

# EXPERIMENTS AT THE FERC—IN SEARCH OF A HYPOTHESIS

*Paul B. Mohler\**

## I. INTRODUCTION

The Federal Energy Regulatory Commission (FERC or Commission) and its predecessor the Federal Power Commission (FPC) have from time to time employed experiments, or at least an experimental rationale, to develop or forward new policies or to address current and pressing problems that existing rules and policies were ill-equipped to handle. The Commission's approach to experiments has varied widely. In some cases it appears the Commission uses the term "experiment" as a label of convenience. In others, the Commission has articulated a well-considered and thorough experimental design.

Several of the Commission's experiments, as well as experiments by other regulatory agencies, have been judicially reviewed, thus providing a measure of the judicial response to experimental approaches to policy development and implementation. In general, it appears that courts offer greater deference to experimental action than they might accord a new initiative. As several cases discussed below demonstrate, however, simply labeling an experiment as such is not enough, the Commission must also remain within its statutory confines and cannot institutionalize an experiment without first meeting the more rigorous standards of review generally applicable to administrative actions.

With new paradigms of regulation and changes in technology and business environments, experiments may be an especially useful way to test new theories and methods of regulation. But are they being used enough? And where they are used, are they used in a manner designed to elicit the best possible information with which to determine whether an experiment is a success?

This article begins by reviewing fundamental definitional and methodological issues related to the experimental method. It then surveys selected the FERC experiments and concludes with an analysis of those experiments and methodological suggestions for future experiments.

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\* Mr. Mohler is a trial attorney for the Federal Energy Regulatory Commission. He served at the Commission as Legal Advisor to Commissioner Hoecker and Acting Director of the Division of Rate Filings. Mr. Mohler holds a J.D. from George Mason University School of Law, and M.A. in Economics from George Washington University. The views expressed here are his own and not necessarily those of the Commission.

## II. THE EXPERIMENTAL METHOD

This article does not explore the philosophy of the scientific method and its relationship to principles of law;<sup>1</sup> rather, the starting point of this article is a practical one—experiments have been used by the FERC, have been approved by the courts, and therefore may continue to be used. Assuming they can and will be used in the future, what can be learned from past experience?

### A. *What is an experiment?*

A simple dictionary definition of experiment is “a test performed to demonstrate a known truth, examine the validity of a hypothesis, or ascertain the efficacy of something previously untried.”<sup>2</sup> The experimental method is well developed in the sciences, including the social sciences.<sup>3</sup> It is also not a new concept in the development of law and policy generally,<sup>4</sup> or, as will be developed further below, in the area of administrative law specifically.<sup>5</sup>

Experiments by regulatory agencies such as the FERC are social experiments. Experiments by regulatory agencies also tend to be field experiments, in the sense that they are applied in a real world context, as opposed to a laboratory. In a laboratory setting, experiments can be carefully constructed and controlled. In the real world, by contrast, the control of relevant variables is much less certain. Sometimes, the term “evaluation research” is used to describe the process of evaluating programmatic experiments. As described in Orenstein:

The lack of a control characteristic of many field experiments becomes a particular problem in the area of evaluation research. The term evaluation research is used to refer to a whole range of studies conducted to test whether or not a particular “program” is having the desired effect.

Whether the program being tested is a new way to organize schools, treat delinquents, cure patients, help the poor, or reduce job discontent, *a true experimental design is needed to assess the program's effects*. Yet people in the settings in which the programs operate often have vested interests in the results of an experimental evaluation and may make it impossible to develop

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1. For a doorway into this area of philosophic discourse, see generally David L. Faigman, *To Have and Have Not: Assessing the Value of Social Science to the Law as Science and Policy*, 38 EMORY L.J. 1005 (1989)[hereinafter Faigman].

2. WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY (1984).

3. A. ORENSTEIN AND W. PHILLIPS, UNDERSTANDING SOCIAL RESEARCH: AN INTRODUCTION (1978) [hereinafter ORENSTEIN]; E. BABBIE, THE PRACTICE OF SOCIAL RESEARCH (2nd ed. 1979) [hereinafter BABBIE].

4. Faigman, *supra* note 1.

5. A number of experiments conducted by the FPC or the FERC are discussed herein. In addition, courts have validated experiments at other regulatory agencies. See, e.g., *Delta Air Line v. CAB*, 455 F.2d 1340 (D.C. Cir. 1971) (upholding nine-month experiment as “a policy decision of the type [the Civil Aeronautics Board] was create to make”); *United Telegraph Workers v. FCC*, 436 F.2d 920 (D.C. Cir. 1970) (upholding approval of experimental Mailgram program).

the conditions necessary for a true experiment.<sup>6</sup>

Just as in the social science setting, the design of an experiment is central to evaluating an experimental regulatory program, and determining the hypothesis being tested is central to the design.

In a general sense, a hypothesis is a theory that explains a pattern or collection of facts. A hypothesis is a clear statement assumed to be true that is tested by the experiment. For example, in testing whether a market is competitive, the hypothesis might be: markets for fuel oil sales are competitive in New York City. An experiment could then be designed to test whether this hypothesis should be accepted as true or rejected as false.

Only when the hypothesis is clearly formulated does it become possible to create an experiment to test that hypothesis. Establishing the hypothesis being tested is especially important for regulatory agencies where the experiment itself may be challenged in court. The hypothesis of an experiment conducted by a regulatory agency must not only have a valid regulatory purpose, but it must also be sufficiently supported within the confines of the legal authority granted that agency.

Hypotheses can be supported either deductively, inductively, or both. Using deductive reasoning, a conclusion (or new proposition) is inferred from the relationship of two or more existing premises (or existing propositions).<sup>7</sup> Thus, based on principles of economic theory, a regulatory agency might conclude that with a sufficient number of alternatives, competition exists that will ensure just and reasonable rates even in the absence of cost-based regulation.

In inductive reasoning, one reasons from the specific to the general.<sup>8</sup> Also called empiricism, it relies on the gathering of observations and data from which patterns can be discerned that can then be synthesized into a theory. When the court in *Motor Vehicle Manufacturers Association v. State Farm Mutual Automobile Insurance Company* instructed administrative agencies to “examine the relevant data and articulate . . . a ‘rational connection between the facts found and the choice made,’”<sup>9</sup> it was essentially requiring use of empirical, inductive reasoning. The theory or conclusion that results from inductive reasoning can, in turn, be framed as a hypothesis generating additional experimental observations.

The relationship between induction and deduction is sometimes illustrated as a circle, with theory leading to hypothesis, leading to experimental observation, leading to empirical generalization, and then back to theory.<sup>10</sup> Or, as stated by one leading authority in the context of

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6. ORENSTEIN, *supra* note 3, at 53 (emphasis added).

7. RUGGERO J. ALDISERT, *LOGIC FOR LAWYERS* 45 (3rd ed. 1997) [hereinafter ALDISERT].

8. *Id.* at 91.

9. *Motor Vehicle Mfrs. Ass'n of United States, Inc., v. State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29, 43 (1983) (quoting *Burlington Truck Lines v. United States*, 371 U.S. 156, 168 (1962)).

10. See, e.g., BABBIE *supra* note 3, at 47. But see KARL R. POPPER, *OBJECTIVE KNOWLEDGE, AN EVOLUTIONARY APPROACH* 258 (Rev. Ed., 1979) (arguing that “theory—at least some

the development and application of the common law:

Common-law reasoning should not be characterized as merely inductive. It is more than a congeries of fact patterns converging to compel an induced conclusion either by analogy or inductive generalization. Rather, the reasoning process is both inductive and deductive. It resembles the ebb and flow of the tide. A principle is induced from a line of specific reasoned decisions and, once identified, becomes the major premise from which a conclusion may be deduced in the cause at hand.<sup>11</sup>

While a circular view of the relationship between deduction and induction may be helpful in visualizing the interrelationship between them, it also oversimplifies the long and rich debate that has occurred throughout the centuries as to which method leads to more certain knowledge.<sup>12</sup> Without regard to the merits of that debate, however, an experiment remains the preeminent means for testing a stated hypothesis.

### *B. Basic Experimental Design*

Experiments can be simple or enormously complicated. Texts catalog the potential pitfalls and fallacies of improperly designed experiments, and also suggest experimental designs intended to minimize the potential for experimental error.<sup>13</sup> While there is no single authoritative source for determining the best experimental design, the following provides a general outline for conducting an experiment.

(1) Identify the question or problem (or policy dilemma) that requires resolution or further understanding.

(2) State a hypothesis suitable for testing, based on inductive or deductive reasoning, or both.

(3) Determine an experimental procedure to test the hypothesis. The experimental design should be fully articulated at this stage.

(4) Conduct the experiment.

(5) Collect and analyze the results of the experiment.

(6) Determine whether the hypothesis was proved.

Particularly important in this process is clearly stating, prior to the design or implementation of an experiment, the hypothesis being tested. Without an unambiguous understanding of what is being tested, it is difficult, if not impossible, to design an experiment that will yield suitable and valid results.

In a typical, simple laboratory experiment, a scientist will seek to control all the variables but one, and will then examine the result of changing that one variable. This, of course, is not always possible outside of the laboratory. In real world situations, the outcome of an experiment may, for example, have very real and significant income distribution consequences. Such consequences, where perceived, may give rise to

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rudimentary theory or expectation—always comes first”).

11. ALDISERT, *supra* note 7, at 10.

12. See generally Faigman, *supra* note 1, for a sense of this debate.

13. See, e.g., ORENSTEIN, *supra* note 3, at 52-62; BABBIE, *supra* note 3, at 25-9.

“vested interests” that may seek to mold or use the experiment for their own gain, at the expense of the validity of the experiment. A well-designed experiment may be able to guard to some degree against such exogenous behavior if it is anticipated. Economic theory, however, teaches that it may be difficult to do so.<sup>14</sup>

### C. *Limitations to Administrative Experiments*

Experiments are not a panacea during periods of regulatory change. In addition to the many difficulties in designing valid experiments in real world situations, there are also legal limits which may further restrict the development and use of experiments. Experiments must be conducted within the law. More specifically, experiments at the FERC must be conducted within the parameters of the statutes which govern FERC action, and also must not exceed the authority vested in the FERC by those statutes.

## III. SURVEY OF FERC EXPERIMENTS

### A. *Chandeleur Pipe Line Company*

One of the earliest FERC cases which addresses experimental action as the rationale for a policy decision involved Chandeleur Pipe Line Company (Chandeleur).<sup>15</sup> In *Chandeleur*, the Federal Power Commission issued a permanent certificate to Chandeleur to transport natural gas from offshore Louisiana federal leases to a petroleum refinery where the gas was to be used as feedstock and as fuel.<sup>16</sup> This certificate was issued during a period when natural gas was in short supply for natural gas interstate commercial and residential customers.

The Public Service Commission of the State of New York (PSCNY) protested issuance of the certificate, arguing that the proposed industrial use of the gas was inferior to the claim that interstate residential and commercial consumers had upon these supplies. The Commission reasoned that permitting the gas to flow to the desired end use would actually encourage more gas development, a result that was to be encouraged.<sup>17</sup> The Commission concluded there was no basis to discriminate among different interstate uses of natural gas. PSCNY then filed for court review. On review, the court held that the Commission had not adequately explained its theory that granting the certificate would

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14. When a model is used to create public policy based on predictions of human behavior, the real-life agents affected by the model will soon learn new behaviors to achieve optimum results under the model being used. 4 THE NEW PALGRAVE: A DICTIONARY OF ECONOMICS 76 (1987) (discussing rational expectation models in Economics). Or, stated differently, an experiment may cause those affected by the experiment to change behavior in ways not controlled for in the experimental design.

15. Opinion No. 560, *Chandeleur Pipe Line Company*, 42 F.P.C. 20 (1969), *reh'g denied* 42 F.P.C. 560 (1969) [hereinafter *Chandeleur*].

16. *Id.*

17. *Id.* 42 F.P.C. 20 at 24-5.

encourage greater gas reserve development and remanded the case.<sup>18</sup>

On remand, and following additional hearings, the Commission affirmed its earlier decision,<sup>19</sup> based in part on the conclusion that "the public good would be better served by giving effect to the incentive for exploration and development of gas reserves . . . rather than removing this kind of incentive by denying the certificate. . . ."<sup>20</sup> Court review was once again sought, and it was the resulting opinion upholding the Commission's decision which then construed the Commission's action as "experimental":

We must recognize that the formulation of such an experimental policy (where the probability of success is uncertain) is the type activity that the Federal Power Commission was created to perform, and we give great weight to the Commission's determinations regarding this policy. Under the circumstances of this case, . . . we cannot say that the Commission's incentive theory lacks logic, or that the Commission's actions here are unjustified because of reliance in part on this incentive theory as supporting the pipeline certification here challenged. If time should prove the Commission's theory on incentives for exploration and development to be inaccurate, it may change its policies accordingly.<sup>21</sup>

#### B. *The Advance Payments Program*

As with *Chandeleur*, the underlying justification for the advance payments program was to encourage greater natural gas development in light of the perceived "acute" shortage of natural gas supplies. Under this program, pipelines were permitted to include rate base prepayments to producers for gas to be delivered at a future date. Since pipelines are permitted a return based upon the total level of rate base, this rate-making treatment permitted pipelines to flow the financing costs of the prepayment program through to ratepayers.

The advance payments program was initiated by rule in October, 1970 (Order No. 410), and was subsequently modified first on rehearing in January, 1971 (Order No. 410-A),<sup>22</sup> and second by additional rulemaking in November, 1971 (Order No. 441).<sup>23</sup> The advance payments program reached its final form in Order No. 441, where the "experimental undertaking" was implemented for a limited term ending December 31, 1972.<sup>24</sup>

Initially upholding this program, the court in 1972 recognized its

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18. *Public Serv. Comm'n of the State of New York v. FPC*, 436 F.2d 904 (D.C. Cir. 1970).

19. Opinion No. 560-A, *Chandeleur Pipe Line Co.*, 44 F.P.C. 1747 (1970), *reh'g denied*, Opinion No. 560-B, 45 F.P.C. 370 (1971).

20. *Id.* at 1762.

21. *Public Serv. Comm'n of the State of New York v. FPC*, 463 F.2d 824, 828 (D.C. Cir. 1972).

22. Order No. 410, *Accounting and Rate Treatment of Advance Payments to Suppliers for Gas and Amending F.P.C. Form No. 2*, 44 F.P.C. 1142 (1970), *order denying reh'g in part and modifying Order No. 410 in part*, Order No. 410-A, 45 F.P.C. 135 (1971), *reh'g denied*, 45 F.P.C. 357 (1971).

23. Order No. 441, *Accounting and Rate Treatment of Advance Payments to Suppliers for Exploration and Lease Acquisition of Gas Producing Properties*, 46 F.P.C. 1178 (1971), *reh'g denied*, 47 F.P.C. 57 (1972).

24. 46 F.P.C. 1178 at 4.

experimental nature, and explicitly advised the Commission regarding the court's expectations for further Commission action following implementation of the program:

One of the important factors in reaching our decision [to uphold the FPC order] was the temporary character of the FPC order under review . . . and our belief that it represented a justifiable experiment in the continuing search for solutions to our nation's critical shortage of natural gas. . . . *Fundamental to the concept of any experiment is the assumption that the data developed from the experience thereunder will be subjected to meaningful review, analysis, and evaluation before the experimental practice is allowed to continue or to become institutionalized as a more permanent procedure.*

Subsequently the Commission twice extended the December 31, 1972 deadline, first to December 31, 1973,<sup>26</sup> and then to December 31, 1995.<sup>27</sup>

Following the extensions of the program, court review was once again sought of the advance payments program. This time the court was less deferential and found the Commission's justification for extending the program to be unsatisfactory. The court commenced its second review by concluding that the advance payments program had essentially become "institutionalized" as a permanent program.<sup>28</sup> The court then determined it would be necessary to "examine whether the FPC's actions have been premised on the type of meaningful review, analysis, and careful evaluation of experience called for by our earlier opinion."<sup>29</sup> Upon review of the record compiled by the Commission, the court concluded, "the FPC has failed to engage in 'meaningful review, analysis, and evaluation' of the experience under the advance payments program."<sup>30</sup>

Following the court's decision, the Commission instituted an investigation by requiring all pipelines that had made advance payments to respond to a questionnaire to ascertain the results of the advance payments program.<sup>31</sup> Based on an evaluation of these responses, and following oral argument, the Commission concluded that the results of the advance payments program were mixed, with some regions and pipelines benefiting, and less definite results for other areas.<sup>32</sup> Based on this analysis, the Commission concluded: "[W]e cannot find, based on this record, that there was sufficient quantifiable acceleration or initiation of exploration, development and production of offshore reserves to meet the

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25. *Public Serv. Comm'n for the State of New York v. FPC*, 467 F.2d 361, 371 (D.C. Cir. 1972) (emphasis added).

26. Order No. 465, *Accounting and Rate Treatment of Advance Payments included in Account 166, Advance Payments for Gas Development and Production*, 48 F.P.C. 1550 (1972).

27. Order No. 499, *Accounting and Rate Treatment of Advances included in Account No. 166, Advances for Gas Exploration, Development and Production*, 50 F.P.C. 2111 (1973).

28. *Public Serv. Comm'n for the State of New York v. FPC*, 511 F.2d 338, 341 (D.C. Cir. 1975).

29. *Id.*

30. *Public Serv. Comm'n for the State of New York v. FPC*, 511 F. 2d 338, 342 (D.C. Cir 1975).

31. *Accounting and Rate Treatment of Advances included in Account No. 166, Advances for Gas Exploration, Development and Production*, 53 F.P.C. 1384 (1975).

32. *Accounting and Rate Treatment of Advances included in Account No. 166, Advances for Gas Exploration, Development and Production*, 54 F.P.C. 3046 (1975), *order on reh'g*, 55 F.P.C. 803 (1976).

test laid down by the Court of Appeals for these proceedings."<sup>33</sup>

The Commission then went on to take issue with the Court's test:

We note that this finding is made more difficult by the inherently speculative nature of the test we are asked to apply. The myriad factors which influence managerial decisions with regard to procuring gas for the interstate market include fiscal and monetary policy, general business and economic conditions, the regulatory climate, as well as the managers' predictions about each of these. In making judgments about the outcome of decisions based on these factors we are forced to rely heavily on the self-serving predictions of interested parties and to speculate *ex post facto* about events which did not occur.<sup>34</sup>

It took several more years and trips to the appeals court before the advance payments program was finally ended and the costs were cleansed from pipelines' rates.<sup>35</sup>

### C. *The Southwest Bulk Power and Western States Power Pool Experiments*

#### 1. The Southwest Experiment

On December 30, 1983, the Commission departed from its traditional practice of linking the price of bulk electricity to cost when it issued Opinion No. 203 and approved an experimental program allowing flexible, market-based pricing for specified bulk power transactions.<sup>36</sup> The experiment involved four FERC-jurisdictional investor-owned utilities and two publicly-owned nonjurisdictional utilities doing business principally in three Southwestern States. Known as the "Southwest Experiment," this may well be among the very best experiments conducted at the FERC in terms of the Commission's preplanning and experimental design.

In Opinion No. 203, the Commission explained that the genesis of the experiment dated back to at least October 1981.<sup>37</sup> Between that time and its approval, the Commission undertook a number of actions which provided a solid foundation for the experiment. As described in Opinion No. 203: "In April 1982, [the Chairman] . . . announced the formation of a program at the Commission . . . to explore the possibilities for voluntary experiments designed to encourage the development of more active regional coordination markets."<sup>38</sup>

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33. *Id.* at 3051.

34. *Id.*

35. See, e.g., *Michigan Wisconsin Pipe Line Co. v. FERC*, 606 F.2d 1094 (D.C. Cir. 1979) (upholding in part and remanding in part Commission's determination regarding eligibility for recovery of certain advance payments); *United Gas Pipe Line Co. v. FPC*, 551 F.2d 460 (D.C. Cir. 1977) (remanding issue related to the Commission's implementation of the advance payments program for an evidentiary hearing); *Michigan Wisconsin Pipe Line Co. v. FPC*, 520 F.2d 84 (D.C. Cir. 1975) (remanding issue related to the Commission's implementation of the advance payments program for further consideration).

36. *Public Serv. Co. of New Mexico*, 25 F.E.R.C. ¶ 61,469 (1983).

37. *Id.* at 62,031-32.

38. *Public Serv. Co. of New Mexico*, 25 F.E.R.C. ¶ 61,469, at 62,031 (1983) (footnotes omitted).

Following this announcement, a staff task force led by Commissioner Hughes began to analyze the issues involved in such experiments. Having reached preliminary conclusions as to the structure of possible competitive bulk power market experiments, the task force produced a widely circulated staff paper and traveled extensively to meet with interested utility and state public service commission representatives.

While these discussions were proceeding, the Commission contracted with the Rand Corporation for technical assistance in designing and evaluating the experiments. The contract called for a report by Rand which discussed the theory of wholesale markets for electricity, outlined a design for a bulk power market experiment, suggested an analytical framework for identifying the effects of the experiment, and examined the difficulties that such an experiment might face. When it became clear that the Commission might expect a filing from the Southwest utilities proposing a specific experiment, Rand was also asked to describe and evaluate the proposed experimental design.

In addition to the Commission's activities, independent scholarly analysis was also underway which corroborated the potential benefits of permitting more flexible bulk power transactions.<sup>39</sup>

In its December 30, 1983 order, the Commission approved the Southwest Experiment for a two-year period, stating that "[i]f the temporary changes produce desirable results, then we will consider making the changes permanent."<sup>40</sup> The Southwest experiment was never made permanent, but it was the first step to a larger regional experiment which eventually was adopted on a permanent basis.

## 2. The WSPP Experiment

On March 12, 1987, the Commission accepted experimental rates for the Western States Power Pool (WSPP).<sup>41</sup> The WSPP experiment involved utilities in ten states and approximately twelve percent of the total electric generating capacity of the United States at the time of the experiment.<sup>42</sup> The Southwest experiment had tested only a sub-market of the region contained in the WSPP experiment.

In approving the experiment, the Commission once again articulated the benefits it expected:

We are interested in this Experiment only if it can help the Commission meet its "overriding objective in administering the Federal Power Act: to achieve the most efficient allocation of resources possible"(citation omitted). We believe this Experiment can assist the Commission in meeting this objective. The Experiment will also be valuable to the Commission because it will explore theories and examine treatments beyond those tested in the Southwest Experiment and provide the Commission with significant data on the Experiment's effect on efficiency, competition and coordination in the

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39. *Id.* at 62,032, 62,063 n. 20.

40. *Public Serv. Co. of New Mexico*, 25 F.E.R.C. ¶ 61,469, at 62,036 (1983).

41. *Pacific Gas and Electric Co.*, 38 F.E.R.C. ¶ 61,242 (1987).

42. *Id.* at 61,782.

bulk power industry. In fact, we expect that the primary benefit of this Experiment will be the ability to use the information gained from the Experiment as one of the resources in the Commission's ongoing review of electric regulatory policies and, thereby, ultimately to help ensure the lowest rates possible for electric consumers.<sup>43</sup>

The Commission explained in detail why it was appropriate to use an experiment by asking three questions, each of which it answered affirmatively:<sup>44</sup>

1. Does the proposed experiment serve a vital policy objective?
2. Is the proposed experiment designed properly to serve that objective?
3. Is there reason to think that the proposed experiment will produce more good than harm?

Focusing on the second question, the Commission first relied in part on the connection and similarities of the WSPP Experiment to the previously approved Southwest Experiment.<sup>45</sup> Second, the Commission provided assurance that there were adequate arrangements for data collection and analysis would "provide the Commission with a reasonable basis for objectively evaluating present policies against Experimental treatments."<sup>46</sup> Third, the Commission found the Experiment was sufficiently limited to avoid analytical problems.<sup>47</sup> Finally, the Commission found that the experimental market would be organized in a manner that would minimize transaction costs.<sup>48</sup>

The Commission extended the WSPP Experiment for one year to allow for the collection of additional data.<sup>49</sup>

On April 23, 1991, the Commission approved permanent operation of the WSPP, with a number of modifications.<sup>50</sup> Attached to the order was a detailed staff analysis of the reports provided by the WSPP participants regarding the effectiveness of the experiment. That report concluded that the experiment had been "an 'unqualified success' in which competitiveness improved in coordination and transmission services."<sup>51</sup> Also noteworthy was a dissent by Commissioner Trabandt who argued that the modifications were excessive.<sup>52</sup>

In *Environmental Action v. FERC*,<sup>53</sup> the Court of Appeals for the

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43. *Pacific Gas and Electric Co.*, 38 F.E.R.C. ¶ 61,242, at 61,782 (1987) (internal citation omitted).

44. *Pacific Gas and Electric Co.*, 38 F.E.R.C. ¶ 61,242, at 61,792-93 (1987).

45. *Id.* at 61,792.

46. *Pacific Gas and Electric Co.*, 38 F.E.R.C. ¶ 61,242 (1987).

47. *Id.* at 61,792-93.

48. *Pacific Gas and Electric Co.*, 38 F.E.R.C. ¶ 61,242, at 61,793 (1987).

49. *Pacific Gas and Electric Co.*, 50 F.E.R.C. ¶ 61,339 (1990).

50. *Western Systems Power Pool*, 55 F.E.R.C. ¶ 61,099 (1991), *stayed* 55 F.E.R.C. ¶ 61,154 (1991), *order on reh'g and clarification*, 55 F.E.R.C. ¶ 61,495 (1991).

51. *Western Systems Power Pool*, 55 F.E.R.C. ¶ 61,099 at 61,303 (1991).

52. *Id.* at 61,333-41.

53. *Environmental Action v. FERC*, 996 F.2d 401 (D.C. Cir. 1993).

District of Columbia Circuit reviewed and upheld on the merits the Commission's determination that the WSPP experiment could be made permanent. The Southwest and WSPP experiments also played a role in leading the Commission to restructure the electric industry in Order No. 888.<sup>54</sup>

#### D. *The Special Marketing Programs*

In 1993 and 1994, the Commission approved a number of experimental Special Marketing Programs (SMP)<sup>55</sup> proposed by natural gas pipeline companies.<sup>56</sup> Although the programs varied from pipeline to pipeline, they generally provided for the direct purchase of natural gas by specified customers or customer classes. These gas purchases would then be transported by the pipeline. The basic rationale underlying the SMP was, retaining load that could otherwise leave, all customers would benefit, because this load would make a contribution to fixed costs that would otherwise be paid by the pipeline's captive customers. The retention of this load had become problematic because of the development of a gas bubble that had driven down the market clearing cost of gas. At the same time the weighted average cost of gas in natural gas pipelines had risen due to high-cost contracts signed when gas had been in short supply.

Although the Commission referred to these programs as experimental, it generally did so without a clearly articulated experimental design. There was, for example, no advance planning for the post-experimental analysis that would determine whether or not the experiment was or was not a success. Instead, the Commission generally noted that the proposals were approved for a limited period of time and contained monthly reporting requirements which would permit them to be monitored.<sup>57</sup>

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54. Order No. 888, *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, F.E.R.C. STAT. AND REGS., Regulations Preambles ¶ 31,036, at 31,643, 61 Fed. Reg. 21,540 (1996) (noting that market-based rates helped to develop competitive bulk power markets).

55. These programs went by various other names as well, such as "Industrial Sales Programs." As used here, SMP is intended to refer to the general class of such programs and not to any program in particular.

56. See, e.g., *Transcontinental Gas Pipe Line Corp.*, 23 F.E.R.C. ¶ 61,199 (1983), order amending rate settlement and certificates of public convenience and necessity, 25 F.E.R.C. ¶ 61,219 (1983); *Columbia Gas Transmission Corp. and Columbia Gulf Transmission Co.*, 25 F.E.R.C. ¶ 61,220 (1983), order clarifying prior order and granting rehearing for the purpose of further consideration, 25 F.E.R.C. ¶ 61,401 (1984), order clarifying prior orders and denying rehearing, 26 F.E.R.C. ¶ 61,031 (1984).

57. The first of the SMP programs came to the Commission as part of a settlement of proceedings involving Transcontinental Gas Pipe Line Corp. (Transco). The settlement was approved by the Commission with only a cursory description of the "experimental" program, and without any discussion whatsoever of the experimental design of the program. *Producer-Suppliers of Transcontinental Gas Supply Corp.*, 23 F.E.R.C. ¶ 61,199, at 61,416 (1983). To implement the experimental program, Transco filed for limited-term certificate authorizations on behalf of the producers participating in the program. In approving these certificates, the Commission further articulated the rationale for the experiment, but did not provide any additional guidance as to the

Among the SMP proposals, Columbia Gas Transmission System (Columbia) was the first to reach the courts. Columbia's proposal was approved by the Commission on November 10, 1983.<sup>58</sup> In its order, the Commission explained its approval of the SMP proposals:

[T]he Commission, in examining the instant application along with similar industrial sales programs or other proposals calculated to ameliorate immediate problems that exist today in the pipeline industry in the areas of market loss and take-or-pay liabilities, is exploring innovative and experimental plans to deal with such problems to protect the public interest. This Commission believes that the approach to the existing problem contemplated herein is totally consistent with the mandate given to other independent Federal regulatory agencies to test remedies of an experimental, limited-term nature to protect the public interest. As the United States Court of Appeals for the District of Columbia, referring to an experimental program authorized by the Federal Communications Commission, stated, "there are circumstances in which a month of experience will be worth a year of hearings," and, citing an earlier case on an experimental program, "the very purpose of the projected experiment is to explore these unknown and unpredictable factors."<sup>59</sup>

On rehearing, the Commission further articulated its belief that the experimental nature of the proposals justified its approval, and that its determination was consistent with the standards for other experiments upheld by the court:

The courts have not clearly established the standards that are applicable when an agency has decided to establish an experimental program. However, the decision in *National Air Carrier Assoc. v. C.A.B.*, 436 F.2d 1985 (D.C. Cir. 1970) suggests factors that were considered in upholding a legitimate interim decision by the Civil Aeronautics Board. . . . Those factors included whether the issues raised can be resolved by testimony, whether a hearing is required, whether there is a legitimate need to respond expeditiously, and whether the program will set into motion an irreversible course . . . . [W]e believe this decision satisfies all the factors suggested in the *National Air Carrier* case.<sup>60</sup>

In *Maryland Peoples Counsel v. FERC*, the D.C. Circuit Court of Appeals determined that the Commission had not adequately explained the basis for its SMP experiment, nor had it satisfactorily addressed the concerns raised in protests and rehearing requests that argued that the program discriminated against those customer groups who were not

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experimental design, other than to note there were certain reporting requirements. *Producer-Suppliers of Transcontinental Gas Pipe Line Corp.*, 23 F.E.R.C. ¶ 61,221, *reh'g denied*, 24 F.E.R.C. ¶ 61,052 (1983); *Producer-Suppliers of Transcontinental Gas Supply Corporation*, 23 F.E.R.C. ¶ 61,460 (1983); *Producer-Suppliers of Transcontinental Gas Supply Co. and Transcontinental Gas Pipe Line Corp.*, 24 F.E.R.C. ¶ 61,281, *order on reh'g*, 25 F.E.R.C. ¶ 61,221 (1983). The certificates issued in the above orders were collectively amended by the Commission in an order issued November 10, 1983. 25 F.E.R.C. ¶ 61,219 (1983). Since it was ultimately implemented in an uncontested settlement, judicial review of the Transco program was not sought.

58. 25 F.E.R.C. ¶ 61,220 (1983).

59. *Id.* at 61,563-64, *citing* *United Telegraph Workers, AFL-CIO v. FCC*, 436 F.2d 920 (D.C. Cir. 1970).

60. 26 F.E.R.C. ¶ 61,031, at 61,083 (1984).

permitted to participate in the program.<sup>61</sup> While the court agreed that properly designed experiments could provide valuable experience, it nonetheless concluded that the Commission's experiment had not been adequately supported, explaining that:

[J]ust as there are reasonable programs and arbitrary programs, so also there are reasonable experiments and arbitrary experiments. The law governing our review does not demand an impossible predictability, but it does demand an articulation, in response to serious objections, of the Commission's reasons for believing that more good than harm will come of its action—even experimental action.<sup>62</sup>

#### *E. United Gas Pipe Line Company*

In October 1988, United Gas Pipe Line Company (United) filed an unsolicited application to broker, on an experimental basis, capacity and storage rights it held on fifteen different natural gas pipelines. United sought this authority because, while it was still contractually required to pay for the capacity, it no longer required all the capacity for its own needs. United proposed the experiment for a period of three years during which it would file reports every six months. The charge for the brokered capacity would be equal to or less than the cost-based, as-billed rate charged, by the pipelines.

On January 24, 1989, the Commission approved United's proposal with several modifications, including a requirement that reports be filed quarterly, rather than semi-annually.<sup>63</sup> The order also determined that "in order for United to broker its capacity in a transporting pipeline, the pipeline must agree to allow such capacity to be brokered."<sup>64</sup> Only two of the fifteen pipelines filed unconditional letters of agreement to participate in the program.<sup>65</sup> On June 26, 1989, the Commission issued an order generally denying rehearing of its order approving the experiment and required the non-participating pipelines to explain why they chose not to participate.<sup>66</sup> Although the Commission had assumed that the other pipelines would be economically indifferent to United's brokering of its capacity, United and other intervenors pointed out that pipelines might not be economically indifferent to the extent brokered capacity either reduced the ability of the pipeline to sell interruptible gas or capacity, or where brokered transactions directly competed with pipeline interruptible sales.<sup>67</sup>

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61. Maryland People's Counsel v. FERC, 761 F.2d 768 (D.C. Cir. 1985).

62. *Id.* at 779.

63. *United Gas Pipe Line Co.*, 46 F.E.R.C. ¶ 61,060 (1989).

64. *Id.* at 61,263.

65. Initially four pipelines filed to participate, however, two of the four later withdrew. See *United Gas Pipe Line Co.*, 47 F.E.R.C. ¶ 61,455 at 62,409, n. 4 (1989).

66. *Id.*

67. That is, pipelines were recovering demand charges from United regardless of whether United transported gas. To the extent United did not transport gas, that capacity was available to the pipeline to resell on an interruptible basis. If the capacity were instead brokered, the pipeline would recover

In a separate opinion concurring in part and dissenting in part to the January 24, 1989 order, Commissioner Trabandt argued the experiment should be approved for only a one-year period, and offered the following observation regarding the experimental nature of United's proposal:

Indeed, I would question whether it is an experiment at all, rather than the first phase of a permanent program for United. The quarterly reporting requirement . . . will merely catalog the brokering transactions which have occurred. There are no stated objectives or criteria against which to assess the capacity brokering activity generally or the individual transactions. There is no requirement for review and analysis by an outside consultant, the Commission staff or United itself.<sup>68</sup>

Commissioner Trabandt's concern with the lack of an explicit experimental design and clear statement of the hypothesis (or objective) was not shared by a majority of the Commission. In addressing an argument questioning the value of the experiment to other pipelines, the Commission stated that:

[The] intervenors' contentions that the experiment will be of little value are purely speculative. There is no way to know for sure before the experiment is conducted. Moreover, the information received by the Commission will at least be useful in assessing the pros and cons of brokering capacity on United's own system. This will help the Commission to determine the parameters<sup>69</sup> for a permanent capacity brokering program on United's system.

In finding the experiment to be in the public interest and convenience, the Commission stated that the experiment:

- would increase utilization of United's system as well as the other pipeline systems;
- would result in greater capacity availability;
- should result in increased competition to the benefit of customers; and
- should increase throughput to the benefit of the pipelines.<sup>70</sup>

On November 7, 1989, the Commission issued an order on further rehearing in which it addressed the responses filed by pipelines to the June 26, 1989 order.<sup>71</sup> In responding to the June 26, 1989 order, several pipelines agreed to participate; several others expressed reservations. The Commission established procedures requiring the reluctant pipelines "to demonstrate that its participation in the program will result in a decrease in revenues with no corresponding benefits to offset such a decrease."<sup>72</sup> In essence, the Commission mandated participation in the experiment absent a specific showing of harm from the other pipelines.

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only the demand charge and would lose the additional interruptible revenue. *United Gas Pipe Line Co.*, 46 F.E.R.C. ¶ 61,060 (1989).

68. *Id.* at 61,280.

69. *Id.* at 61,272.

70. *United Gas Pipe Line Co.*, 46 F.E.R.C. ¶ 61,060, at 61,263-67 (1989).

71. *United Gas Pipe Line Co.*, 49 F.E.R.C. ¶ 61,166 (1989).

72. *Id.* at 61,648.

Not long after this order, the experiment—which had never actually gone into effect—ended when United filed a letter declining to accept the certificate amendment authorizing the program.<sup>73</sup> United noted that when it filed its application in October, 1988, the near-term implementation of the experimental brokering program could have immediately benefited United, its customers, and gas transportation markets.<sup>74</sup> With the problems and delay caused by the reluctance of other pipelines to participate in the experiment, United no longer believed it could market significant portions of the unused capacity, or realize any measurable financial benefit from the program. United further noted the program had been bypassed by other events, noteworthy among which was United's effort to permanently terminate its capacity obligations.<sup>75</sup>

#### *F. The Experiments in Market-Based Pricing for Natural Gas and Oil Pipelines*

In addition to the Southwest and WSPP experiments described above, the Commission has entertained other experiments aimed at determining the feasibility of market-based rates. Three such experiments are briefly described below.

##### 1. Buckeye Pipeline Company, L.P.

On December 31, 1990, the Commission approved an experiment proposed by Buckeye Pipeline Company, L.P. (Buckeye) under which Buckeye would be permitted to change rates in markets that were non-competitive within a range established by rates charged in competitive markets.<sup>76</sup> The genesis of the proposal was a decision by a FERC administrative law judge that Buckeye lacked market power in only some of its markets. This determination was upheld by the Commission with modifications. The experiment was intended to provide lighter-handed regulation for those markets not found to be competitive. Buckeye requested the experiment be approved for an initial five-year period. The Commission approved a three-year experiment, with an annual filing requirement.

On March 24, 1994, the Commission extended the program until the effective date of a pending generic rulemaking for oil pipelines.<sup>77</sup> The Commission specifically noted that no protests or complaints had been filed against the rates subject to Buckeye's experiment during the pendency of the experiment. The Commission also briefly reviewed the

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73. *Tennessee Gas Pipeline Co.*, 49 F.E.R.C. ¶ 61,374 (1989) (summarizing United's letter, noting certificate authorization had become void since it was not accepted within 30 days of the final rehearing order, and terminating proceedings related to the participation of other pipelines in the experiment).

74. *Id.*

75. *Tennessee Gas Pipeline Co.*, 49 F.E.R.C. ¶ 61,374 (1989).

76. Opinion No. 360, *Buckeye Pipeline Co.*, 53 F.E.R.C. ¶ 61,473 (1990).

77. *Buckeye Pipeline Co.*, 66 F.E.R.C. ¶ 61,348 (1994).

information filed in Buckeye's annual reports.

On December 6, 1994, the Commission again considered Buckeye's experimental program and extended it beyond the effective date of new generic oil pipeline rate-indexing regulations that would otherwise have been applicable to Buckeye.<sup>78</sup> The Commission found that "[t]he Buckeye program of rate changes has checks and balances that have proven effective in assuring just and reasonable rates for shippers. . . ."<sup>79</sup> The Commission also found noteworthy the "universal acceptance" of the program by Buckeye's shippers.<sup>80</sup> With these findings, the Commission permitted Buckeye to continue the experimental market-based rate program subject to further review at the same time as the generic oil pipeline index is subject to review in the year 2000.

## 2. United Gas Pipe Line Company/Koch Gateway Pipeline Company<sup>81</sup>

On October 22, 1991, the Commission approved, on an experimental basis, a proposal by United to charge market-based rates for storage at United's Bistineau storage field.<sup>82</sup> The proposal was filed as part of an uncontested settlement of a rate case. The proposal provided for an initial eighteen-month term for the experiment during which four public conferences would be held to evaluate the operation of the market-responsive service. In addition, United and customers of the service were required to file reports with the Commission. The Commission also imposed a price cap equal to 125 percent of the fully allocated per-unit cost of service, with revenues in excess of 150 percent of the costs allocated to the service to be returned to the storage customers using the market-based service.<sup>83</sup>

On March 29, 1993, the Commission approved, with minor clarifications, continuation of United's market-based storage rates for an additional one-year period.<sup>84</sup> Although no party protested continuation of the experiment, several modifications or clarifications were requested to the mechanics of the program.

In neither of these orders did the Commission provide a discussion of the empirical or theoretical bases for concluding United's contract storage service was sufficiently competitive that market-based rates could be appropriate. Rather, approval appeared to be predicated almost entirely on the fact that the initial experiment and its later continuation were

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78. *Buckeye Pipeline Co.*, 69 F.E.R.C. ¶ 61,302 (1994).

79. *Id.* at 62,162.

80. *Buckeye Pipeline Co.*, 69 F.E.R.C. ¶ 61,302, at 62,163 (1994).

81. While the experiment was in progress, United was sold and renamed Koch Gateway Pipeline Company (Koch).

82. *United Gas Pipeline Co.*, 57 F.E.R.C. ¶ 61,086 (1991).

83. Commissioner Langdon dissented to approval of the experiment because of concerns with the timing of other policy developments and because there had been "no formal finding on market power and no conclusion that United offers comparable services." *Id.* at 61,311-13.

84. *United Gas Pipe Line Co.*, 62 F.E.R.C. ¶ 61,290 (1993).

unopposed.

On March 31, 1994, the Commission permanently approved Koch Gateway's market-based storage rates, finding that Koch Gateway lacked market power in the gas storage market, thus permitting, Koch Gateway to charge market-based rates for its firm and interruptible storage services.<sup>85</sup> The Commission's determination that Koch Gateway lacked market power in the storage market was not based solely on the results of the experiment. Indeed, the Commission found that although the experiment had been in effect for three heating seasons, the experiment alone was not sufficient to determine that Koch Gateway lacked market power. As the Commission observed:

There remains a possibility, however, that Koch Gateway has market power but chose not to exercise it during the experiment. The possibility is small because the longer a seller that has market power fails to exercise it, the greater the extra profits the seller sacrifices. Thus, the seller is less likely to make the sacrifice. . . . Nonetheless, because of this possibility, the Commission cannot rely solely on the experiment to decide whether Koch Gateway has market power, other indicators must be considered.<sup>86</sup>

The Commission then undertook a traditional market power analysis to determine independently that Koch Gateway indeed lacked market power.

### 3. Stingray Pipeline Company

On February 16, 1994, the Commission, on an experimental basis, approved a proposal under which Stingray Pipeline Company (Stingray) would be able to negotiate interruptible rates, subject to a price cap equal to 110 percent of Stingray's per unit interruptible cost-based rate.<sup>87</sup> The proposal was contained in an uncontested settlement of a rate case. In addition to the price cap, the experiment was limited to a specified geographic area where there were alternative pipelines over which a shipper could transport gas. The experiment was approved for an initial one-year period. Stingray was required to file information on volume, price and competition in quarterly reports with the Commission.

On December 16, 1994, Stingray filed to extend the experimental program for an additional one-year period. Several parties filed in opposition to the extension.<sup>88</sup> The Commission rejected the extension, finding that "[t]he results of Stingray's experimental rate program were inconclusive."<sup>89</sup> The Commission directed parties to a pending rate proceeding to examine further issues relating to Stingray's interruptible rates. In discussing its rejection of the continuation of the experiment, the Commission highlighted that the experiment was now contested, where the

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85. *Koch Gateway Pipeline Co.*, 66 F.E.R.C. ¶ 61,385 (1994).

86. *Id.* at 62,302.

87. *Stingray Pipeline Co.*, 66 F.E.R.C. ¶ 61,202 (1994).

88. *Stingray Pipeline Co.*, 70 F.E.R.C. ¶ 61,171 (1995).

89. *Id.* at 61,541.

initial proposal had been uncontested. Also noted by the Commission was the potential increase in the price cap due to the pending rate proceeding.<sup>90</sup>

#### 4. Colonial Pipeline Company

On March 31, 1997, the Commission approved a settlement proposal that included a three-year experimental program during which Colonial Pipeline Company (Colonial) would be permitted to charge market-based rates. These rates are subject to a price cap equal to 110 percent of the otherwise applicable indexed rate under the oil pipeline rules. The experiment would apply only in Colonial's "North East Market Area." One party expressed concerns that Colonial could subsidize the market rates with rates charged on the non-competitive portion of Colonial's pipeline. The Commission found that these concerns had been addressed by capping those rates using the Commission's index for oil pipeline rate increases. No other party objected to the proposal, and the Commission found it to be fair and reasonable. An annual reporting requirement was imposed on the experiment. Additionally, the settlement provides that after the third annual report, the Commission shall determine if the program should be terminated, extended, or permanently placed into effect.<sup>91</sup>

#### G. The Secondary Market Experiment

On July 31, 1996, the Commission issued a notice of proposed rulemaking (NOPR) addressing a number of issues related to the secondary market for natural gas transmission capacity.<sup>92</sup> The secondary market in pipeline capacity was created by a requirement in Order No. 636 that pipelines permit holders of firm capacity to release that capacity, on a short or long term basis, to buyers.<sup>93</sup> In a companion order to the NOPR, the Commission also solicited proposals for an experimental pilot program removing the price ceilings from secondary market transactions for pipelines meeting certain restrictive eligibility criteria.<sup>94</sup> In addition to capacity release transactions, price caps would also have been lifted on interruptible and short term firm transactions by the pipeline into the same markets for which the capacity release ceiling was removed.<sup>95</sup> The pilot program order required interested participants to provide proposals sixty days after issuance of the order, with a stated intent to implement the

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90. *Stingray Pipeline Co.*, 70 F.E.R.C. ¶ 61,171, at 61,541 (1995).

91. *Colonial Pipeline Co.*, 78 F.E.R.C. ¶ 61,371 (1997).

92. Notice of Proposed Rulemaking, *Secondary Market Transactions on Interstate Natural Gas Pipelines*, [Proposed Regs.] F.E.R.C. STATS. & REGS., ¶ 32,520, 61 Fed. Reg. 41,046 (1996).

93. Order No. 636, *Pipeline Service Obligations and Revisions to Regulations Governing Self-Implementing Transportation; and Regulation of Natural Gas Pipelines After Wellhead Decontrol*, F.E.R.C. STATS. AND REGS., ¶ 30,939, at 30,418-21, 57 Fed. Reg. 13267 (1992).

94. *Secondary Market Transactions on Interstate Natural Gas Pipelines, Proposed Experimental Pilot Program to Relax the Price Cap for Secondary Market Transactions*, 76 F.E.R.C. ¶ 61,120 (1996).

95. 76 F.E.R.C. ¶ 61,120, at 61,622.

programs in time for the 1996-97 winter heating season.<sup>96</sup> The pilot program orders also detailed the information the Commission considered necessary “to evaluate whether capacity is being allocated efficiently and whether consumers’ options for buying and selling gas have been expanded.”<sup>97</sup>

The Commission’s proposed experimental pilot program was challenged on several fronts, and even parties willing to consider participating in the pilot program were concerned with the experimental design. The Brooklyn Union Gas Company (Brooklyn Union), for example, commented that “[t]here is no logical or factual reason for placing such a narrow geographic restriction on [the experimental program] in general or the Brooklyn Union’s proposed experimental program in particular,” and that such restrictions would be “counterproductive.”<sup>98</sup> Similarly, another potential participant commented that the Commission’s proposed data collection requirements would require the submission of confidential and competitively sensitive data that, in the author’s view, was not relevant to the Commission’s examination of the subject markets in any event.<sup>99</sup> The experimental programs implementation schedule left little time for the consideration of alternative experimental designs or the sort of stakeholder process that might have led to an experimental program with broader support. Although the short time period for proposals was criticized, twelve applications were filed. The Commission approved three applications subject to various conditions and reporting requirements.<sup>100</sup> Chair Moler and Commissioner Massey dissented from the approval of these three proposals. They were concerned that the applicants had not sufficiently shown that they could not exercise market power during the experiment:

To support its acceptance of these two applications, the majority makes much of the fact this is an experiment. However, a hasty experiment does not justify the majority’s failure to deal adequately with the market power issues. . . . Today’s order concludes that more good will come from this experiment than harm. In our view, the scale tips the other way.<sup>101</sup>

Prior to commencement of the experiment, the applicants whose proposals had been accepted elected to withdraw; subsequently, the experimental pilot program was terminated.<sup>102</sup>

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96. *Id.* at 61,625.

97. *Id.* at 61,624; *see also* 77 F.E.R.C. ¶ 61,183 at 61,710-11.

98. *Application of Brooklyn Union Gas Company for Blanket Authorization to Release Interstate Pipeline Firm Capacity at Market-based Rates*, filed Aug. 30, 1996, in Docket No. RM96-14-001, p. 7.

99. *Comments of Rochester Gas and Electric Corporation*, filed Aug. 30, 1996, in Docket No. RM96-14-001.

100. *Secondary Market Transactions on Interstate Natural Gas Pipelines*, 77 F.E.R.C. ¶ 61,183 (1996).

101. *Id.* at 61,718.

102. *Transwestern Pipeline Co.*, 78 F.E.R.C. ¶ 61,200 (1997).

## IV. ANALYSIS

A. *Judicial Review of Agency Experiments*

While there is no established rule of law that provides that courts must give greater deference to experiments than to other kinds of agency action, courts have generally granted experimental action a high level of deference.

## 1. The FERC Cases

Of the FERC experiments described above, only three, *Chandeleur*, the Advance Payments Programs and the Special Marketing Programs, were challenged in the courts.

The court construed the Commission's policy change in *Chandeleur* as experimental, thus enabling the court to provide the Commission with a greater level of deference than the traditional substantial evidence test might otherwise have demanded. The court's discussion is helpful, not because it endorsed an experimental design, but because it stated the court would give "great weight" to an agency's formulation of experimental policy.<sup>103</sup>

The most instructive experiments are the Advance Payments cases, where the court initially upheld the experiments with the explicit understanding that the data from the Advance Payments experiments would be subjected to meaningful review before the experiments would be allowed to be institutionalized.<sup>104</sup> The court viewed this *ex post* review as "[f]undamental to the concept of any experiment."<sup>105</sup> When the Commission institutionalized the Advanced Payments Program without meaningful review, the court then employed a more rigorous standard of review under the Natural Gas Act and remanded the case upon finding that the Commission had not met that standard.<sup>106</sup> *Public Service Commission for the State of New York v. FPC* includes a discussion of the standard of review applied by the court to Commission decisions. The opinion reiterated that Commission action must be supported by substantial evidence, with reasoned consideration of the consumer implications of its action.<sup>107</sup> The court concluded, however, that it was appropriate to adjust the substantial evidence standard to "provide greater freedom for novel Commission proposals" in light of the acute energy shortage being experienced.<sup>108</sup>

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103. *Public Serv. Comm'n for the State of New York v. FPC*, 463 F.2d at 828 (D.C. Cir. 1972).

104. *Public Serv. Comm'n for the State of New York v. FPC*, 467 F.2d at 371 (D.C. Cir. 1972); see also *Pennsylvania Gas and Water Co. v. FPC*, 427 F.2d 568, 574-75 (D.C. Cir. 1970) (expressing concern in the context of temporary Commission action that "[t]here is momentum which tends to perpetuate the temporary into the enduring").

105. *Id.*

106. *Public Serv. Comm'n for the State of New York v. FPC*, 511 F.2d 338 (D.C. Cir. 1975).

107. *Id.* at 344-46.

108. *Public Serv. Comm'n*, at 346 (footnote omitted), citing *Mobil Oil Corp. v. FPC*, 417 U.S. 283

In evaluating the Commission's continuation of Advance Payment program, however, the court took a harder look at the Commission's reasoning than it did at the initial stages of the experiment. The court found that the Commission's post-experimental analysis did not amount to "the kind of evaluation of the experience under the program necessary to discharge the Commission's responsibility 'to determine whether its justifying objectives are being satisfactorily met at an acceptable level of ultimate economic cost to the nation's gas consumers.'"<sup>109</sup>

The court's opinion in the SMP cases further validates the lightened standard of review borne by the Commission for experimental programs. While the court rejected the Commission's SMP experiment for reasons discussed above,<sup>110</sup> the court also explained that the "law governing our review does not demand an impossible predictability, but it does demand an articulation, in response to serious objections, of the Commission's reasons for believing that more good than harm will come of its action."<sup>111</sup>

## 2. Court Review of Experiments at Other Agencies

Other regulatory agencies have also used experiments as a means of policy development. The following discussion relates to cases resulting from actions by the Civil Aeronautics Board (CAB), the Interstate Commerce Commission (ICC) and the Federal Communication Commission (FCC).

In *Delta Air Lines v. CAB*, the D.C. Circuit upheld the CAB's approval of a conditional reservation tariff for a nine-month experimental period.<sup>112</sup> The court found it was not an abuse of discretion for the CAB to deny a hearing on the proposed tariff:

Since this is purely an experimental tariff, and admittedly a novel and ingenious proposal resting so far on a theoretical rather than an empirical basis, the CAB in reality is not able to investigate without testing how this experimental tariff actually works. As Judge Leventhal wrote in *American Airlines, Inc. v. CAB*, "It is the kind of issue where a month of experience will be worth a year of hearings."<sup>113</sup>

In its refusal to conduct a hearing at this time, and in its decision to "investigate" by permitting the experimentation with this tariff for nine months,<sup>114</sup> the Board has made a policy decision of the type it was created to make.

In *Atchison, Topeka & Santa Fe Railway Co. v. ICC*, the D.C. Circuit upheld regulations issued by the ICC establishing, in response to statutory revisions to its jurisdiction, presumptions of the existence of market

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(1974).

109. *Id.* at 348 (footnote omitted), citing *Public Service Commission for the State of New York v. FPC*, 467 F.2d 361, 371 (D.C. Cir. 1972).

110. See *supra* note 62 and accompanying text.

111. *Maryland Peoples Counsel v. FERC*, 761 F.2d 768, at 779 (D.C. Cir. 1985).

112. *Delta Air Lines, Inc. v. Civil Aeronautics Board*, 455 F.2d 1340 (D.C. Cir. 1971).

113. *Id.* at 1344. (footnote omitted).

114. *Delta Air Lines*, at 1344.

dominance in certain factual situations.<sup>115</sup> Although the regulations were not labeled as experimental, the court found that “the challenged regulations are a ‘first cut’ by the [ICC] in putting into operation a new regulatory scheme, and as such are entitled to an extra dollop of judicial deference.”<sup>116</sup> The court also noted, however, that “[t]he courts remain open if the [ICC] is slothful or unwilling to undertake appropriate reconsideration and fine tuning in the light of experience.”<sup>117</sup>

In *United Telegraph Workers, AFL-CIO v. FCC*, the court held that the FCC’s approval of an experimental “Mailgram” program in which telegrams went directly to post offices for mailing did not require a hearing and was not an abuse of discretion. In upholding the experimental program, the court stated that:

[T]he court’s inquiry into the factual underpinnings of agency action authorizing a temporary program or giving it interim approval will appropriately be less searching than (sic) if we were faced with the institution of a permanent program. For, as the court said in another comparable context, “the very purpose of the projected experiment is to explore these unknown and unpredictable factors.”<sup>118</sup>

### 3. The Standard of Review—Conclusion

Courts, in practice, apply a more deferential standard to experimental programs than to non-experimental programs. Aspects of experimental action which have been important for the courts are the temporary nature of the experimental action, the provision for meaningful review following the experiment, and a weighing of the consumer benefits and the potential harm of an experiment. In at least one case, the court found an experiment to be justified in the absence of the sort of empirical data often demanded of permanent action.<sup>119</sup> The experiment also must not violate the basic statutory mandate of the agency’s organic statute.<sup>120</sup>

#### B. *Experimental Design—Does it Matter?*

A well-designed experiment will always yield better and more reliable results than an experiment of inferior design. This being said, however, it is not at all clear that courts expect to see the sort of structured (and often peer-reviewed) experimental design used in the physical sciences. Rather, both agencies and courts seem to view regulatory experiments more in terms of “ascertain[ing] the efficacy of something previously untried,” or

115. *Atchinson, Topeka & Santa Fe Railway Co. v. ICC*, 580 F.2d 623 (D.C. Cir. 1978).

116. *Id.* at 630.

117. *Atchinson*, at 640.

118. *United Telegraph Workers v. FCC*, 436 F.2d 920, 926 (D.C. Cir. 1970) (citing *Connecticut Committee Against Pay TV v. FCC*, 301 F.2d 835, 837 (D.C. Cir. 1961)).

119. *Delta Airlines v. CAB*, 455 F.2d 1340 (D.C. Cir. 1971); cf. *Vehicle Mfrs. Assn.*, 463 U.S. 29 (1983), discussed *supra* note 9.

120. *Maryland Peoples Counsel v. FERC*, 761 F.2d 768 (D.C. Cir. 1985) (rejecting experiment that was discriminatory on its face, in violation of the Natural Gas Act).

“evaluation research,”<sup>121</sup> than in terms of the testing of hypotheses that provide the framework for the more traditional scientific experimental method. In many of the experiments described above, a working hypothesis can be gleaned from the experimental action itself, even if a hypothesis is not explicitly stated. Still, without a clear hypothesis and explicit experimental design, the probability that the experiment will fail to yield reliable results increases.

The Commission itself, in an order on the WSPP experiments, provided basic guidelines for the use of experiments:<sup>122</sup>

1. Does the proposed experiment serve a vital policy objective?
2. Is the proposed experiment designed properly to serve that objective?
3. Is there reason to think that the proposed experiment will produce more good than harm?

The second of these guidelines—whether the experiment is properly designed—suggests that design may indeed be an important element in the Commission’s consideration of experimental action.

While a clearly stated hypothesis may not be mandatory in agency experiments, it is invaluable to have an articulation of precisely what is being tested. With an unambiguous hypothesis, the other aspects of the design of an experiment, such as the data needing to be gathered and the subsequent review of that data, become much more straight-forward. Of the Commission experiments discussed above, the experimental designs in the Southwest and WSPP experiments were particularly thorough.

In sum, experimental design does matter. While the precision and control of a scientific experiment may not be required, the benefits of an experiment may well be directly correlated with the advance planning and consideration given to the design of the experiment.

### *C. Future Experiments—Advice for Practitioners*

Most, though not all, experiments are proposed by parties regulated by the Commission. Of the FERC experiments described above, roughly half were stand-alone experiments. Several other experiments were initiated by a number of different regulated companies filing under the umbrella of a general Commission policy, but were implemented on a case-by-case basis. The Southwest and WSPP experiments involved Commission and/or industry collaborations, with a broad stakeholder process. The Secondary Market experimental proposal was a unilateral request for proposals based on an experimental design mandated by the Commission. Of the various approaches to establishing experiments, it appears that experiments of a collaborative design, resulting from a stakeholder consultation process, were the most likely to provide useful results for the parties and the Commission, although several of the stand-

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121. See discussion *supra* II. A.

122. *Pacific Gas and Electric Co.*, 38 F.E.R.C. ¶ 61,242, at 61,792-94 (1987).

alone experiments also proved successful.

Since there is no established policy regarding the design of experiments, proponents of an experiment should be prepared to suggest to the Commission the design for a proposed experiment. In considering the contours of an experimental proposal, the following guidelines, based in part on those stated by the Commission in the WSPP experiment, may prove useful:

1. Does the proposed experiment serve a vital policy objective, or is it reasonably tailored to provide an answer to a specific regulatory concern?<sup>123</sup>

2. Is the proposed experiment designed properly to serve that objective?

a. Is there a clear and understandable statement of the hypothesis or treatment being tested?

b. Is the experiment temporary?

c. Is there a provision for objective, meaningful review following the end of the experimental period?

3. Is there reason to think that the proposed experiment will produce more good than harm?

4. Is the experiment within the ambit of, and consistent with, the Commission's statutory authority?

Some of the experiments approved by the Commission clearly met these guidelines. In the Southwest and WSPP experiments, for example, independent experts were retained to propose experimental designs and to assist with the review of the experiments.<sup>124</sup>

Regrettably perhaps, many of the Commission's experiments have been undertaken on an *ad hoc* basis, with little or no review of past case law related to the approval of experiments, and with little or no consideration of experimental design. While it is true that experiments must be structured within the facts presented in a particular situation—*i.e.*, no two experiments will be alike—nonetheless, it is also true that all valid experiments have certain common features. The above guidelines are sufficiently flexible to accommodate both the stand-alone, single-issue experiment, as well as more ambitious experiments which target those "vital" policy objectives fundamental to an agency's statutory mandate.

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123. The Commission has approved several experiments that arguably do not serve a "vital policy objective," but nonetheless were useful in helping to resolve issues raised within individual cases.

124. In preparing for its consideration of the Southwest experiment, the Commission itself retained the Rand Corporation to evaluate the proposed experiment, assess the usefulness of the data provided, and analyze the results. Any party considering designing an experiment or experimental program for proposal to the Commission would be well advised to obtain and review the resulting Rand reports: Jan Paul Acton and Stanley M. Besen, *Issues in the Design of a Market Experiment for Bulk Electrical Power*, December 1983 (Rand Note N-2029-DOE); and *Regulation, Efficiency, and Competition in the Exchange of Electricity: First Year Results from the FERC Bulk Power Marketing Experiment*, October 1985 (Rand Report R-3301-DOE). In approving the WSPP experiment, the Commission required the participants to provide for "a similar independent and objective analysis of the data collected from the WSPP Experiment." 38 F.E.R.C. ¶ 61,242 at 61,800 (1987).

Administrative agencies generally, and the FERC specifically, could benefit from the development of implementation guidelines for the types of experiments and experimental program evaluations in which they engage. This is the sort of task for which the Administrative Conference of the United States (ACUS) would have been admirably suited.<sup>125</sup> With the ACUS' unfortunate demise, however, the task must fall upon agencies individually. Alternatively, the proponents of individual experiments must themselves become acquainted with the Commission's historical experience, an exercise which this article may assist to some extent.

The existence of readily accessible guidelines would ensure experiments could be quickly constructed, not only meeting the proponents' and the agency's needs, but also utilizing a rigorous experimental design protocol to the extent possible and practicable. As new experiments are conducted, they could be incorporated in, and added to, an existing body of knowledge, rather than each starting anew.

#### V. CONCLUSION

Well-designed experiments could be more widely used in a variety of administrative law situations. However, certain minimum standards are necessary in order to ensure that an experiment is workable, will ultimately prove useful to policy makers, and will withstand judicial review.

In today's fast-changing regulatory world,<sup>126</sup> information is critical to informed and just decisions. Experiments of good design provide information that can be found no other way. The real world is a laboratory that is nonpareil in quickly providing information which permits policymakers to reject hypotheses that do not work and embrace those that do.

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125. See Walter Gellhorn, *Birth Pangs of the Administrative Procedure Act*, 10 ADMIN. L.J. 51, 53 (1995) (noting, in context of the Administrative Conference's termination, that it had "proved to be highly persuasive in harmonizing federal procedures that were needlessly divergent").

126. For a sense of this regulatory dynamism as viewed by a current FERC Commissioner, see Hon. Curt L. Hebert, Jr., *The Quest for an Inventive Utility Regulatory Agenda*, 19 ENERGY L.J. 1 (1998).

