 (2015)).

52. *Id.* at 1024.

53. *Id.* at 1024–25.

54. *Id.* at 1024.

to provide some reasonable justification for any adverse treatment relative to similarly situated competitors."[55] Because ANR Storage and DTE Energy "hardly seem dispositively different," FERC had to "provide some reasonable justification" in order to reject ANR Storage's rate request.[56] Concluding that FERC failed in its statutory duty, then, the court held that FERC's treatment of ANR Storage was arbitrary and capricious.[57]

The D.C. Circuit also found a FERC action to be "arbitrary and capricious" under the APA in *West Deptford Energy v. FERC*, 766 F.3d 10 (D.C. Cir. 2014).[58] In that case, the petitioner, an electricity generator, applied to FERC to connect to a regional electric transmission organization.[59] Typically, after applying, generators must wait several months for a review before receiving admission into the "interconnection queue" and access to the grid.[60] Tariffs, the FERC-approved governing documents for regional transmission organizations, specify transmission rates for electricity and other related services and, therefore, greatly affect the financial transactions between the generators and transmission organizations.[61] Thus, changes to those tariffs can raise questions about which transmission and services rates and charges apply to a new customer: the rates associated with the application date, the joining date, or some other time.[62] In several earlier cases, FERC insisted that a tariff rate correspond to the date on which the relevant agreement was filed with FERC, even if the customer originally applied to the transmission organization before that rate went into effect.[63] In *West Deptford*, however, FERC allowed a transmission organization to apply an earlier rate associated with the petitioner's application rather than the later filing rate, as in the previous cases.[64] Noting the "sharp contrast" with the earlier cases, the court scorned FERC's treatment of the petitioner as "the very essence of unreasoned and arbitrary decision-making."[65]

2. When is an Agency's Prior Order Considered to be Agency Precedent?

The D.C. Circuit Court's concern for similar treatment raises a question about the scope of "similarly situated" entities available for comparison—namely, when are cases seemingly involving similar facts considered precedential? In *San Diego*

55. *Id*. at 1025.

56. *ANR Storage*, 904 F.3d at 1025.

57. *Id*. at 1028.

58. 766 F.3d at 17, 22.

59. *Id.* at 15.

60. *Id.* at 13–14.

61. *Id.* at 13.

62. *See e.g., id.* at 12, 18.

63. *West Deptford Energy*, 766 F.3d at 19–20 (referencing *MidAmerican Energy Co*., 116 FERC ¶ 61,018 P 13 (2006); *Midwest Indep. Transmission Sys., Inc. (MISO I)*, 114 FERC ¶ 61,106 P 70 (2008); *Midwest Indep. Transmission Sys. Operator, Inc. (MISO IV)*, 129 FERC ¶ 61,060 P 62 n.120 (2009); *Midwest Indep. Transmission Sys. Operator, Inc. (MISO V)*, 131 FERC ¶ 61,165 P 32 (2010); *Midwest Indep. Transmission Sys. Operator, Inc. (MISO VI)*, 138 FERC ¶ 61,199 P 42 (2012)).

64. *West Deptford Energy*, 766 F.3d at 18–19; *PJM Interconnection*, 139 FERC ¶ 61,184 (2012).

65. *West Deptford* Energy, 766 F.3d at 19, 22.

Gas, a petitioner challenged a rejection of its application for FERC's Abandonment Incentive program, which permits utilities to recover their full costs for certain abandoned or canceled infrastructure projects.[66] FERC rejected the application, saying that granting it would have reimbursed the petitioner for past investments rather than encouraging new investments, as the Abandonment Incentive program aimed to do.[67] As in *ANR Storage* and *West Deptford*, the petitioner noted at least two earlier cases in which FERC treated others in like circumstances favorably.[68] In those cases, contrary to its self-proclaimed policy aims, FERC funded "pre-order costs" and effectively reimbursed capital investments.[69] The contrast, the petitioner argued, rendered FERC's rejection of the petitioner's Abandonment Incentive application "arbitrary and capricious."[70] Surprisingly, the court did not agree and instead stressed that earlier FERC actions do not necessarily qualify as precedents, particularly when "no party filed a protest."[71]

The Court explained that "'[i]n the absence of protests,' the Commission's decision to approve rate increases does not amount to 'policy or precedent."[72] Moreover, "[q]uestions which merely lurk in the record, neither brought to the attention of the court nor ruled upon, are not to be considered as having been so decided as to constitute precedents."[73] In other words, under *San Diego Gas*, a petitioner attempting to prove a FERC action arbitrary-and-capricious may only invoke the earlier cases of "similarly situated" entities that have faced protests while under FERC's jurisdiction.[74] This limitation saves FERC from paying homage to unrecorded history—uncontested cases with no "clearly asserted propositions of fact, law[,] or policy"—and ensures that challenges to FERC actions find their grounding in earlier resolutions of "pertinent issues."[75]

The D.C. Circuit's decision in *San Diego Gas* to restrict "similarly situated" cases to those involving protests drew a sharp dissent from Judge Randolph, which is discussed below.[76] However, arguably, the holding finds support in FERC's earlier reasoning as well as the theoretical correspondence between the arbitrary-and-capricious test and the court's doctrine of *stare decisis*.[77] For example, in

66. *San Diego Gas*, 913 F.3d at 130. *See also* 18 C.F.R. § 35.35(d)(1)(vi).

67. *San Diego* Gas, 913 F.3d at 135 (citing 18 C.F.R. § 35.35(d)(1)(vi)).

68. *Id.* at 141–42; 904 F.3d at 1024–25; *West Deptford*, 766 F.3d at 19–20.

69. *San Diego Gas*, 913 F.3d at 141–42; *Pacific Gas & Elec. Co.*, 137 FERC ¶ 61,193 (2011); *Southern Cal. Edison Co.*, 137 FERC ¶ 61,252 (2011).

70. *San Diego Gas*, 913 F.3d at 141.

71. *Id.* at 142.

72. *Id.* (quoting Gas Transmission Nw. Corp. v. FERC, 504 F.3d 1318, 1320 (D.C. Cir. 2007)).

73. *Id.* (quoting Webster v. Fall, 266 U.S. 507, 510 (1925)).

74. *Id. Cf.* Judge Randolph's dissent, *id.* at 148 (applying the APA language of "similarly situated" to challenge the consistency of this case and *ANR Storage*).

75. *Balt. Gas & Elec. Co.*, 954 F.3d at 287–88 (J. Williams, dissenting).

76. *San Diego Gas*, 913 F.3d at 142–48.

77. *Gas Transmission Nw. Corp.*, 504 F.3d at 1320 (describing FERC's refusal to regard unprotested cases as precedential as "eminently reasonable" (citing 117 FERC ¶ 61,146 at 61,786 (2006))); *San Diego Gas*, 913 F.3d at 142 (saying that, without the court's attention to the relevant issue, a decision does not qualify as precedent (quoting *Webster*, 266 U.S. at 511)).

Nevada Power Company, 113 F.E.R.C. ¶ 61,007 (2005), a utility argued that a peer had received more favorable treatment from FERC under similar circumstances, but FERC considered its action in the earlier case to have been an "inadvertent[] allow[ance]," saying that the earlier case neither raised, contested, nor discussed the germane issue.[78] Accordingly, FERC refused to acknowledge the earlier case as precedent.[79] Likewise, in *Webster v. Fall*, 266 U.S. 507, (1925), the Supreme Court held that, in the federal judicial system, it is the courts' treatment of considered issues, and not merely a correspondence of circumstances, that are "so decided as to constitute precedents."[80] Thus, the standard for intra-agency *stare decisis* imposed on FERC in *San Diego Gas* arguably resembles the agency's self-imposed standard as well as the standard for *stare decisis* used by federal courts.[81] Furthermore, the majority opinion in *San Diego Gas* held that this practice—treating as precedential only protested cases containing on-point reasoning—concurred with the holding in *ANR Storage* because, in *ANR Storage*, "[t]he sole underlying issue was squarely presented and necessarily resolved by the agency."[82] In sum, the D.C. Circuit's rule under *San Diego Gas* seems to require FERC to follow the precedent set by its own reasoning and holdings but only when that reasoning has featured expressly in protested adjudications.

C. FERC's Normalization Requirement and Rectifications of Resulting Problems

When a utility makes a capital investment, the method it uses to depreciate its new asset has a material impact on its tax liability, reducing its taxes in the early years of the asset and increasing its taxes later.[83] Tax codes allow for a few different depreciation methods, including "straight line," "flow through," and "normalization."[84] In the flow through method, once common with utilities, tax savings due to accelerated depreciation pass on to customers immediately.[85] With the normalization depreciation method, utility companies bank some of their early tax savings in dedicated "deferred tax" accounts instead of passing that savings directly to customers, and use it to cover later tax expenses.[86] While customers face a slightly higher initial rate than with the flow through method, they eventually

78. *Nevada Power Company*, 113 FERC ¶ 61,007, at 61,014 (2005).

79. *Id.*

80. 266 U.S. at 511.

81. 913 F.3d at 142.

82. *Id. See also ANR Storage Co*., 153 FERC ¶ 61,052, at P 97 (2015).

83. Eugene F. Bringham & Timothy J. Nantell, *Normalization Versus Flow Through for Utility Companies Using Liberalized Tax Depreciation*, 49 ACCT. REV. 436, 436 (1974).

84. *Id. See also Summary of Statement No. 109*, FINANCIAL ACCOUNTING STANDARDS BOARD, https://www.fasb.org/summary/stsum109.shtml (last visited Oct. 4, 2020).

85. Bringham & Nantell, *supra* note 83, at 439; JOINT COMMITTEE ON TAXATION, APPLICABILITY OF THE NORMALIZATION REQUIREMENTS OF THE INTERNAL REVENUE CODE TO CONSOLIDATED TAX SAVINGS ADJUSTMENTS 4–5 (Sept. 6, 1991) [hereinafter COMMITTEE ON TAXATION].

86. Bringham & Nantell, *supra* note 83, at 436; COMMITTEE ON TAXATION, *supra* note 85, at 4–5.

benefit from the normalization method, because the company's ongoing tax savings stabilizes at a better rate.[87] Consequently, FERC generally requires utilities to use the normalization method.[88]

1. Reasonable Accommodations for Tax Deferred Anomalies

By statute, FERC limits public utilities' rates to "just and reasonable" levels.[89] Rates predict and partially determine returns, so they often require correction in case of policy changes or unexpected events.[90] Under the tax normalization method, corrections include remedying excesses and deficiencies in tax deferred accounts.[91] When such irregularities arise, FERC requires the affected utility, "within a reasonable period of time," to "mak[e] up deficiencies in or eliminate[e] excesses in their deferred tax reserves."[92]

In the case of new FERC rules or changes in the tax code, the utility must make appropriate changes "in the applicant's next rate case following applicability of the rule."[93] FERC's insistence that utilities give up the flow through method in favor of normalization in the early 1970s created systematic deficiencies among utilities' tax deferred accounts.[94] To correct this problem, in 1978, FERC introduced the "*South Georgia* method," which allows a utility to recover accumulated losses in a tax deferred account by distributing a compensatory rate increase for that loss over the remaining lifetime of the corresponding depreciating asset.[95] By 1983, the D.C. Circuit regarded the *South Georgia* method as the conventional "reasonable accommodation" for rectifying anomalies in tax deferred accounts.[96]

87. Bringham & Nantell, *supra* note 83, at 440–43 (discussing some of the advantages of the normalization method using computer simulations). *See also* COMMITTEE ON TAXATION, *supra* note 85, at 7.

88. 18 C.F.R. § 35.24(b)(1) (2020); *Accounting for Income* Taxes, FERC Docket No. AI93-5-000 (Apr. 23, 1993) (making the normalization method required practice for fiscal years after Dec. 15, 1992). *See also* Public Sys. v. FERC, 709 F.2d 73, 75 (D.C. Cir. 1983) (mentioning that FERC spent the twenty years indecisive about the benefits of the normalization method before permitting it as a general policy in 1976).

89. 16 U.S.C. § 824d(a).

90. Bringham & Nantell, *supra* note 83, at 440.

91. *Balt. Gas & Elec. Co*, 954 F.3d at 281; Order No. 144, *Regulations Implementing Tax Normalization for Certain Items Reflecting Timing Differences in the Recognition of Expenses or Revenues for Ratemaking and Income Tax Purposes*, FERC STATS. & REGS. ¶ 30,254, 31,519 (1981), 46 Fed. Reg. 26,613, 26,635 (1981) (to be codified at 18 C.F.R. pt. 2) [hereinafter Order No. 144].

92. Order No. 144, *supra* note 91, at 26,635.

93. *Id.* at 26,614.

94. Memphis Light, Gas and Water Div. v. FERC, 707 F.2d 565, 569 (D.C. Cir. 1983).

95. *PJM Interconnection*, 161 FERC ¶ 61,163, at P 6 n.10 (2017) ("Under the South Georgia method, a calculation is taken of the difference between the amount actually in the deferred account and the amount that would have been in the account had normalization continuously been followed. This difference is collected from ratepayers over the remaining depreciable life of the plant that caused the difference. When the deferred account is fully funded at the end of this transition period, the annual increment ceases.").

96. *Memphis Light*, 707 F.2d at 572.

2. Later Accommodations for Earlier Anomalies

Despite the urgency conveyed in FERC's rules, some companies have recovered accumulated losses in tax deferred accounts years after the originating anomaly. For example, after PPL Electric Utilities Corporation (PPL) waited four years, FERC permitted it "to recover a deferred income tax liability that is currently unfunded due to a Pennsylvania Public Utility Commission decision to flow-through to customers certain income taxes benefits."[97] Similarly, Duquesne Light Co., which also postponed its switch from flow through to normalization tax deferment methods due to Pennsylvania Public Utility Commission policies, excluded its tax deferred amounts from a 2006 rate application, so it applied to recuperate those losses with its next application seven years later in 2013.[98] FERC responded favorably to the proposal, which followed the *South Georgia* method, by amortizing over the remaining life of all its transmission assets.[99] Thus, while utilities have incurred some losses due to changes from flow-through to normalization methods, as well as from other tax-related anomalies, FERC and its utility companies have a forty-year history of ameliorating those losses.

D. Procedural History for Baltimore Gas and Electric

Baltimore Gas and Electric (BGE) incurred an income tax deferred account deficiency over an eleven-year period from 2005 to 2016.[100] In part, the loss arose because of a FERC settlement in 2006 that prevented BGE from including tax deferred amounts in its rate calculations and from increasing its rates before 2009.[101] By the time BGE approached FERC about recovering those losses, they had accumulated to about $38 million.[102] BGE applied for a rate increase to recover that amount via the *South Georgia* method; however, FERC rejected the BGE proposal, saying that BGE should have proposed the increase in an earlier, 2005 rate filing.[103] BGE requested a rehearing, which FERC denied with a lengthy explanation.[104] From there, in the case of interest for this Note, BGE petitioned the D.C. Circuit Court under the APA for a review of the FERC order only to be denied its requested relief a second time.[105] Since then, BGE has requested a rehearing from the D.C. Circuit, but the Court declined.[106]

---

97. *PPL Electric Utilities Corp.*, Letter Order, FERC Docket No. ER12-1397 (May 23, 2012).

98. *PJM Interconnection*, FERC Docket Nos., ER17-528-000, ER17-528-001, at 21 (Dec. 18, 2017) (citing *Duquesne Light Co.*, FERC Docket No. ER13-1220 (Apr. 26, 2013)).

99. *Duquesne Light Co.*, FERC Docket No. ER13-1220 (Apr. 26, 2013).

100. *Balt. Gas & Elec. Co.*, 954 F.3d at 281.

101. *PJM Interconnection*, 161 FERC ¶ 61,163, at P 12.

102. *Balt. Gas & Elec. Co.*, 954 F.3d at 281. In 2019, Baltimore Gas and Electric reported $360 million in net income and a total cash flow of $748 million. Exelon Corp., Annual Report (Form 10-K) 56, 199 (Dec. 31, 2019).

103. *PJM Interconnection*, 161 FERC ¶ 61,163, at P 18; *PJM Interconnection*, FERC Docket Nos., ER17-528-000, ER17-528-001, at 8, 15.

104. *PJM Interconnection*, 164 FERC ¶ 61,173 (2018).

105. *Balt. Gas & Elec. Co.*, 954 F.3d at 287.

106. Balt. Gas & Elec. Co. v. FERC, 2020 U.S. App. LEXIS 13480 (D.C. Cir. 2020).

In its FERC application and in its FERC rehearing request, BGE argued that earlier rate increases for four utilities constitute precedent for FERC to grant delayed recoveries of losses related to tax deferred accounts.[107] These four are PPL and Duquesne, mentioned above, plus Virginia Electric & Power Company (VEPCO) and Midcontinent Independent System Operator (ITC).[108] BGE claimed that VEPCO and ITC both corrected ongoing deficits and recovered earlier losses.[109] In response, FERC denied the precedential relevance of all four cases.[110] First, pointing out that three of BGE's references were "delegated letter orders"—that is, orders issued by authority delegated to FERC staff rather than by any of the five FERC Commissioners—FERC asserted that such orders do not amount to Commission precedent.[111] Second, regarding VEPCO and ITC, FERC interpreted its records differently from BGE, saying that FERC neither considered nor approved plans from these two companies to recuperate past losses related to their tax deferred accounts.[112] PPL and Duquesne, on the other hand, did recover tax deferred losses, but FERC distinguished these cases from BGE by saying that PPL and Duquesne incurred their losses by transitioning to the normalization tax depreciation method, whereas BGE's loss arose due to a moratorium and settlement.[113]

III. ANALYSIS

BGE filed a petition for review with the D.C. Circuit on the grounds that FERC's rejection of the BGE application to recover its tax-deferred losses was arbitrary-and-capricious.[114] The court held for FERC, but its analysis of FERC's obligations to follow its own precedent raises a question about the precise nature of that precedent, as well as a question about whether the Court consistently decided two earlier cases, *ANR Storage* and *San Diego Gas*.[115]

In *Baltimore Gas and Electric v. FERC*, BGE first argued that its attempt to recover its tax deferred losses accorded with its 2006 settlement agreement with FERC and FERC Order No. 144.[116] The Court responded that, under the doctrine of *Chevron* deference, FERC had broad authority to interpret the language of the settlement agreement as well as its own regulations.[117] Accordingly, it accepted

107. *PJM Interconnection*, FERC Docket Nos., ER17-528-000, ER17-528-001, at 21–23.

108. *Id.*

109. *Id.*

110. *PJM Interconnection*, 164 FERC ¶ 61,173 at P 28.

111. *Id.* ("[D]elegated letter orders do not establish binding Commission precedent.") (citing 161 FERC ¶ 61,163, at P 22; *South Carolina Elec. & Gas Co.*, 162 FERC ¶ 61,024, at P 19 and n.45 (2018); *Millennium Pipeline Co.,* 145 FERC ¶ 61,088, at P 10 n.11 (2013); *Westar Energy, Inc.*, 124 FERC ¶ 61,057, at P 26 (2008); *Norwalk Power,* 122 FERC ¶ 61,273, at P 25 (2008)).

112. *Balt. Gas & Elec. Co.*, 954 F.3d at 281; 161 FERC ¶ 61,163 at P 22.

113. *PJM Interconnection*, 164 FERC ¶ 61,173 at P 28–29.

114. *Balt. Gas & Elec. Go.*, 954 F.3d 279 (D.C. Cir. 2020).

115. *Compare id.* at 290 (J. Williams, dissenting) and *San Diego Gas,* 913 F.3d 127, 142–48 (J. Randolph, dissenting).

116. *Balt. Gas & Elec. Co.*, 954 F.3d at 281–82; *see also* Order No. 144, *supra* note 3.

117. *Balt. Gas & Elec. Co.*, 954 F.3d at 282.

FERC's argument that Order No. 144, instead of providing for BGE's recovery of its tax deferred amounts, prohibited postponed recovery under the order's "matching principle," which requires that the tax advantages of an expense benefit the same utility customers who pay for that expense.[118] Thus, the Court found no arbitrary or capricious FERC actions when considering its treatment of BGE in light of FERC's own regulations on tax deferment practices.[119]

Having pronounced BGE's first argument a resounding failure, the Court turned to the petitioner's second argument, which compared FERC's earlier determinations to its adverse treatment of BGE, much like the approach from *ANR Storage* and *West Deptford*.[120] As in BGE's FERC hearings, the utility pointed to four cases—*PPL*, *Duquesne*, *VEPCO*, and *ITC*—and asserted that, in each, FERC allowed a utility to recover losses associated with efforts to correct anomalies in its tax deferred accounts and, thereby, failed to follow its own precedent when it stopped BGE from doing the same.[121] FERC gave a three-fold response.[122] First, as it stated in the orders on review, FERC maintained that three of the four cases cited by BGE were issued via delegated letter and therefore were not precedential.[123] Second, FERC maintained that none of the four cases were precedential because none "squarely presented" or "necessarily resolved" the relevant issue in a protest, as required under *San Diego Gas*.[124] Finally and alternatively, FERC argued that it adequately distinguished the cases cited by BGE by showing that BGE was not "similarly situated" when FERC rejected its application.[125]

The Court rejected FERC's first two arguments but held in favor of FERC on the basis of its third argument. The Court agreed that the four cases cited by BGE could be distinguished from BGE's circumstances so as to disqualify them as precedent for purposes of BGE's case.[126] Two of the BGE-cited cases, *ITC* and *VEPCO*, did not involve the recuperation of accumulated losses, as supposed by BGE in its protest.[127] The other two, *PPL* and *VEPCO*, featured anomalies that arose in changes from flow-through to normalization methods, whereas BGE's tax deferred losses originated from its earlier FERC settlement.[128]

Because the court affirmed FERC's orders based on the agency's third rationale, its rejection of FERC's first two arguments will likely be considered dicta,

118. Order No. 144, *supra* note 3, at 26,618 ("the tax reducing effect of an expense is allocated to the same customers who pay the expense during the same period").

119. *Balt. Gas & Elec. Co.*, 954 F.3d at 282.

120. *Id.* at 283.

121. *Id.* at 285.

122. *Id.* at 284–87.

123. *Id.* at 284.

124. *Balt. Gas*, 954 F.3d at 285; 913 F.3d at 142.

125. *Balt. Gas & Elec. Co.*, 954 F.3d at 286.

126. *Id.* at 286–87 ("FERC fares far better on its final argument").

127. *Id.* at 286.

128. *Id.* at 286–87 (citing *PJM Interconnection*, FERC Docket Nos., ER17-528-000, ER17-528-001, at P 28 n.86 ("Specifically, PPL's and Duquesne's Formula Rates represented the utilities' change from the Pennsylvania Public Utility Commission's flow-through requirements. BGE began its full normalization in 1976.")).

i.e, unnecessary to disposition of the case.[129] Nevertheless, the Court's treatment of FERC's second argument raises questions about—or an inconsistency in—the D.C. Circuit's holdings in *ANR Storage*, requiring FERC to treat as precedent all its prior orders, contested or not, and in *San Diego Gas*, restricting that requirement to those cases involving protests.[130]

A. Delegated Letter Orders are Precedential

In response to FERC's first argument, denying that delegated actions amount to precedent, the D.C. Circuit discussed that FERC should not disown its decisions by delegating its authority to its staff.[131] It reasoned that agency actions taken via authority delegated to staff simply are actions of the agency.[132] If the delegated action fails to reflect the purposes of the agency, the agency may take corrective action, say, by overriding it.[133] However, so long as the agency allows the action to stand, the agency takes responsibility.[134] FERC's approach of removing delegated staff actions from the sphere of precedent, and so from arbitrary-and-capricious review, violates the United States Code and the D.C. Circuit's case law.[135] While this result is commonsensical—inducing FERC to either internally review or else prepare to defend the actions of its staff—it is worth noting that FERC has several otherwise-unrelated decisions riding on the contrary assumption, that is, that actions taken via "delegated letter" are protected from judicial review, even if they depart from the agency's precedent.[136] Given the D.C. Circuit's dictum that FERC may not use delegation as an excuse for inconsistency, moving forward, the Court may maintain that even delegated agency actions can be set aside for arbitrariness and capriciousness.[137]

---

129. *See also Judicial dictum*, Black's Law Dictionary (11th ed. 2019) ("An opinion by a court on a question that is directly involved, briefed, and argued by counsel, and even passed on by the court, but that is not essential to the decision and therefore not binding even if it may later be accorded some weight.").

130. *Balt. Gas & Elec. Co.*, 954 F.3d at 290 (J. Williams, dissenting).

131. *Id.* at 284 ("[T]he Commission cannot lend its authority to staff and then disclaim responsibility for the actions they take.").

132. *Id.* at 285 (quoting 18 C.F.R. § 385.1902(a) ("Any staff action . . . taken pursuant to authority delegated to the staff by the Commission is a final agency action that is subject to a request for rehearing.")).

133. *Id.*

134. *Id.*

135. *Id.* at 284–85 (citing 5 U.S.C. §§ 551(6), (13); Sprint Nextel Corp. v. F.C.C., 508 F.3d 1129, 1131 n.3 (D.C. Cir. 2007)).

136. *See PJM Interconnection*, 164 FERC ¶ 61,173 at P 28 n.83 (citing November 16 Order, 161 FERC ¶ 61,163 at P 22; *South Carolina Elec. & Gas Co.*, 162 FERC ¶ 61,024 at P 19 and n.45 (2018); *Millennium Pipeline Co.,* 145 FERC ¶ 61,088 at P 10 n.11 (2013); *Westar Energy, Inc.*, 124 FERC ¶ 61,057 at P 26 (2008); *Norwalk Power,* 122 FERC ¶ 61,273 at P 25 (2008)).

137. *Balt. Gas & Elec. Co.*, 954 F.3d at 284.

B. FERC Must Explain Inconsistencies

Surprising the dissenting Judge Williams, the Court also rejected the second FERC argument, which claimed that the cases cited by BGE failed to provide adequate reasoning to be invoked as the agency's precedent.[138] FERC explained that the earlier cases were uncontested and, therefore, under *San Diego Gas*, fell short of binding precedent.[139] Looking to *ANR Storage*, however, the dicta of the *Baltimore Gas* majority contended that "the duty to explain inconsistent treatment is incumbent on the agency and cannot be waived by the decisions of third parties."[140] This duty, the Court continued, quoting the earlier case, is "imposed by the APA and owed to all *other* regulated parties."[141] In other words, following *ANR Storage*, the Court construed the APA as grounding a positive duty for regulatory agencies to justify "any adverse treatment relative to similarly situated competitors."[142] Similarly, the majority invoked the rule from *West Deptford*, referring to the agency's duty to explain any lack of parity in its actions as "textbook administrative law."[143] Thus, according to the Court, FERC owed BGE a decision that was consistent with its treatment of "similarly situated" entities or else a reasonable and thorough explanation for its change in policy.[144]

In response to FERC's invocation of *San Diego Gas*, the majority opinion acknowledged that, in that case, the Court allowed FERC to reject San Diego Gas & Electric's application for an investment incentive even though it gave other utilities more favorable treatment.[145] The majority also acknowledged that, in *San Diego Gas*, it permitted the disparity because the more favorably treated cases failed to qualify as precedents.[146] However, contrary to FERC's reading of the *San Diego Gas* decision—a section that the majority referred to as "dicta"—the Court insisted that, in *San Diego Gas*, it maintained the rule requiring "FERC to explain inconsistencies" in its treatment of the utilities that it regulates.[147] Rather, the Court continued, in that case, FERC succeeded in accounting for the differences between its treatment of San Diego Gas & Electric and the more favorably treated applicants.[148] Thus, the *Baltimore Gas and Electric* court saw the *San Diego Gas* decision as irrelevant to its reasoning and chose, instead, to apply the

138. *Balt. Gas & Elec. Co.*, 954 F.3d at 285. *Cf. id.* at 287, 290 (J. Williams, dissenting).

139. *Id*. at 285.

140. *Id*.

141. *Id*. (quoting *ANR Storage*, 904 F.3d at 1025).

142. *Id.* (quoting *ANR Storage*, 904 F.3d at 1025).

143. *Balt. Gas & Elec. Co.*, 954 F.3d at 283, 286 (quoting West Deptford Energy, v. FERC, 766 F.3d 10, 20 (D.C. Cir. 2014)). Apart from FERC-related cases, the majority cites to Point Park Univ. v. N.L.R.B., 457 F.3d 42, 50 (D.C. Cir 2006), which indicates that federal agencies owe the courts detailed reasons for their actions in anticipation of the courts' review.

144. *West Deptford*, 766 F.3d at 20 (quoting Colorado Interstate Gas Co. v. FERC, 146 F.3d 889, 893 (D.C. Cir. 1998)).

145. *Balt. Gas & Elec. Co.*, 954 F.3d at 285.

146. *Id*.

147. *Id.* (citing *San Diego Gas & Elec. Co.*, 913 F.3d at 142). *Cf. id.* at 290 (J. Williams, dissenting).

148. *Id.* at 286.

"longstanding principle[]" of requiring agencies to "reasonably explain disparate treatment of similarly situated parties."[149]

C. Was the Baltimore Gas Opinion Wrong about San Diego Gas?

The Court's analysis on the narrow issue of whether FERC bore a duty to explain its different treatment of BGE received a sharp dissent from Judge Williams (dissenting as to the majority's analysis on that issue), who opined that FERC's reading of the *San Diego Gas* case was correct and the majority's reading—which it "mysteriously dismissed as dicta" —was wrong.[150] Rather, as Judge Williams read *San Diego Gas*, the rule restricting precedent to contested cases explained why the court held with FERC in that case, namely, because, while San Diego Gas was treated differently from the utilities in the cases San Diego Gas cited, those cases involved no protests so "we required no explanation for the difference."[151] Similarly, in the *Baltimore Gas* case, Williams explained, "FERC's duty to distinguish the orders cited by BGE . . . turns on whether the pertinent issues were 'squarely presented and necessarily resolved by the agency.'"[152] Because the cases cited by BGE did not face protests that caused FERC to deal with the "pertinent issues," Williams said that FERC bore no duty to distinguish them from BGE's case.[153] The proper scope of for arbitrary-and-capricious review, Williams said, only includes protested cases; otherwise, FERC would have to accept as precedent cases that fail to address outright the issues in question.[154]

Furthermore, Judge Williams insisted that the *ANR Storage* rule does not conflict with the rule from *San Diego Gas*, because *ANR Storage* involved a hotly contested matter between competitors.[155] That is, whereas the majority took the reasoning from *ANR Storage* to require FERC to explain any disparate treatment whatsoever, Williams understood it to apply only in the special circumstance that the differing treatments involve "indistinguishable competitors."[156] Since the cases cited by BGE did not involve BGE's direct competitors, Williams concluded that the rule from *ANR Storage* did not apply.[157] Similarly, the dissenting judge regarded the Court's earlier holding in *West Deptford Energy* as addressing an especially egregious FERC behavior of refusing to explain its actions.[158] In other

149. *Id.* at 285–86.

150. *Balt. Gas & Elec. Co.*, 954 F.3d at 287, 290 (J. Williams, dissenting as to Part III) ("in *San Diego Gas & Electric Company v. FERC* (mysteriously dismissed as 'dicta' by the majority, *see* Maj. Op. 285), the court acknowledged that FERC had treated like parties differently; FERC denied San Diego Gas recovery of costs incurred before the agency issued an order granting recovery of those costs, whereas FERC had granted similar pre-order costs for other utilities.").

151. *Balt. Gas & Elec. Co*., 954 F.3d at 290.

152. *Id*. at 287 (citing *San Diego Gas*, 913 F.3d at 142).

153. *Id*. at 287.

154. *Id.* at 287–88.

155. *Id*. at 288.

156. *Balt. Gas & Elec. Co*., 954 F.3d at 285, 290.

157. *Id.* at 287.

158. *Id.* at 289.

words, according to Judge Williams, neither *ANR Storage* nor *West Deptford Energy* should have had much bearing on *Baltimore Gas and Electric*, since the earlier cases involved extraordinary injustices of FERC's playing favorites and stonewalling, whereas the latter case featured a utility attempting to create a loophole for itself.[159]

D. Was San Diego Gas Wrongly Decided?

Suppose for a moment that Judge Williams' dissent is correct in its reading of *San Diego Gas*.[160] That is, suppose that *San Diego Gas*, rightly interpreted, restricts the scope of precedential agency cases to those in which the agency answered an on-point protest.[161] In that case, one might, with Judge Williams, consider *Baltimore Gas and Electric* to have been wrongly decided, or one might regard the earlier *San Diego Gas* case to have been in the wrong.[162]

In *San Diego Gas*, Judge Randolph's dissent argued that the case was decided wrongly on three distinct lines of reasoning.[163] The last of these three addressed the same rule that Judge Williams later applied in his dissent in *Baltimore Gas*.[164] There, Judge Randolph accused FERC of failing to follow its own internal precedent.[165] In the administrative hearings leading up to the case before the D.C. Circuit, FERC had dismissed earlier cases cited by San Diego Gas & Electric as not-precedential because those cases were decided without extensive reasoning regarding the issues at stake in the petitioner's case.[166] However, Judge Randolph considered FERC's failure to generate records with the relevant reasoning to be all the worse for FERC, treating it as a violation of the APA and FERC's obligations denoted in *ANR Storage*.[167] He concluded in strong language that the Court's holding was "contrary to the law of this circuit."[168] The two dissenting judges, then, shared an interpretation of the *San Diego Gas* case while disagreeing about the merits of that case.

E. Policy Implications of Baltimore Gas

The majority opinion in *Baltimore Gas and Electric*, Judge Williams's dissent in that case, and Judge Randolph's dissent from *San Diego Gas* suggest at least three ways to understand FERC's APA-imposed obligation to follow its own precedent—that is, its duty to treat similar entities similarly. First, the majority

159. *Id.* at 288 ("[T]he majority's approach invites a litigant to dive deep into the records of past agency cases, find one with facts loosely comparable to its own case, and then require the agency to adjudicate, *ex post* and likely on a limited record, whether and to what extent each past case is like the present one.").

160. 913 F.3d at 142.

161. *Id.*

162. *See id.* at 142–48 (J. Randolph, dissenting).

163. *Id.*

164. *Id.* at 147.

165. *Id.*

166. *San Diego Gas*, 913 F.3d at 142 (majority opinion).

167. *Id.* at 147–48.

168. *Id.* at 147.

opinion from *Baltimore Gas* considered the rule from *ANR Storage* to be consistent with the reasoning from *San Diego Gas*.[169] The *Baltimore Gas* majority decided in favor of FERC because FERC fulfilled its duty under *ANR Storage* by "adequately explain[ing]" the "inconsistencies" cited by BGE.[170] Those BGE-cited cases did not qualify as "policy or precedent" because FERC distinguished them from the case at bar, not because those cases were altogether exempt from precedential status.[171] Furthermore, the majority denied that *San Diego Gas* restricted FERC's intra-agency case law to protested cases only, so it simply applied the rules from *ANR Storage* and *West Deptford Energy* requiring FERC to "provide a reasoned explanation for contrary treatment of 'similarly situated' parties" in the name of predictability and coherency.[172] Thus, according to the *Baltimore Gas* majority, FERC must explain every plausible allegation of inconsistent treatment, even when the alleged inconsistency involves a FERC case that did not face protests.[173]

Second, in his dissent, Judge Williams understood the majority's reasoning in *Baltimore Gas* to be in conflict with the rule from *San Diego Gas*.[174] The *San Diego Gas* rule, he thought, would only require FERC to explain itself if the cases cited by BGE were "clearly opposed" and, therefore, decidable in light of "clearly asserted propositions of fact, law or policy" in FERC's records.[175] Judge Williams explained that, under the rule from *San Diego Gas*, not all FERC actions qualify as precedent but only those with detailed reasoning on the issue at hand, typically in response to a third party protest.[176] Furthermore, he saw the rule from *ANR Storage*, requiring FERC to explain alleged inconsistencies, as inapplicable in *Baltimore Gas*, since, unlike *Baltimore Gas*, *ANR Storage* involved a tight comparison between "indistinguishable competitors."[177] In other words, as Judge Williams would have it, FERC need not give "reasonable and coherent explanation[s] for the seemingly inconsistent results" in every plausible case, but only when the FERC action cited as precedent has survived a protest and, hence, contains on-point reasoning.[178]

Third and finally, extending Judge Randolph's approach from his dissent in *San Diego Gas*, one might agree with the *Baltimore Gas* majority's application of

169. *Balt. Gas & Elec. Co.*, 954 F.3d at 285.

170. *Id.*

171. *Id.* (quoting *San Diego Gas*, 913 F.3d at 142).

172. *Id.* at 285–86.

173. *Id.* at 286.

174. *Balt. Gas & Elec. Co.*, 954 F.3d at 287 (J. Williams, dissenting) ("I believe that under the circumstances the Commission was under no obligation to distinguish the orders, and therefore don't reach the question of whether its efforts to do so were good enough.").

175. *Id.*

176. *Id.*

177. *Id.* at 288–89 (J. Williams, dissenting) ("Unlike in *ANR Storage*, there is no suggestion here that any of the firms said to have been treated more favorably than BGE was in any way its competitor.").

178. *Id.* at 287 (J. Williams, dissenting). *Cf. id.* at 286 (majority opinion) ("If a party plausibly alleges that it has received inconsistent treatment under this same rule or standard, we must consider whether the agency has offered a reasonable and coherent explanation for the seemingly inconsistent results.").

the rule from *ANR Storage* while regarding the rule from *San Diego Gas* as bad law.[179] In his dissent, Judge Randolph, considered the majority's holding in *San Diego Gas* to be in direct conflict with the rule from *ANR Storage*, which required FERC to "provide some reasonable justification for treating [similarly situated entities] differently."[180] The *San Diego Gas* majority, he thought, wrongly excused FERC from its duty to explain why it treated San Diego Gas & Electric differently from another utility.[181] To make such exceptions to the rule from *ANR Storage* simply because an earlier case was not protested or because FERC failed to commit its reasoning to paper, Judge Randolph thought, would undermine the APA-mandated practice of judicial review.[182] Thus, on this approach, one might view the holding in *Baltimore Gas* as a non-binding assessment that a judicial misstep had occurred in *San Diego Gas*, even if the majority opinion in *Baltimore Gas* misinterpreted the holding in *San Diego Gas*.[183]

1. *San Diego Gas* Attempted to Narrow the Rule from *ANR Storage*

The majority opinion in *Baltimore Gas* insists that the rule from *San Diego Gas* requires FERC to explain inconsistencies.[184] However, both FERC and Judge Williams thought that the rule from *San Diego Gas* should have excused FERC from needing to explain supposed inconsistencies between its treatment of BGE and arguably-similar entities.[185] Moreover, Judge Randolph, in his *San Diego Gas* dissent, expressed a worry that, in that case the majority had excused FERC from needing to explain a supposed inconsistency between its treatment of San Diego Gas and Electric and an arguably-similar entity.[186] Thus, the *Baltimore Gas* majority's understanding of the rule from *San Diego Gas* runs contrary to the interpretations of two senior circuit judges and a federal agency. Furthermore, the *Baltimore Gas* majority made no attempt to explain the language from *San Diego Gas* that gave rise to the interpretive disagreement—that is, the language requiring FERC cases cited as precedent to "squarely present" and "necessarily resolve" the pertinent issues in response to third party protests.[187] In sum, there is good reason to think that the *Baltimore Gas* majority erred in construing the rule from *San Diego Gas* as in harmony with the broad requirement from *ANR Storage* for FERC to explain its alleged inconsistencies.

---

179. *Balt. Gas & Elec. Co.*, 954 F.3d at 285 (J. Williams, dissenting).

180. *San Diego Gas*, 913 F.3d at 147–48 (J. Randolph, dissenting).

181. *Id.* at 147 (J. Randolph, dissenting).

182. *Id.* at 148 (J. Randolph, dissenting).

183. *See Balt. Gas & Elec. Co.*, 954 F.3d at 286 (majority opinion) (recognizing the FERC obligation to "reasonably explain disparate treatment of similarly situated parties" as "settled law").

184. *Id.* at 285.

185. *Id.* at 285, 287.

186. *San Diego Gas*, 913 F.3d at 147.

187. *Balt. Gas & Elec. Co.*, 954 F.3d at 285 (majority opinion); *see San Diego Gas*, 913 F.3d at 142 ("in the absence of protests, the Commission's decision to approve rate increases does not amount to policy or precedent"); *see also Balt. Gas & Elec. Co.*, 954 F.3d at 287 (J. Williams, dissenting).

2. Challenging the Policy Concerns of *San Diego Gas*

Most likely, Judge Williams was correct in his opinion that the majority's understanding of *San Diego Gas*, or an overturning of *San Diego Gas*, invites, or would invite, prospective petitioners to "dive deep into the records of past agency cases," although he also feared that petitioners would "find one [past case] with facts loosely comparable to its own case, and then require the agency to adjudicate, *ex post* and likely on a limited record, whether and to what extent each past case is like the present one."[188] No doubt, such an approach places a heavy administrative burden on FERC to develop and maintain detailed (perhaps painstakingly detailed) records of its decisions and on the courts (and the D.C. Circuit in particular) to review FERC's actions.[189] Moreover, the ever-growing case history of FERC and other agencies means that, without major policy changes, the body of records into which an adversely treated party might "dive deep" grows quickly and indefinitely, locking courts and involved parties into a judicial puzzle of ever-increasing complexity.[190]

However, someone thinking along the lines of Judge Randolph, might see this administrative burden in a positive light.[191] After all, the APA means to ensure justice and consistency, not to conserve agency or court resources.[192] The administrative burden to which Judge Williams objects falls on courts and agencies because the APA makes the courts responsible for correcting inconsistent federal agency actions.[193] And courts happen to identify agency actions in need of correction, in part, by comparing them to earlier, analogous cases—thereby revealing the boundaries of agency policies and regulations.[194] Restricting earlier cases so as to prohibit certain comparisons effectively licenses FERC to act inconsistently "so long as it avoids explaining its actions."[195] Thus, regardless of the apparent administrative advantages afforded by the rule in *San Diego Gas*, by limiting the scope of intra-agency precedent only to protested cases, the rule could stifle arbitrary-and-capricious judicial reviews, contrary to the substance and aims of the

188. *Id.* at 288 (J. Williams, dissenting) (continuing, "[A] requirement that an agency address its past vermicelli, either by reconciling its current decision with the earlier record or by applying *Fox Television*, would tie courts and agencies in linguistic knots for little or no benefit.").

189. Some understand the burden of generating, maintaining, and applying such records to be an aim imposed on federal agencies by the APA. *See* Gillian E. Metzger, *Embracing Administrative Common Law, GEO. WASH. L. REV.* 1294 (2012); E. H. Schopler, *supra* note 44.

190. *Balt. Gas & Elec. Co.*, 954 F.3d at 288 (J. Williams, dissenting).

191. *San Diego Gas*, 913 F.3d at 147–48 (Randolph, J., dissenting) ("FERC has a 'statutory duty—imposed by the APA and owed to all other regulated parties—to provide some reasonable justification for any adverse treatment relative to similarly situated competitors.'") (quoting ANR Storage v. FERC, 904 F.3d 1020, 1025 (D.C. Cir. 2018)).

192. Administrative Procedure Act, Pub. L. No. 79-404, 60 Stat. 237 (1946) (codified as 5 U.S.C.A. §§ 551-559).

193. *West Deptford*, 766 F.3d at 24.

194. 2 Am. Jur. 2d *Administrative Law* § 477 (2020).

195. *San Diego Gas*, 913 F.3d at 290 n.8 (J. Randolph, dissenting).

APA.[196] By this way of thinking, the relief granted to agencies and courts by restricting the body of intra-agency case law eligible for the courts' consideration comes at the cost of shirking the statutory duty to ensure justice and consistency.[197]

Additionally, Judge Williams likely overstated his worry that, by allowing petitioners to "deep dive" into the entire body of earlier agency cases, the majority opinion in *Baltimore Gas & Electric* threatens to "tie courts and agencies in linguistic knots for little or no benefit to the rule of law."[198] Even if Judge Randolph rightly concluded that the *San Diego Gas* majority erred, the other case from which Judge Williams quoted, *Cooper Industries v. Aviall Services*, 543 U.S. 157 (2004), remains good law and prohibits pseudo-precedential "[q]uestions which merely lurk in the record."[199] In *Cooper Industries*, the U.S. Supreme Court disregarded an earlier case as not-precedential because the opinion in that case treated only one of two relevant statutes, not the combination of statutes at issue.[200] That is, even without the rule from *San Diego Gas*, the rule from *Cooper Industries* ensures that cases used by courts to detect arbitrary and capricious agency actions remain on point, not merely "loosely comparable," as Judge Williams supposed.[201] Thus, the only safeguard lost by ignoring, overturning, or otherwise interpreting *San Diego Gas* is the wooden rule that limits FERC precedent to cases that have been protested.[202]

IV. CONCLUSION

The majority's reasoning in *Baltimore Gas* offers little reason to think that it rightly applied the rule from *ANR Storage* while ignoring the limitations that might have been imposed by the rule from *San Diego Gas*.[203] Rather, perhaps ironically, the dissenting Judge Williams's persuasive interpretation of the rule from *San Diego Gas* suggests that the *Baltimore Gas* Court would have been more consistent if it had overturned the decision in *San Diego Gas* for the reasons addressed by Judge Randolph.[204] If the D.C. Circuit and other courts rely on the *Baltimore Gas* decision, then, going forward, FERC cannot excuse its inconsistencies by citing to *San Diego Gas*.[205] On the contrary, the majority opinion in *Baltimore Gas* supports the expectation that the D.C. Circuit will continue to enforce and to construe

196. *Id.* at 147 (J. Randolph, dissenting) ("The majority's attempt to write off FERC's prior orders is contrary to the law of this circuit.").

197. *Id.*

198. *Balt. Gas & Elec. Co.*, 954 F.3d at 287–88 (J. Williams, dissenting).

199. *Id.* at 287 (J. Williams, dissenting) (quoting Cooper Indus. v. Aviall Servs., 543 U.S. 157, 170 (2004)).

200. *Cooper Indus.*, 543 U.S. at 170 ("But we did not address the relevance, if any, of Key Tronic's status as a PRP or confront the relationship between §§ 107 and 113.").

201. *Id. Cf. Balt. Gas & Elec. Co.*, 954 F.3d at 288 (J. Williams, dissenting).

202. *San Diego Gas*, 913 F.3d at 142.

203. *Balt Gas & Elec. Co.,* 954 F.3d at 285–86.

204. *San Diego Gas*, 913 F.3d at 147–48 (J. Randolph, dissenting).

205. *Balt. Gas & Elec. Co.*, 954 F.3d at 286 ("*San Diego Gas* did not, and could not have, altered settled law.").

broadly the longstanding requirement expressed in *ANR Storage*.[206] For now, federal agencies bear a positive duty to justify "any adverse treatment relative to similarly situated competitors."[207]

Christopher A. Shrock[*]

206. *Id.* at 285.

207. *Id.* (quoting *ANR Storage*, 904 F.3d at 1025).

* Christopher A. Shrock is a second-year law student at the University of Tulsa College of Law. Upon graduation, Shrock plans to practice intellectual property law in Tulsa. He would like to thank Mr. Harvey Reiter, Mr. Alex Goldberg, Ms. Delia Patterson, Professor Robert Butkin, and Professor Kelsey Holder, and the *Energy Law Journal* student editors for the help in developing and publishing this case note. Shrock would also like to acknowledge his wife, Danielle, for her patience and encouragement.

NATIONAL ASS'N OF REGULATORY UTILITY COMM'RS V. FERC: FERC HOLDS THE GATES OPEN: FIGHTING TO GRANT ELECTRIC STORAGE RESOURCES ACCESS TO WHOLESALE MARKETS

I. INTRODUCTION

In *National Association of Regulatory Commissioners v. FERC*,[1] the Federal Energy Regulatory Commission's (FERC) recently adopted regime designed to foster more energy storage resources on the interstate electric grid survived judicial review at the United States Circuit Court for the District of Columbia. In

1 National Ass'n of Regulatory Comm'rs (NARUC) v. FERC, 964 F.3d 1177 (D.C. Cir. 2020) [hereinafter *NARUC v. FERC* or *NARUC*].

this decision, the court rejected a facial challenge raised by a group of appellants that sought to secure the right of state-level regulators to deny certain connections to portions of the grid—portions typically controlled by states authorities rather than by FERC.

Where FERC had designed its policy such that "electric storage resources" (ESRs)[2] would be presumptively subject to the policies in Order No. 841[3]—regardless of whether they were connected directly to the interstate grid or connected behind-the-meter to retail distribution systems—states had sought an ability to opt-out (i.e., broadly exempt) and deny ESRs like batteries or other storage devices from using state-controlled distribution lines to access federal markets run by regional transmission operators (RTOs) and independent system operators (ISOs). The key holding of the court is that FERC's ability to deny the requested opt-out was within its "affecting" jurisdiction under section 824e(a) of the Federal Power Act (FPA), and thus lawful, relying upon a three-part analysis used in the 2016 decision in *Federal Energy Regulatory Comm'n v. Electric Power Supply Ass'n*.[4]

Although the decision by the D.C. Circuit was not challenged further, the issue of tight federal-state jurisdictional boundaries discussed in the opinion makes clear that the courts could easily see additional challenges as states react to the policies established in FERC Order No. 841 and as other emerging technologies evolve and enter electricity markets. The decision also represents precedent in which the D.C. Circuit approved FERC's use of its broad jurisdictional authority under the FPA to incorporate emerging technologies into the wholesale markets within its authority.

As such, this note provides a brief discussion of the rapidly evolving landscape of electricity regulation in the United States, including the growing interest in emerging technologies. It then discusses FERC's statutory jurisdiction under the FPA and the current approach used by courts to address a challenge under FERC's "affecting" jurisdiction. With that background in place, this note discusses the D.C. Circuit's analysis in *NARUC v. FERC*. This note then concludes with a brief final thought on potential implications of the decision.

---

2. The definition of "electronic storage resource" was a central issue in FERC's rulemaking and the subsequent administrative challenge. *See* discussion *infra* Part II.D.1. The D.C. Circuit in *NARUC* did not directly define how it used the term ESR but explained that ESRs had the "unique characteristic" of being able to "both inject energy into the grid and receive energy from it." *Id.* at 1182 (internal citation omitted). This note will adopt the D.C. Circuit's description, and ESR will herein refer to any resource such as a battery or other technology with the ability to both receive energy from the grid and to later inject it back onto the grid.

3. Order No. 841, *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 162 FERC ¶ 61,127 (2018) [hereinafter Order No. 841]; Order No. 841-A, *Electric Storage Participation Models in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 167 FERC ¶ 61,154 at PP 31, 38 (2019) [hereinafter Order No. 841-A]

4. FERC v. Elec. Power Supply Ass'n, 577 U.S. 260, 136 S. Ct. 760, 193 L. Ed. 2d 661 (2016), as revised (Jan. 28, 2016) [hereinafter *FERC v. EPSA* or *EPSA*].

II. BACKGROUND

A. The Changing Landscape of Electric Energy Markets

1. Backdrop to Regulation of Energy Storage

In the United States, concerns about aging infrastructure, climate change, and over-reliance on fossil fuels are driving the electricity industry to adopt more decentralized approaches to energy delivery, and distributed energy resources such as ESRs are projected to play an increasingly vital role in the energy landscape as consumer demand continues to outgrow current capacity.[5] FERC's role in that changing landscape has included increasing interest in electric storage.

Today's electric power grid is a complex web of diverse resources and producers utilizing an advanced, inter-connected power grid capable of transmitting energy at low cost across great distances.[6] Thousands of generation facilities—both centralized and distributed—produce electricity from a wide array of resources including traditional fossil fuels, natural gas, and nuclear energy as well as renewable resources like wind, hydro, solar, and geothermal.[7]

With increased diversity and variability in electricity generation in the decades following deregulation in the electric energy industry,[8] the need for efficient energy storage has increased as operators work to balance generation with consumption in real time.[9] However, in order for widespread adoption to occur, new technologies must be integrated not only into existing infrastructure, but also into FERC's existing regulatory framework under the FPA.[10]

B. FPA Structure and Boundaries: Jurisdictional Bifurcation

In the FPA, Congress outlined two primary matters to which FERC's authority extends: first, over all facilities used for the "transmission of electric energy in interstate commerce," and second, over the "sale of electric energy at wholesale in interstate commerce."[11] The United States Supreme Court has interpreted the FPA to grant FERC unlimited jurisdiction over all interstate trans-

---

5. AMERICAN SOCIETY OF CIVIL ENGINEERS, 2017 INFRASTRUCTURE REPORT CARD, 1-2 (2017).

6. James W. Coleman & Alexandra B. Klass, *Energy and Eminent Domain*, 104 MINN. L. REV. 659, 692-94 (2019) (stating that domestically-generated electric energy "is transported over 642,000 miles of high-voltage transmission lines and 6.3 million miles of lower voltage distribution lines").

7. *Id.* (stating that "[t]he U.S. electric grid provides electric energy from over 9,000 large electricity generation sources").

8. New York v. FERC, 535 U.S. 1, 7 (2002).

9. *EPSA*, 577 U.S. at 268 (stating the long-standing limitation in electricity industry that "electricity cannot be stored effectively" for future use); Richard L. Revesz & Burcin Unel, *Managing the Future of the Electricity Grid: Energy Storage and Greenhouse Gas Emissions*, 42 HARV. ENVTL. L. REV. 139, 142 (2018) (stating that renewable power resources that are only capable of "intermittent and variable" power generation "based on daylight and weather patterns").

10. Revesz & Unel, *supra* note 9, at 144 (explaining that ESRs can be installed on either wholesale or retail grids, presenting challenges to regulators at both federal and state levels).

11. 16 U.S.C. § 824(b)(1) (2015) (further stating that FERC's jurisdiction includes "all facilities for such transmission or sale"); *see also* § 824(d) (defining a "wholesale" transaction to be "a sale of electric energy to any person for resale").

mission, but to limit FERC's jurisdiction over interstate sales to only wholesale transactions.[12]

More pertinent here, the FPA also provides FERC broad authority to ensure that any transmission or sale subject to its jurisdiction shall occur at "just and reasonable" rates and to ensure that any regulation or practice "affecting or pertaining to such rates" is not "unjust, unreasonable, unduly discriminatory or preferential."[13] Toward that goal of "just and reasonable" rates and practices, FERC has the "power to perform any and all acts, and to prescribe, issue, make, amend, and rescind such orders, rules, and regulations as it may find necessary or appropriate."[14]

Where FERC's exercise of federal jurisdiction conflicts with State law, the Supremacy Clause of the United States Constitution provides that the federal law is "the supreme Law of the Land," and preempts State law.[15] The Supreme Court has held that FERC "may pre-empt state law only when and if it is acting within the scope of its congressionally delegated authority."[16] Thus, where a FERC action conflicts with State regulatory law, any jurisdictional dispute involving a pre-emption question will be resolved in favor of FERC so long as Congress has granted FERC the power to take such an action.[17]

C. How the Supreme Court Resolved a Challenge to FERC's "Affecting" Jurisdiction: FERC v. EPSA

The United States Supreme Court recently addressed the limits to FERC's "affecting" jurisdiction in the context of wholesale demand response programs in *FERC v. EPSA*.[18] The *EPSA* case arose when energy industry associations challenged a FERC rule that required wholesale market operators to compensate electricity users that provided "demand response" at a rate equal to that offered to power generators, so long as such a rate was a "net benefit" to consumers and demand response participation was permitted by State regulators.[19]

In answering the question of FERC's regulatory jurisdiction, the Court followed a three-part analysis and addressed (1) whether FERC's rule directly affected wholesale rates; (2) whether FERC had regulated retail sales; and (3)

---

12. *New York v. FERC*, 535 U.S. at 19-20. Although not an issue in the NARUC case as interpretation of FPA was not presented, it is interesting to note that the Court in *New York v. FERC* stated that, at least in the context of wholesale unbundling in the early 2000s, evolution of the electric industry favored textual analysis rather than resorting to legislative history. *Id.* at 23 ("Whatever persuasive effect legislative history may have in other contexts, here it is not particularly helpful because of the interim developments in the electric industry" and that "we are left with the statutory text as the clearest guidance") (in unanimously adopted section III).

13. 16 U.S.C. §§ 824d(a), 824e(a).

14. 16 U.S.C. § 825h (1935).

15. Hughes v. Talen Energy Mktg., LLC., 136 S. Ct. 1288, 1297 (2016) (quoting U.S. CONST. art. VI, § 1, cl. 2).

16. *New York v. FERC*, 535 U.S. at 18.

17. *Id.*

18. 577 U.S. at 272-23, 275-76 (addressing a challenge to FERC Order No. 745). *See also id.* at 264-65 (explaining that "demand response" is a practice by which wholesale market operators pay electricity consumers *not* to consume power in order to free up supply at certain times when to do so is cheaper than paying generators for increased power production).

19. *Id.* at 273-74.

whether the challenged rule was consistent with the core purposes of the FPA.[20] On each issue, the Court found that FERC had not violated its jurisdiction under the FPA.[21]

Addressing these issues, the Court made several clarifying points that shaped its analysis. First, in order to avoid construing the FPA's "affecting or pertaining" language as a near-infinite grant of authority, the Court applied what it called a "common-sense construction" that limited FERC's "affecting" jurisdiction to only those "rules or practices that *directly* affect the [wholesale] rate."[22] Second, the Court held that regardless of indirect effects on retail rates, the FPA "imposes no bar" where FERC acts to regulate "what takes place on the wholesale market[] as part of carrying out its charge to improve how that market runs."[23] Third, the Court held that FERC's rule was consistent with the core purpose of the FPA because it would not "read the FPA, against its clear terms, to halt a practice that so evidently enables [FERC] to fulfill its statutory duties."[24]

D. Orders No. 841, 841-A, and FERC's Action to Encourage Inclusion of Electric Storage Resources in Wholesale Markets

In light of the advancing technology and increasing viability of Electric Storage Resources (ESRs), in 2016 FERC requested information from the Regional Transmission Organizations and Independent System Operators (RTO/ISOs) to determine whether barriers existed to ESR participation in wholesale markets, and whether such barriers "may potentially lead to unjust and unreasonable rates."[25] The following year, FERC issued a Notice of Proposed Rulemaking (NOPR) in which it observed that "market rules designed for traditional resources can create barriers to entry for emerging technologies."[26] Specifically, FERC sought to promulgate a rule ensuring that the grid relied upon by wholesale market operators adopted participation models that accommodate the unique ability of ESRs to both receive and inject energy on the grid.[27]

---

20. *Id.* at 776-77. Cf. *id.* at 296-97 (Scalia, J., dissenting) (arguing that the majority had incorrectly interpreted the FPA's jurisdictional provisions and as a result had improperly framed the legal issue in the case, Scalia states, "[The majority's] formulation inverts the proper inquiry. The pertinent question under the Act is whether the rule regulates sales '*at wholesale*.' If so, it falls within FERC's regulatory authority. If not, the rule is unauthorized whether or not it happens to regulate '*retail* electricity sales'; for, . . . the FPA prohibits FERC from regulating '*any other* sale of electric energy' that is not at wholesale." (quoting 16 U.S.C. § 824(b)(1)) (emphasis in original).

21. *EPSA*, 577 U.S. at 295-96.

22. *Id.* at 278 (alteration in original) (emphasis in original) (citation omitted).

23. *Id.* at 281-82. *See also id.* at 287-88 (highlighting what the Court described as a "finishing blow" to arguments of jurisdictional encroachment: FERC had permitted States to ban retail consumers from bidding into demand response programs, thereby allowing States to ultimately block any potential negative effect upon retail sales).

24. *Id.* at 291. The Court also sought to avoid a regulatory gap in which neither federal nor state officials had jurisdiction because such a conclusion would effectively extinguish the program. *Id.* at 289 (stating that "under the [FPA], no electricity transaction can proceed unless it is regulable by someone").

25. Order No. 841, *supra* note 3, at P 8.

26. *Id.* at P 10.

27. *Id.* at PP 7, 10.

1. Initial Rulemaking – FERC Defined "ESR" Broadly and Prevented States from Barring Retail-Connected ESRs from Accessing Wholesale Systems

In 2018, FERC issued Order No. 841 which stated the Commission's purpose to "remove barriers to the participation" of ESRs in the energy markets operated by the RTOs and ISOs.[28] Citing its "affecting" jurisdiction under the FPA, the Commission took the action to "ensure that RTO/ISO markets produce just and reasonable rates."[29] The order required RTO/ISO operators to adopt models that "recognize[] the physical and operational characteristics" of ESRs and "facilitate their participation in the RTO/ISO markets."[30]

To clarify which resources the RTO and ISO operators should accommodate in the revised participation models, the Commission defined an ESR as "a resource capable of receiving electric energy from the grid and storing it later for injection of electric energy back to the grid."[31] Additionally, the Commission stated that by "capable of . . . later injection of electric energy back to the grid," it meant that a resource eligible under the new participation models must be "both physically designed and configured" to do so, as well as "contractually permitted to do so" under its arrangement with utility operators.[32]

Furthermore, in disagreement with comments to its NOPR, the Commission expressed its intention that the adopted definition was not limited only to those ESRs already "interconnected to the transmission system" because such resources are already participating in RTO/ISO markets.[33] Rather, the Commission included all ESRs whether they are on "the transmission system, on a [local] distribution system, or behind the meter" in order to ensure that the new participation rules would not be limited to any particular ESR technology.[34] Importantly, ESRs located behind the meter on local distribution systems depend on state-controlled retail lines to reach the RTO/ISO wholesale markets.[35]

In Order No. 841, the Commission also addressed comments that proposed states be allowed to decide whether ESRs located on retail systems are permitted to participate in wholesale markets.[36] The Commission rejected the proposal and stated that it "has exclusive jurisdiction over the wholesale markets and the criteria for participation in those markets," including the rules for participation of resources connected to state-controlled systems.[37]

28. *Id.* at P 1.

29. *Id.* (citing 16 U.S.C. § 824e).

30. Order No. 841, *supra* note 3, at P 1.

31. *Id.* at P 29.

32. *Id.* at P 33. In other words, if a resource was not contractually permitted to inject electricity back into the grid, it would not meet the definition of ESR established by FERC.

33. *Id.* at P 31.

34. *Id.* at P 29.

35. *NARUC*, 964 F.3d at 1183.

36. Order No. 841, *supra* note 3, at P 35.

37. *Id.*

2. Rehearing Denied/Petition for Review – FERC Reaffirms that its Action and Broad Definition of "ESR" were Necessary to Fulfill its Statutory Purpose

After FERC issued Order No. 841, several petitioners sought rehearing and clarification on the Commission's decision not to allow states to decide whether ESRs on retail grids are permitted to participate in RTO/ISO wholesale markets.[38] Specifically, some petitioners argued that the decision exceeded FERC's jurisdiction because the FPA "expressly excludes from Commission jurisdiction retail electric service and facilities for the local distribution of electric energy."[39] They also argued that FERC should have allowed states an "opt-out" as it had done for the demand response rule at issue in *FERC v. EPSA*.[40]

The Commission denied rehearing on both arguments.[41] It emphasized that the Commission was not exercising any jurisdiction over "terms of sale at retail," but was instead "merely exercising its authority under the FPA" to regulate the wholesale market "by ensuring that technically capable resources are eligible and able to participate in those markets."[42] Invoking the Supreme Court decision in *EPSA*, the Commission also reaffirmed that "establishing the criteria for participation in the RTO/ISO markets," including for ESRs located on retail distribution systems, was "essential to the Commission's ability to fulfill its statutory responsibility to ensure that wholesale rates are just and reasonable."[43]

In response to FERC denying rehearing, two petitions for review were filed in the D.C. Circuit Court of Appeals and consolidated to one case.[44] Petitioners included a group of companies who owned or operated local utilities (Local Utility Petitioners) and the National Association of Regulatory Commissioners (NARUC). The petitioners brought the following arguments before the D.C. Circuit Court of Appeals: (1) "that FERC ha[d] exceeded its jurisdiction by barring states from 'broadly prohibiting' local ESRs from participating in RTO/ISO markets," (2) that FERC's refusal to allow states to "opt-out" restricted state authority and encroached upon state administrative processes, and (3) that even if FERC was within its jurisdiction under the FPA, the decision not to provide an opt-out was "arbitrary and capricious" under the Administrative Procedure Act.[45]

In its reply brief, petitioner NARUC acknowledged that FERC's direction to wholesale operators to "reduce barriers to participation" was a valid exercise of its authority.[46] However, it argued that a ban designed to restrict states' range

38. Order No. 841-A, *supra* note 3, at P 12.

39. *Id.*

40. *Id.* (referring to FERC Order Nos. 719 and 745. *See supra* Part II.C.).

41. *Id.* at P 30.

42. *Id.* at P 38.

43. Order No. 841-A, *supra* note 3, at PP 31, 37-39.

44. *NARUC*, 964 F.3d at 1184.

45. *Id.* at 1184 (referring the "arbitrary and capricious" standard of 5 U.S.C. § 706(2)(A) (1966)).

46. Reply Brief of Petitioner at 2, National Ass'n of Regulatory Util. Comm'rs v. FERC, 964 F.3d 1177 (D.C. Cir. 2020) (Nos. 19-1142 and 19-1147 (consolidated)).

of possible regulatory action amounted to "direct regulation of States and the distribution facilities" in contravention of the FPA's plain terms.[47]

III. ANALYSIS

The central issue[48] in *NARUC* was the policy decision FERC made to bar states and state agencies from adopting statewide opt-outs for ESRs located on retail grids that would in turn prevent those ESRs from accessing the interstate grid.[49]

The D.C. Circuit held that FERC's order on its face did not overstep its jurisdictional authority when it barred states from prohibiting ESRs from accessing federal wholesale markets.[50] However, the court was careful to note that this decision was not an "as-applied" determination of one state's actions measured against FERC interpretation of its jurisdictional expanse.[51] Nonetheless, interpreting FERC's "affecting" jurisdiction under section 824e(a) of the FPA, the D.C. Circuit grounded its decision on FERC's authority under the FPA to ensure that wholesale rates and the rules and practices affecting those rates are "just and reasonable,"[52] and it applied the three-part federal-state jurisdictional review utilized in the 2016 Supreme Court decision in *FERC v. Electric Power Supply Ass'n, et al*.[53]

Because Petitioners challenged the validity of FERC's orders as an "offsides" overstep into matters of state jurisdiction rather than a conflict with an actual state action, the court addressed the claims as a facial challenge, not as an "as-applied" challenge.[54] In framing the issues as a facial challenge, the court made clear that the petitioners' burden was high: they would need to show that "no set of circumstances exist under which the regulations would be valid."[55] However, it is also important to note that because there was no specific set of facts at issue upon which to determine an as-applied challenge, the court regarded any dismissal of the claims to be without prejudice with respect to potential future as-applied challenges.[56]

A. The D.C. Circuit's Analysis of FERC's Jurisdictional Authority under the EPSA Analysis

Addressing the petitioners' primary claim that FERC had exceeded its jurisdiction under the FPA by barring states from prohibiting ESRs from accessing

47. *Id.* at 15.

48. Before addressing the primary FPA issues, the court first determined justiciability issues, finding that both NARUC and the Local Utility Petitioners had standing to challenge FERC's orders, and the issue was ripe for judicial review. *NARUC*, 964 F.3d at 1184-85.

49. *Id.* at 1181.

50. *Id.* at 1185-86, 1189.

51. *Id* at 1185, 1189.

52. *Id.* at 1181 (quoting 16 U.S.C. § 824e(a)).

53. *EPSA*, 577 U.S. at 276-77.

54. *NARUC*, 964 F.3d at 1185, 1189.

55. *Id.* at 1185 (citation omitted).

56. *Id.* at 1185, 1189.

RTO/ISO markets,[57] the court followed the three-part analysis utilized by the U.S. Supreme Court in the *EPSA* case.[58] As discussed more fully below, the court first asked whether FERC's action "directly affect[ed] wholesale rates."[59] Second, the court asked "whether the Commission [had] regulated state-regulated facilities."[60] Third, the court examined whether its conclusions were consistent with the FPA's "core purposes of curbing prices and enhancing reliability in the wholesale electricity market."[61]

1. FERC's Prohibition of State-imposed Participation Bans "Directly Affected" Wholesale Rates

The court concluded that "FERC's prohibition of state-imposed participation bans directly affect[ed] wholesale rates."[62] It stated that FERC's responsibility under the FPA to regulate the wholesale market "encompasses both wholesale rates and the panoply of rules and practices affecting them."[63] The court reasoned that "Order No. 841 solely target[ed] the manner in which an ESR may participate in wholesale markets" and that the action was "intentionally designed to increase wholesale competition, thereby reducing wholesale rates."[64]

The court further reasoned that keeping the wholesale "gates" open to all ESRs regardless of where they connect to the electrical grid ensures that the benefits of technological advancement, increased competition, and the resulting reduction in wholesale rates would be realized in wholesale markets.[65] Therefore, the court stated that "if 'directly affecting' wholesale rates were a target, [Order No. 841] hit the bullseye."[66]

2. FERC Had Not Regulated "Access" But "Markets."

Secondly, the court addressed the issue of whether FERC had "unlawfully regulate[d] matters left to the states."[67] The court's key determination was that FERC's orders did not regulate "access" to local markets—as petitioners had framed it—but rather regulated wholesale markets, which are well within FERC's authority. The petitioners argued that the FPA left regulation of access to federally controlled wholesale markets to the states and that FERC's action prohibiting the states from "blocking the gates" amounted to direct regulation of such access.[68]

57. *Id.* at 1184.
58. *Id.* at 1185-86 (referring to *EPSA*, 577 U.S. 260 (2016)).
59. *NARUC*, 964 F.3d at 1186 (quoting *EPSA*, 577 U.S. at 276).
60. *Id.*
61. *Id.* at 1186 (internal quotation marks omitted).
62. *Id.*
63. *Id.* (internal quotation marks omitted).
64. *NARUC*, 964 F.3d at 1186.
65. *Id.*
66. *Id.*
67. *Id.*
68. *Id.* at 1186-87.

The court dispelled this notion. First, it stated that although the new RTO/ISO participation models might "lure local ESRs to the federal marketplace," an ESR's use of local distribution systems to access that marketplace was a secondary and "permissible effect" of FERC's direct regulation of federal wholesale rates.[69] The court thereby distinguished between an unlawful exercise of direct authority over the local distribution systems themselves and a lawful regulation of the federal wholesale market that had secondary effects upon the local systems.[70] The court determined that Order No. 841 fell into the latter category as a permissible exercise of FERC's authority.[71] Because Order No. 841 had not directly regulated the local distribution systems, and because "[s]tates remain[ed] equipped with every tool they possessed prior to Order No. 841" to regulate their systems, the court reasoned that FERC had not unlawfully regulated state-controlled facilities.[72]

Continuing on that theme, the court addressed petitioners' argument that Order No. 841 deprived them of at least one such tool, "the ability to close their facilities to local ESRs" that desired to transport energy to wholesale markets, an argument posited to show interference with their jurisdictional rights.[73] However, the court stated that because federal law gives FERC "exclusive authority to determine who may participate in the wholesale markets," qualification for participation is a field preempted by federal law and the Supremacy Clause.[74] Accordingly, the court reasoned that states may lawfully set conditions on the terms by which ESRs provide retail service or access wholesale markets; however, states may not take actions "aim[ed] directly at destroying FERC's jurisdiction" by inhibiting FERC's ability to "regulate comprehensively and effectively" over its exclusive jurisdiction.[75] In other words, the court regarded a state action prohibiting ESRs from accessing wholesale markets as an action designed to destroy FERC's jurisdiction over the resource.[76]

Because FERC's order did not directly regulate local distribution systems, and because FERC has exclusive and preemptive jurisdiction over the criteria for accessing wholesale markets, the court concluded that Order No. 841 did not "'usurp state power' nor [did] it impose a new 'reasonably related' test that re-

69. *NARUC*, 964 F.3d at 1187.

70. *Id.* at 1185-87.

71. *Id.*

72. *Id.*

73. *Id.*

74. *NARUC*, 964 F.3d at 1187. For a contrasting approach to this analysis, *see supra* note 19, discussing Justice Scalia's criticism of the second and third legs of the analysis applied in *FERC v. EPSA*. Additionally, it is not explained why the D.C. Circuit went through the exercise of discussing pre-emption where there is no State statute, regulation, or order against which the court can measure the extent of the pre-emption. Consider this question: if FERC had decided differently, and in its own order granted states the ability to opt-out, could FERC's own decision have been pre-empted under Supremacy Clause review on a facial challenge? The answer should seemingly be no, because it is the Commerce Clause rather than the Supremacy Clause that controls Congress's authority over FERC. An alternative approach could be to decline pre-emption review at all until a party brings an action in which an actual state statute or rule is in question.

75. *NARUC*, 964 F.3d at 1187-88.

76. *Id.*

draws the jurisdictional divide between FERC and the States."[77] Thus, the court answered the second question of the *EPSA* test by finding that FERC had not "unlawfully regulate[d] matters left to the states."[78]

3. The D.C. Circuit's Conclusion Was Consistent with the FPA's Core Purposes

Next, the court addressed the third and final *EPSA* question to determine whether its conclusions were consistent with the FPA's "core purposes of curbing prices and enhancing reliability" in wholesale markets.[79] The court stated that because FERC had not "perpetuated federal policy goals to the detriment of the statutory authority granted to the states," the court's decision was "consistent with the FPA's purpose of maintaining" the jurisdictional line between FERC and the states "while ensuring that FERC can carry out its duty of ensuring just and reasonable federal wholesale rates."[80] The D.C. Circuit concluded that because the challenged FERC orders "do nothing more than regulate matters concerning federal transactions – and reiterate ordinary principles of federal preemption," the Orders did not "facially exceed FERC's jurisdiction" under the FPA.[81]

B. The D.C. Circuit Held that FERC Did Not Act Arbitrarily or Capriciously in Rejecting a State Opt-Out

Alternatively to the jurisdictional claims, the petitioners argued that "even if FERC has the authority to prevent states from broadly prohibiting local ESR participation" in wholesale markets, its decision to do so in Order No. 841 was "arbitrary and capricious" under the APA.[82] Here, the petitioners relied heavily on *EPSA* and the state opt-out included by FERC in that case to argue that FERC had not adequately explained its decision not to include such an option in Order No. 841.[83]

The court held that FERC's decision to reject a state opt-out was "adequately explained" because it had weighed the costs of state administrative and operational burdens against the benefits of "enabling broad ESR participation" in wholesale markets.[84] The court noted that although petitioners might disagree with FERC's calculation of costs and benefits, such determinations are "the kind of reasonable agency prediction" about the effect regulatory decisions may have to which courts "ordinarily defer."[85] Because the D.C. Circuit Court found that

77. *Id.* at 1188 (internal citations omitted).

78. *Id.* at 1186, 1188.

79. *Id.* at 1186 (quoting *EPSA*, 557 U.S. at 276).

80. *NARUC*, 964 F.3d at 1189.

81. *Id.* (further acknowledging that while Petitioners' facial challenge failed, "as-applied" challenges would likely follow "as States try to navigate this line").

82. *Id.*

83. *Id.*

84. *Id.* at 1189-90; *see also* Order No. 841-A, *supra* note 3, at P 56 (stating FERC's conclusion that "Order No. 841 found that the benefits of removing barriers to the participation of electric storage resources in RTO/ISO markets are significant and, in light of those benefits, we are not persuaded to adopt an opt-out that could limit that participation").

85. *NARUC*, 964 F.3d at 1190.

FERC had "adequately explained" its decision to reject a state opt-out, it held that the agency had not acted "arbitrarily and capriciously" in violation of the APA.[86]

In concluding its opinion, the D.C. Circuit determined that FERC had not "run afoul of the [FPA's] jurisdictional bifurcation" or otherwise acted arbitrarily and capriciously.[87]

IV. CONCLUSION

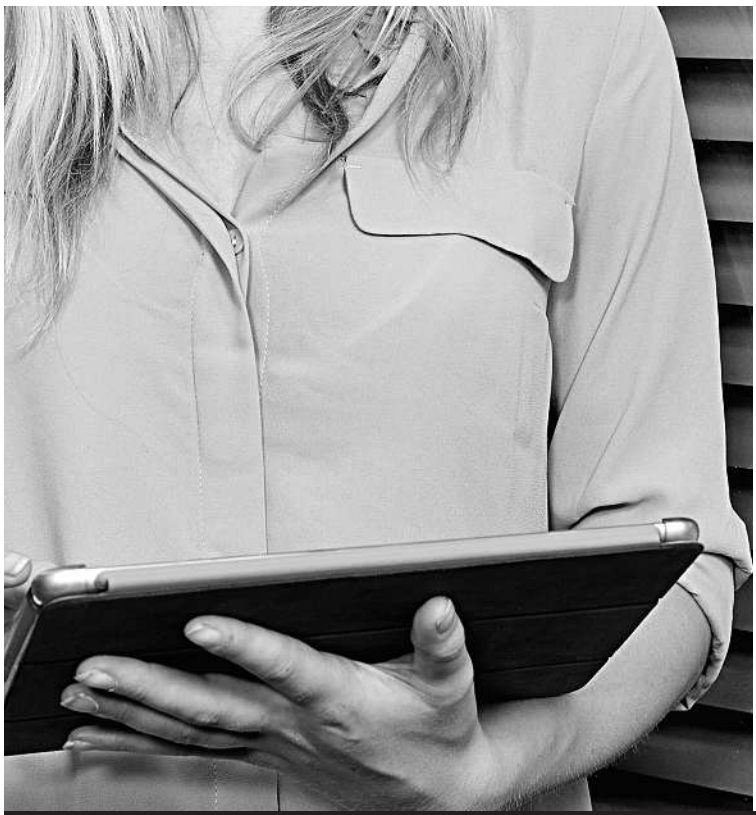
As this note demonstrates, the courts' interpretation of the FPA's jurisdictional provisions continues to play a key role in development of the United States electric grid. The D.C. Circuit's opinion in *NARUC* reflects an additional instance in which courts have interpreted FERC's "affecting" jurisdiction under section 824e(a) of the FPA utilizing the analysis in *EPSA*. As regulators in federal and state-level markets implement FERC's rule and integrate ESRs and other emerging technology, *NARUC* reflects a significant court's approval of FERC using its broad authority to physically expand the electric grid in atypical ways and to meet the challenges of a rapidly evolving wholesale electricity marketplace.

Jon Rubottom[*]

86. *Id.* at 1189.

87. *Id.* at 1190.

* Jon Rubottom is a third-year law student at the University of Tulsa College of Law.



ENERGY BAR ASSOCIATION

EBA BRIEF

A QUARTERLY PUBLICATION OF THE ENERGY BAR ASSOCIATION

Take time to read insightful articles from colleagues on current cases, regulatory actions, and industry trends in EBA's quarterly online magazine.

Consider adding your voice to the discussion and submit an article for consideration!

LEARN MORE: https://www.eba-net.org/felj/energy-law-journal/eba-brief/

Vol. 42, No. 2 ENERGY LAW JOURNAL Pages 281-432