

EBA CLIMATE CHANGE PRIMER: FINANCING A RENEWABLE PROJECT

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MODERATOR: I'm Mike Stosser. I'm with Ardour Capital Investments, an investment bank based in New York City. We specialize in sourcing capital for renewable, alternative, and clean tech companies. That's all we do and we are experts in it. I'm in the corporate finance group, and I am the company's General Counsel. Our panel today is going to focus on financing renewable and alternative energy projects. Financing these kinds of projects is unique. There are both private and public companies in this space, which can range from a guy in a garage with a brilliant idea to a full-fledged successful operating company. There are many challenges and opportunities in obtaining capital for these types of companies, and we're going to hear about them today. With us today is Kerry Dukes. He's my CEO. He's the CEO of Ardour Capital. Roger Feldman is with Andrews Kurth, a partner who is a finance lawyer who is working on these projects. Robert B. (Bobby) McKinstry, Jr., who is with Ballard Spahr Andrews & Ingersoll He's a partner who specializes in siting and environmental concerns relating to projects, and Merrill Kramer who many of you know as a brilliant project finance lawyer but is now an excellent President and CEO of a biodiesel company and is a developer. Our first speaker is Kerry Dukes. Kerry, as I said is the CEO and managing partner of Ardour Capital. He's the co-founder of Ardour and is the head of the investment banking group. Kerry has over twenty years of experience in the securities industry. He has served on the board of

numerous public companies. He began his career at Shearson Lehman. He went on from there and became CFO and managing director of Commonwealth Associates and went on to become the founder of Bluestone Capital. He and Brian Greenstein formed Ardour Capital in 2002. Kerry is going to have to leave us because he has to catch a train to New York, so if you have any questions for him, you can contact him via email or phone and the information is listed on his presentation, which is in your book. He'll be glad to entertain any of your calls should you call or if he's not available, it will go into his voice mail and then he'll tell me to call you back.

MR. DUKES: Good afternoon. I appreciate the opportunity to come down and speak to you folks. Give you a little bit more in depth background on Ardour Capital. Ardour Capital is a group of guys who got together when everybody in the investment banking industry was running one way, we decided to run the other towards investment in alternative energy. We publish extensive industry research both white papers and papers and direct research on companies that are public in the space. We have formed a group of indexes, one being the Ardour Global Indexes which is a family of pure play alternative energy indexes. There's a couple of reasons why we put that together, and I can get into later on in the presentation.

We have an event that we sponsor annually which we have been sponsoring since 2001, which is about three years earlier than most other banks in the industry have followed. The biggest issue that we find in trying to obtain financing for companies is the legacy of the sector. In the late 1990s there was a big boom in the sector and companies were getting financed with absolutely absurd market caps and the expectations for both commercialization and market control were just completely off the charts. There was a point in time when a company by the name of Ballard Power up in Canada had a market cap in excess of what General Motors market cap was at that point in time, just to give you a little idea of what was going on back then. The financing today that we're looking at is a little bit more realistic. It's a little easier to get financed, there's more money coming into the sector, the foreign dollars are coming in a little bit more aggressively than they had in the past. The company valuations are more realistic. The investors are looking at a longer term investment strategy than the past. In the 1990's many investors were putting money into these companies. The money was coming from traditional technology funds and those technology funds were maxing out on their returns and were looking for other opportunities to put money to work. They decided to go into the sector. They put a lot of money to work. Some people made money. Most lost a lot of money and then once that bubble burst, they reallocated those funds back out. The people who were left holding the bag were primarily the foreign investors, the institutions in Europe, the sustainable funds who had charters that didn't allow them to change where their investment strategies were and how they were going to put money to work. The debt to equity ratios were virtually nonexistent in early 2000, 2001. Cash flows are better. They also were nonexistent. Debts more readily available primarily for the project finance but also for some of the companies that have advanced quite a bit in addressing market needs.

The technology sectors that are probably the easiest or the leading sectors that folks are looking to put money to work on, work are solar, which I guess I don't have to really get too far into. Everybody knows what's going on in the

solar sector. There was a fairly significant issue that came up about a year ago. The lack of silicone and the need for larger facilities to produce additional silicone caused a spike in the prices. That has subsequently come down. There are more silicone manufacturing facilities coming on line now, which is bringing the cost back in line. And that coupled with the cost of traditional energy, has allowed some of the solar plays to be a lot more cost-effective than they were in the past. Energy efficiency, I heard earlier today, a couple folks speak about energy efficiencies and one of the things that we forget about as a group in the U.S. is that we get about 62% of our electricity coming from coal. And one of the big things that we can do to make a difference and reduce our carbon footprint and our dependence on foreign oil would be to reduce the number of diesel gen sets or burn coal more efficiently.

Ethanol and bio-fuels. We all know ethanol has had some issues. There was a big run run to invest in ethanol companies. The cost of corn of course went from about \$2.25 a bushel, to somewhere in the neighborhood of \$3.45 or so a bushel. And bio-fuels is the other area that folks have looked at, the difference between the ethanol and the bio-fuels, there's all sorts of arguments up and down as to why one may work a little bit better than the other. Ethanol has issues in terms of transport. You can't put it into pipelines and things like that due to the water solubility issues. Bio-fuels. The biggest issue with bio-fuels is feedstock. The biggest issue with ethanol is also feedstock. We believe that ethanol is not going away. We think ethanol is here to stay, but we believe that the biggest issue with ethanol is that when you start trying to compete on a feedstock basis of calories versus BTUs, calories are always going to win out, so you're always going to have a problem with caloric based feed stocks. We believe cellulosic ethanol is going to have its time in the sun and that's going to be coming right down the pike here in the near future.

On the bio-fuel side, we think the folks that are a little bit more feedstock agnostic are the ones that are going to be able to take advantage of inefficiencies in the marketplace and be able to produce bio-fuels at price points that will make a lot more sense.

Wind has been around for a long time. The issue that we see running to wind in the future is the aside from the environmental issues, the environmental issues everybody I'm sure in this room has heard it time and again. You've got the environmentalists who say it's killing birds, it's killing bats, it's not good for the environment. Aesthetically, it's not a very attractive thing. You've got Kennedys up in with their whole focus on fighting whether or not they should they shouldn't get the wind farms up in the Rhode Island area. We don't look at wind as a massive opportunity in the near future. On the clean-tech side in general, we're looking at opportunities that range from lighting efficiencies right on down to scrubbers for coal fired power plants. The commercialization of the sector is the driver in the ability to finance these companies more than anything else, and the investment dollars that we're seeing are from folks that are looking at the opportunities that are products that are selling to existing markets where they are replacing legacy technologies and taking advantage of those inefficiencies. Subsidies and the tax incentives. There is debate up and down the entire investment community as to whether or not the tax incentives are going to continue. There was concern about the tax incentives and the small producer incentives for bio-fuels as well as the incentives for ethanol, and I

would say that for the most part when we speak to the investment community and we raise money for these companies, that seems to be a little bit further down the line of concern on the investor side, the more prominent concern is whether or not the economics of the production make sense with or without the tax incentives. The impact of these factors on obtaining finance as I said are significant but they are secondary to the basic fact as to whether or not a bio-fuels company can make bio-fuels at price points that make sense whether or not there is a subsidiary, a tax incentive or not.

As far as the company sector evaluation is concerned, we take a look at the current markets right now. There's a fair amount of market investment that's taking place, and I guess one of the things that we've noticed that has changed some of the focus is that the retail consumer in the United States has changed from one that didn't really care all that much about the environment. Didn't care that much about saving the planet and it was relegated to people who were primarily tree huggers. If you take a look at the opportunities that are around right now, you see consumers willing to pay up and pay more money for green energy. You see consumers who are willing to spend a little bit more money on things that are energy efficient. And that is I think one of the drivers that is creating the opportunity for these companies in the sector to completely access these markets, the capital markets for dollars that weren't there in the past. Some of the things that we've put together, the ETFs that are out there allow retail investors to invest in these companies without having a raw exposure to the ups and downs of the individual companies, yet have broad market exposure to the investment opportunities of the sector.

Where the markets are headed: We think that the amount of money that's coming in from overseas is very, very significant. The concern that we have is whether or not this money can be put to work. There is a finite amount of market capitalization in the sector right now, obviously. And as you get more and more money in, there is a great desire to put this money to work. Not all the money that is coming into these companies is coming from sources that really understand exactly where they are putting their money and whether their investment in the technology makes sense. When we look back to what assumptions were valid in the 1990s, people thought that all of Detroit would be running off of fuel cells by the year 2004, then, that was moved back to 2008, then it was moved back to 2012. This is the kind of euphoria that happens when the markets start to appreciate, and more money comes in and the investment dollars kind of get driven into the sector without a fundamental promise for success on an economic basis.

The key components I should mention are that we are a purely institutional firm. We don't deal with any retail clients. We kind of look at this thing from a different perspective than other investment banks. The components that most investors are looking for is they're looking for a business opportunity that is addressing an existing market not ground movement to create a new market and try and sell into that market. The level of experience of management is probably the key, the most important component of the entire evaluation process. We've seen many, many bio-fuels and ethanol companies get financed. Management didn't have the experience of either constructing or managing a manufacturing facility and subsequently we've seen \$20 and \$30 million projects with cost overruns that go up to \$30, \$40, \$50 million. We've seen projects out there that

aren't complete with \$30, \$40, \$50 million worth of capital already in it and it's definitely causing a problem on the investor side. The impact of the devaluation of the dollar, as I said before, there are two issues we're seeing. The change in the currency, the devaluation of the dollar versus the Canadian dollar for example there are a number of Canadian companies in this sector and the, I guess, if you take a look back about two or three months ago, the Canadian dollar was somewhere in the ninety-two, ninety-three cents to the dollar range. It ran up to about \$1.06, \$1.07 and subsequently, on an aberration, came back down. But you see these companies who are having problems with their manufacturing facilities and they're out there, they're buying product, cross-border and they're not properly hedged and part of that goes back to management's experience with running an international manufacturing facility.

The sectors that we're looking at are the things that are going to drive quite a bit of the decision-making process. Raising capital for a particular technology is going to have different concerns. Certain technologies are going to be accepted as being old line technologies. Investors know what works. The question is whether or not the management can execute. They want to know whether or not management can put these technologies to work in an atmosphere where they can yield returns to the investor.

Environmental and engineering concerns are things that pop up generally within the bio-fuel sector. It also pops up within the NG storage sector. You've seen the groups that are pushing fuel cells as replacements for lead-acid batteries. They're using that as a point to drill home as to why they make a lot more sense. On the wind side, as I said before, you have the environmental issues that pop up with whether it be birds flying into these things or aesthetically they're not pleasing. The other issues that you run into is whether or not you can put these things to work. We looked at a transaction that came to us I guess about six or eight months ago which was on some Indian land in the Midwest. They had done a great job of packaging the company. They're only problem was after they had done all their analysis, they really had no connection point to the grid. So after they were willing to invest somewhere in the neighborhood of \$25 or \$30 million into this project to create three to five megawatts of wind power, they had no where to hook it up. There was no access point to the grid. And those are the types of things that we see when we're looking at these companies. And you would be surprised at how often that happens. That they just don't get to the end game and they don't understand that this is a sector that is seasoned to the point where people are no longer taking a flyer on technology. Investors are no longer just taking a flyer and saying geez, I'll put a couple of million dollars into that and four other things and hope it works. If one of them works, I make money. They're now looking at this thing as an investment in cash flows and investment in business opportunities, into sectors that are currently up and running, replacement technologies to markets that exist.

The manufacturing concerns vary with sectors as well. There are some issues with regard to manufacturing here in the states obviously with the cost that are associated with it. You take a look at companies in the sector like Evergreen Solar who moved their manufacturing facility overseas just because it was too expensive to manufacture in the U.S. Up in Marlboro, Massachusetts, Satcon Technologies has done the same thing. You have a half a dozen others in

the sector who are just looking for opportunities to move all the manufacturing off premises. That carries with it other concerns, whether or not the manufacturing of these products is being done correctly and efficiently and whether or not the products themselves are going to have the same rugged capabilities that they had when they were manufactured domestically. Commercialization, technology IP, long-term versus short-term investments, these are, this list up here is the, I guess it is the key ingredients to taking a look at a project to see whether or not we would take it on as an investment opportunity for one of our institutions. The need for off-take agreements has been overstated to a great degree. We've seen a lot of companies come in with wonderful off take agreements but no capability to manufacture the product whether that be a PPA agreement, with no capability to generate the power, to an off take agreement for diesel or ethanol where the price points just don't make sense and back in 1999, I looked at a company that was actually funded just purely based off of power purchase agreement that the company just had no way of manufacturing. The company ended up raising \$35 million dollars to build a facility and it just never got off the ground. So we're seeing those concerns in the marketplace as well.

Just to kind of conclude, this sector when we got started in 2001, as an investment bank, nobody wanted to touch the sector for good reason. There was a lot of capital that was exploding. There was no return on investment. There were technologies that were created that didn't have a marketplace. I'm sure we're all familiar with the hydrogen highway and the expectations for everybody to be able to drive into any filling station and fill up their car with hydrogen. We all know what happened with that. We are not a bank who sits here and tries to argue the merits of global warming or any of the other issues that people want to pop up. We take a more pragmatic look at this thing. We have a dependency on foreign oil that needs to be reduced. We're doing damage to the environment. We have a future that we have to look after and we also have a business that we have to run so when you put those three things together, the businesses have to make sense, the business model has to make sense. There has to be an end game. There has to be a light at the end of the tunnel. There are very few investment dollars out there left right now in our opinion that are for the flyers, for the cool ideas that somebody thought up in their garage and don't have a marketplace to address them. Thank you.

MODERATOR: Thank you Kerry. Our next speaker is Roger Feldman. Roger is a partner in the Washington, D.C. office of Andrews Kurth. Roger's practice focuses on the aspects of contracting and financing for energy and environmental and infrastructure projects and companies. Roger handles the financing of several types of clean energy projects and companies including ethanol, bio-diesel, gasification, biomass, waste to energy, wind, solar, and landfill gas. He also advises specific projects and emerging companies in the related fields of distributed generation, environmental technology, carbon aggregation in trading and bio-technology products, and energy facilities and system security. Roger has served as Deputy Administrator for Finance and Environment of the Federal Energy Administration and the Environmental Protection Agency's Financial Advisory Board and on the White House staff in the office of the Secretary of Defense.

MR. FELDMAN: Everybody's heard of tulip mania. That was when flower speculation ran rampant and then the financial bubble burst. Now that was a sort of a dot com experience and all of us, we know that we're immune to those kinds of things today. I think the unspoken fear in our new market-based approach to the reduction of greenhouse gases is that it too could fall prey to this much-too-human tendency to push markets into speculation, unless they are tethered, or unless they have an exceptionally rigorous market design. In short, the question is whether they're more like turnips than they are like tulips.

Now it's on that basis that I want to talk to you about one very limited question today, which I obviously skipped over and it's this: Is this great project finance thing ready to come forward and help us come into a carbon-neutral world? And the answer is: well, beware the dread tulip mania. And that's the basis of this little homespun advice on whether we're ready.

The United States can, if it wants to, stimulate great gobs of carbon credits in the voluntary market. It might be bad for the energy business. It might even be bad for the renewables business, but it would be great for greenhouse gas reduction. But as matter of fact, my hypothesis is given the limits of project finance.

Given the somewhat exotic form of the carbon markets in the United States, we're much better off looking to multi-revenue stream projects in which carbon is just a part. These are the three elements that get to turnips, not tulips.

So what are these limits of project finance that I'm talking about? Well first of all, as you all know, project finance is just another kind of nonrecourse financing where you don't go after the company but the project sponsors and they invested enough early stage capital to get a proposed asset to the point where at least the lenders and speculative lender equity investors are willing to back construction on what they believe is a well-founded understanding that operations will pay them back. And the premium for the sponsors and the equity investors only occurs if there's a larger revenue stream than what's required to pay them back and ultimately, that that project, taken as a whole, will produce a substantial premium as a result of a market assessment of the future value of those revenues. It may be expressed as a sale of the project; it may be expressed as the price of the money to raise the project. Now in our convoluted world where we say we're nominally adverse to interference with markets, energy regulation has been pressed regularly into the job of trying to make new things happen, e.g., price in the old PURPA or mandatory purchase of quantities of green renewables in the new RPS. Superimposed on top of these regulatory incentives are kinds of financial incentives we heard about this morning: production tax credits, grants, low interest loans. The theory behind this approach is that you will offset—as we just heard from our last speaker—that you will offset possible technological non-competitiveness by doing that and somehow a sustaining level will be developed for these projects. And over the years, we've seen co-generation, we've seen merchant combined cycle plants, we've seen mega wind farms, we'll see carbon reduction plants. So the impetus is to add this sparkle which regulation can bring to project finance. After all, we've all heard, and you heard this morning, it's worked for SO₂ and NO_x. The carbon cap-and-trade model, after all, has a precursor in Kyoto. Project finance has been used in that context to produce offset projects in some places that then produce credits, which are used in Europe. So the real question that we always

get is: “but can we push further what’s really the impatient belief that the same approach can be followed in the United States with voluntary credits, as has been followed in Kyoto with the system they have?”

Now my view is that there’s reason to be skeptical about that. Not just because of the limitations of project finance, with which I’m acutely aware, but also because of certain characteristics of this U.S. market which are very, very distinguishable from the European market that exists today. The VERs, these voluntary emissions reductions, aren’t part of a single defined legal regulatory system, even the renewable energy credits that we talked about today—at least in the compliance markets that individual states set up—there’s a reason to buy them. There is a purpose they fulfill when they are purchased. There is a reason for a market to be developed. Voluntary credits have a wide range of different possible applications, many of them are really the effort by well-meaning people to strike a blow for reducing atmospheric pollution by buying a certificate that says somebody, somewhere, did a good thing and reduced his carbon footprint and now I’m buying that carbon footprint certificate. The more commercial approach with this certificate is if the United States becomes like Europe: maybe some of my exposure to carbon, to carbon liability, may be offset by that and at least I’ll learn something about indifference in the process.

Now in the mechanism, in the Kyoto mechanism, there’s a very defined program for vetting and approving each offset project. And what that means when you go from markets to project finance is that lawyers can know that the output—just like a power purchase contract—there’s somebody there who is a counterparty who, at least at some price, will buy the commodity. Now there will be intrinsic flaws in the Kyoto market and it’s not my point here to get into them. The point I’m trying to make is that, in fact, emissions reduction agreements are being entered which do contemplate future delivery and, on a year-by-year basis, that cash flow is cashed in. There isn’t the kind of forward price curve that you can rely on in the gas and energy sales, but there’s at least the precursor for being able to do that.

Now in order to do that, you have to have—and obviously they have to be—real credits. They have to be verifiable. They have to be permanent. There is a concept of additionality, which is that they would not have happened but for the desire to be environmentally helpful. They have to be site-specifically located. They have to be vintage. There is a monitoring protocol. Now in the United States, we have several very, very good voluntary non-binding experiments, different protocols to get to that point. And so there remains a need in the United States for verification, fungibility of commodity, and the assurance of credit standing. Now one interesting thing that the Bar Association Committee that I’m involved with has done together with ACORE and the Emissions Marketing Association is to try and develop a standardized contract for these VERs. We did something like that for RECs (renewable energy credits) and then we said: “but the next ‘new, new thing’ is carbon and its VERs.” But what you discover is that there is such a diversity of factors that the best you can do is have a thin cover agreement and then a very important appendix for the two bilateral parties that says: “in this case for this deal, with this verifier, this credit is good for whatever it is good for.” And consequently what I’ve just said to you is: “No, Dorothy. This isn’t Kyoto.” Only disciplined markets equal potentially project financeable carbon reduction. And a project

finance lawyer, if he is going to go wading into this market, has to start out with this guide, this slogan, which I will not read because I never read slides. What the guide is about, though, is what does he have to say to his client? He has to say: “tell me about the title that you think you’re selling.” He has to say: “did you remember to explicitly put this in your contract and, even if you did, when you’re showing it to a financier did you remember to put it in your projections, and what’s the basis of the assumptions? Very important, do you have a reputable verifier? Can the credits be verified? Under what protocol? Have you planned ahead and lined up for that verifier just the way you would want to? Line up a turbine procurement or on some other equipment cue? Because that’s what is creating the economic value in your deal. Have you focused on a type of project—and this is where project finance intersects with the carbon reduction field—that will create those kind of carbon credits?”

Now interestingly, in the Kyoto setting, the sweet spots have been industrial gas reduction—they’ve been landfill gas. There’s been a little bit of mining methane. Now in the United States, there’s also some focus on carbon capture and sequestration. It’s absolutely true what you were told at lunch, that energy efficiency is probably the best way to get carbon credits and to reduce the use of carbon, but it’s very hard to develop and to project-finance the equipment that does that. What you need is liquidity and a functional and predictable market and the idea of something like RGGI is partly that it lays out at least categories where those categories of projects will qualify as opposed to the case-by-case method that’s being used under the Kyoto protocol.

That’s very important. That’s when you get turnips and not tulips. Functional and predictable markets. But because that is really still on the landscape, on the bubble, it’s very useful to think about near term, where you can fit these carbon credits into your client’s other projects—your regulated projects. You have to not confine your vision to carbon reduction machines, and one area where that’s true is integrated bio-mass and bio-fuel projects—or other projects like that—where there are several processes that are bound together for good efficiency technical reasons and, by the way, when you do that you get good usable monetizable credits as well. For example, you gather feed stock, gasify, make power, possibly use the power in bio-fuels, you may wind up, depending on the particular situation, an SO₂ and NO_x offset (which already exist in a very well-defined market), REC (if you’re selling green power to the right market), tipping fees, energy sales as well, of course, as carbon credits.

So that brings us to the conclusion which seems to have gotten lost when I walked up to the stage. No, therefore, I think Mike is sitting here wondering: “when will he stop?” Carbon credits today are an upside kicker. Carbon credits today are a sweetener in your deals. And therefore you should look at this multi-tasking projects and these are the conclusions that I’ve come to: You should gather ye turnips where ye may. They can be small, they can be called “efficiency”; they can be called “clean tech.” Find them and make them work, and the credits will be part of them. You have to weed the voluntary garden, and weed it very carefully, so that it’s clear to your client and to you and to your banker that you can take advantage of it. And finally what I’ve really tried to say through this whole speech is that turnips finance; the tulip bubbles burst. Thank you very much.

MODERATOR: Thank you Roger. Our next speaker is Bobby McKinstry. Bobby is a partner with Ballard Spahr Andrews & Ingersoll. He's the co-founder of the firm's Environmental Group and a member of both that group the Energy and Project Finance Group. His practice spans the full range of environmental issues. He has experience in climate change law, endangered species sustainability, market based mechanisms for environmental regulation, public lands and forestry, and the environmental aspects of energy transactions. For six years, Bobby held the Maurice K. Goddard Chair in Forestry and Environmental Resource Conservation at the Pennsylvania State University School of Forest Resources. While serving as Goddard Professor, Bobby focused on issues such as climate change, bio-diversity, conservation, sustainability, energy, and market based approaches to environmental issues.

MR. MCKINSTRY: Thank you Mike and thanks for inviting me here. I am going to talk about the environmental challenges in siting alternative energy facilities. The issue of climate change puts a premium on the need for the development of alternative energy facilities. We have an urgent need for low and no carbon based energy.

Due to this need, we are seeing some past resistance reduced to some of the most objectionable forms of low or no carbon electric generation projects now. I was recently speaking with the former head of the Vermont Department of Environment Conservation about his observation of this change in the climate change planning process there. He saw an activist who had made his entire career fighting Vermont Yankee Nuclear Plant admit that climate change is a sufficiently significant problem that there probably needs to be a place for nuclear in the mix of solutions. So we are seeing resistance reduced.

There is also a price being placed on carbon. Now we do not yet see fully developed markets we have seen in the EU, but we are already seeing a price put on carbon in terms of denials of coal fire plants. Washington state just denied a permit for a major coal fired power plant. There has been an appeal by the Sierra Club of a waste coal plant in Utah that has been referred to the EAB. That appeal is based on the Supreme Court's decision in *Massachusetts v. EPA*. Kansas recently denied the permit for a coal fired power plant on very questionable grounds—the imminent hazard provision of the Kansas state air pollution control act. As we see the development of the RGGI system, the Western Governor's Initiative and the Midwestern Governor's Initiative, we are going to see prices put on carbon emissions in a more formal manner.

We also see a proliferation of renewable portfolio standards that are creating a demand for RECs. We now are up to twenty-nine states and counting. Their impact on carbon is just shown by this chart of the first twenty RPS. Since the time this chart was prepared, an additional nine states have adopted an RPS. You can see that more than seventy million metric tons of carbon emissions reductions were achieved just by the RPS.

Nevertheless, these renewable energy systems still run into the problem of NIMBY. We have already heard about Robert Kennedy, Jr.'s opposition to wind projects. We also have seen that phenomenon in Pennsylvania. I think we need to recognize that every energy project is going to have some adverse environmental impact. As we have heard, wind projects have impacts on bats, birds, and can fragment habitats. Solar energy projects have manufacturing impacts and some times land impacts in terms of consuming land that might be

used for other purposes. Bio-mass energy has generated opposition because it can create a demand for crop land and can raise the price of food.

Thus, when considering plant siting and project development, you should consider potential opposition. You should consider what types of approvals are you going to need under the environmental laws; what types of opposition might you face and what measures can you take to reduce that opposition.

The particular requirements for environmental permitting vary depending on the energy system. The requirements applicable to solar projects and wind are relatively limited. Even though we are seeing opposition to wind, there are a relatively limited set of requirements applicable to these projects. There are significantly more requirements applicable to co-generation projects and bio-mass facilities. Solid waste facilities, landfill gas, and trash to steam, face some of the most significant obstacles.

Virtually any system will have some sort of a land use regulatory program whose requirements it must meet. Zoning and subdivision regulations can restrict virtually any energy system. In addition, building permit requirements will apply. The EPA storm water permitting requirements under the National Pollution Discharge Elimination System (NPDES) will apply to virtually any energy projects. Because there are NPDES permits, there is the potential for a greater involvement of NEPA issues and potentially Endangered Species Act (ESA) issues in those projects.

What I would like to do, next, is briefly go through the types of energy systems from lowest environmental impact to highest impact. I will outline the types of issues that one needs to address in siting these facilities and then talk a little bit about strategies for dealing with these issues.

As I mentioned before, solar projects have relatively few impacts. The principal regulatory programs affecting them are zoning and land use. If you are considering a roof top project, such as a big box store roof top project, you will face far fewer siting and regulatory restrictions, because you will not be disturbing any soil; you have relatively limited impacts; the building already in place and there will be no subdivision requirements. For rooftop projects though, you may face contractual limitations. For instance, in the case of homes, many homeowner associations have restrictive covenants that may limit the installation of solar. You also may face problems with shopping center lease contracts for the big box stores. On the other hand, because of the impetus to encourage alternative energy development, a number of states, for instance New Jersey and a recent bill in Vermont, have enacted legislation which invalidate contracts which may limit the installation or use of solar. These types of laws are being developed as a result of many of state climate planning processes and are a toll that can be helpful to reduce greenhouse gas.

The second least difficult type of facility to site or permit are land based wind projects.

The principal concerns with land based wind projects are bird and bat impacts. They can also cause some fragmentation of habitat, caused by both the facilities and the installation of power lines. Because these facilities tend to be on ridge tops, at least in the East, they may fragment wooded areas and raise concerns about aesthetics. Nevertheless, impacts and concerns tend to vary. Nevertheless, these projects face relatively few restrictions. Approvals are largely limited to zoning and land use approvals that I already described.

A number of states though are developing siting guidelines for wind facilities. A number of them are listed on the power point. These restrictions are being implemented in zoning ordinances. It is fairly important to consider these types of guidelines and begin early work with the community in site selection.

Moving up the scale of siting difficulty, one can also put wind projects in the ocean and there are some tidal projects being considered. Ocean wind and tidal project face the same types of concerns environmentally. One is concerned about bird or fish impacts. These projects may also raise aesthetics concerns, as in the case of the Massachusetts facility. These projects, however, have far more significant permitting requirements than solar or land based wind. These projects will trigger requirements for federal permits under section 10 of the Rivers and Harbors Act and section 404 of the Clean Water Act, section 404. These requirements, in turn, will trigger the requirements for a state water quality certification under section 401 of the Clean Water Act. The projects can implicate coastal zone management concerns and require NEPA compliance. They may trigger the need for an Endangered Species Act consultation. So these ocean projects will begin to drag in many more of the federal regulatory concerns and will require more upfront work.

This is also true of hydro-electric projects. Here we are beginning to move into more the realm of energy projects with more significant environmental impacts. Hydro-electric projects, and more particularly the dams upon which many rely, can have an impact on water quality through flow restrictions. They can affect habitat. They can also affect fish, particularly migratory fish, or anadromous fish, such as shad and salmon which would migrate upstream without barriers. These projects require the same federal approvals for section 10 and section 404 permits that applied in the case of tidal/ocean wind projects. Depending on what type of hydro-electric project is involved, you may have state permit requirements. There is some pre-emption, but many state requirements can be brought in through the 401 certification process. Of course, in re-licensing, the Supreme Court has recently held that water quality concerns cannot be considered. However, in case of new facilities though, there will still be a new discharge into waters of the United States which will require a 401 certification and consideration of water quality concerns. On the other hand, there have been a number of hydro-electric projects, particularly low-head and flow of the stream projects, which have reduced these impacts and are significantly reducing opposition.

Geothermal electric projects are limited only to certain areas in the country where the heat of the earth can be reached most easily. These projects can have some impacts on groundwater. They may require a safe drinking water act injection well permit. These injection well permits will also be required for geologic carbon sequestration facilities. Of course, the normal land use approvals that are required.

One of the more promising alternative energy sources, particularly in the Northeast and the West are wood-fired combined heat and power co-generation facilities. A recent study conducted in Pennsylvania at Penn State suggested that we have a sustainable resource up there equal to about six million dry tons of wood that is not used for other purposes. That has basically the same energy value that eighty million gallons of gasoline that could be used towards co-generation facilities. This would be particularly valuable in local areas where

there will be less cost in transporting wood. In fact I am working with a client right now who is working with a sustainable certified timber investment management organization to look at siting a series of these facilities to enhance their forest management. Wood fired co-generation facilities, will require air permits. With these facilities one is beginning to get into the same type of permitting requirements that apply in the case of more traditional power plants. On the other hand, these facilities are going to be a minor source in most cases. So they will not trigger some of the more stringent air requirements. However, these facilities can face a whole range of requirements that we encounter in the case of siting traditional energy facilities. They may need an NPDES permit or a pre-treatment permit. They may need to deal with water intake possibly for cooling. One may also have to deal with ash handling. One of the advantages of wood and bio-mass facilities is that they are treated as a zero carbon emissions source because bio-mass sucks in as much carbon as it emits.

Even better are manure based systems. We recently financed a system generating gas from manure. In these facilities, methane is removed from the climate system. A ton of methane generates about twenty-one times the global warming potential of one ton of carbon dioxide. So if one removed the methane and uses it as an energy source, one has removed twenty-one tons and added about three tons of carbon dioxide by burning the methane. So these project can generate carbon dioxide removal credits. These facilities can also generate RECs. Incidentally, these facilities also help reduce water pollution and reduce odors. They remove, for example, one of the primary sources of water pollution in the Chesapeake Bay if the project happens to be in the Bay's watershed. So these processes could also potentially generate water pollution reduction credits which can also be sold now. There is a developing market for water pollution removal credits, at least in the Chesapeake where there is a restriction on nitrogen. These manure facilities still require air permits, water permits, possibly solid waste permits, and zoning and land use.

Bio-mass energy facilities are going to have impacts and permitting requirements similar to wood co-generation facilities. Another promising area which has generated a lot of financing activity is that of landfill gas. These have some significant approval requirements but they are less likely to generate objection because the landfill is already there. So the LULU (locally undesirable land use) already in your backyard and people do not care if you improve and collect the methane, which can have a lot of adverse impacts. By reducing methane, these projects may generate again greenhouse gas reduction credits from methane reduction, as well as counting under most RPS statutes. They will require air permits, or at least air permit modifications. They will probably require a modification of the landfill's solid waste permit or, in the case of a closed landfill, they will probably require a permit to deal with a closed landfill. Most states require this under their landfill regulations.

Moving on up, trash to steam is an alternative energy system that has already generated quite a bit of opposition. Here again, I have spoken to some environmental activists whose resistance to trash to steam is lessening somewhat in the face of concerns regarding climate change. These facilities require solid waste permits. They require air permits and there are specific CAA section 111 new source performance standards for trash to steam. They also require land use

approvals and a variety of other permits including FAA permits for stack height, all of which present pressure point at which opponents can block facilities siting.

Finally, we are now seeing consideration of a number of advanced coal and coal gasification or liquification projects. These projects face some of the most significant permitting requirements, similar to trash to steam, although they will not require a solid waste permit unless something is required for the ash handling system. The carbon emissions from these facilities are going to be closely scrutinized. Many states now are requesting off sets even though they may not have the regulations in place. For instance, Pennsylvania is approaching any new application for a coal fired or alternative coal facility and is requesting off sets. Other states like California, most of the Western states, and most of the New England states already have specific carbon dioxide emissions regulations for coal-fired plants. Massachusetts and New Hampshire, for example, have both enacted statutes limiting carbon dioxide emissions from coal-fired powers plants to emissions that would, on a level that would be achieved by a combined cycle gas fired plant. Washington and California have both adopted load based emissions limits for carbon dioxide for electricity sold within the state.

So what is the, what is the approach to take in dealing with environmental approvals? Most important is to think ahead. You should identify site related constraints and permits before settling on a site and involve the local community. People are often concerned that local involvement may mobilize opposition. This it may be the case. On the other hand, it is probably better to mobilize opposition and walk before you have spent too much money, rather than waiting to mobilize local opposition when your draft permit comes out and then lose the money that you have spent on developing the project.

The other thing you can do is to focus on sites that want you. Many state and local governments are involved in climate planning now and encourage alternative energy projects. There are a variety of incentives under state law in terms of grants, low interest loans that can be taken advantage of. Many state environmental agencies will actively encourage these projects. There are now twenty-eight states that have initiated climate planning processes and Pennsylvania is likely to soon become the twenty-ninth, because the State House and State Senate have passed very similar bills requiring such a process. Twenty-eight states and the District of Columbia now have RPS and we also now see four regional climate programs. The Climate Registry, which involves thirty-nine states, the District of Columbia, four Canadian provinces, and one Mexican state now has a detailed set of guidelines for registering carbon reductions that is open for comment until today. That can be found on their website.

Another important thing to keep in mind in pursuing new projects is to incorporate carbon in your planning, whether you are proposing a traditional facility or alternative facilities. There is now a price to generating carbon dioxide. Concern about climate is reducing opposition to nuclear and it is important to stress climate early in nuclear siting processes. This chart gives you an idea of the emissions reductions that are required by the year 2100 to stabilize climate. In order to stabilize carbon dioxide levels at twice the level that existed before the Industrial Revolution, the world will need to reduce its emissions by 80%, which translates into 96% in the United States if world emissions are equal on a per capita basis. And the real problem, the real challenge is that we need to

achieve these reductions while demand for energy is growing. This picture of an alligator with its jaws open is shown in many of the state climate planning processes. We need to close the alligator's jaw because we need to reduce emissions to the bottom of the jaw, while the emissions are at the same time, going u - -the top level of the jaw. Thank you.

MODERATOR: Thank you. No problem. Our next speaker is Merrill Kramer. Merrill is the president and CEO of Alternegy LLC, a biodiesel production storage and distribution company. Alternegy is developing a thirty million gallon per year multi-feed stock continuous process biodiesel plant in Michigan. Merrill has worked exclusively in the area of energy and infrastructure, project development, and finance for twenty-five years. Prior to forming Alternegy, Merrill was a project finance partner with Chadbourne & Chadbourn Parke, where he served as chair of the Firm's Derivatives and Structured Products practice. Merrill has advised clients in the development, construction, and financing of over fifty energy infrastructure projects representing more than \$20 billion in invested capital including renewable energy. Merrill started his career at the Federal Energy Regulatory Commission where he was senior member of FERC's task force charged with formulating rules and regulations to encourage alternative energy projects.

MR. KRAMER: Thank you Michael. It's a pleasure to be here. This is actually my first time speaking outside of private practice. As Michael mentioned, most of you know me either from my days at FERC or as a project finance partner at Chadbourne & Parke. After twenty-five years and advising a lot of renewable energy project developers, I thought that this was a good time to move to the business side, so I'm glad to be here speaking in that capacity. As Mike told you, I recently joined Alternegy LLC. Altenergy is a limited liability company formed in 2006 to take advantage of the benefits and strong government policies and incentives encouraging renewable energy being provided under the Energy Policy Act of 2005, including for the development of biodiesel production facilities.

Biodiesel production is a relatively new energy field, although Otto Diesel ran his first diesel engines on peanut oil, so biodiesel has been around for 100 years. Our management is made up of people who have been involved in other types of energy infrastructure development, project finance, the chemicals industry, start-ups, manufacturing, and oil and gas storage and fuel management. We are currently constructing our first biodiesel refinery—a thirty million gallon per year biodiesel production facility in Michigan. We have a letter of intent to develop a second plant and a third site is contemplated. Under the ethanol model used by many ethanol companies that went public, once these companies had three projects, or about 300 million gallons, aggregated under management, they took their companies public. If you were in the business at that point and then got out, you did pretty well. If you came in afterwards and bought in at the top of the bubble, then you're probably not doing so hot these days. But that may change as the country increasingly moves toward ethanol blended gasoline. We are following a similar general business plan. However, biodiesel is a much newer field than ethanol. It is a smaller percentage of the market. In one way, biodiesel is to petroleum diesel fuel as ethanol is to gasoline. Diesel fuel currently constitutes only about 10% of the automobile transportation market. But there are other differences between ethanol and biodiesel, which I'll explain.

What is biodiesel? It's an alternative fuel. It can be used by cars, trucks, boats, bus, rail—basically any kind of vehicle that can use petroleum diesel can use biodiesel. Unlike ethanol however which is water-soluble and corrosive, biodiesel is an oil-based product. You can put it directly into your car or truck without any engine modifications whatsoever. New Mercedes and Jeep Liberty's, for example, are rolling off the line with biodiesel blends already in their tanks, and with their engines warranted for use of up to a certain percentage of biodiesel fuel, typically 5 or 10%. Biodiesel is also cleaner and environmentally safer than petroleum fuels and additives. Perhaps most importantly, it does not rely upon imported oil.

How is biodiesel made? There are basically three feedstock groups used for production of biodiesel. Biodiesel can be manufactured from vegetable oils, such as soy oil or canola, or rape seed, or palm oil—basically any type of vegetable that contains lipids or fats, or triglycerides. It's the same thing with animal fats—you can use beef tallow, poultry fat, lard, or other animal fats and oils. And you can also manufacture biodiesel from recycled oils such as yellow grease from french fry trays, or brown grease from steam tables from making hamburgers and the like. All of these products have a very high oil or BTU content. Some of these products are a little more difficult to process. The chemistry however is quite simple. You generally take the triglyceride, mix it with methanol and a catalyst, and create a simple chemical reaction to form methylesters, or biodiesel. The methylesters can then be used as a fuel directly in your vehicle or blended with your regular diesel fuel.

The policies driving increased biodiesel use are primarily two: 1) reducing dependence on petroleum and 2) helping the environment, with the latter policy arguably eclipsing the original genesis of renewable fuel policies, which was reducing our reliance on fossil fuels. This slide shows you the added value of biodiesel. Biodiesel produces significant reductions in automotive emissions compared to running your car on petroleum diesel. As you can see, biodiesel virtually eliminates sulfur dioxide emissions. It cuts soot by about 60%; carbon dioxide emissions are reduced anywhere between 50 and 70%; unburned hydrocarbons are cut in half, particulates and aromas also are significantly reduced. Biodiesel is a great fuel. In addition, biodiesel has about a 20% higher Cetane rating than petroleum diesel. Cetane is the equivalent of Octane—so you get more efficiency from your engine as well.

As I mentioned, biodiesel usage is being promoted by government policies. These policies include mandates but there are any number of other government incentives both at the federal and state level. The primary incentive comes from the federal government in the form of a refundable tax credit of \$1.00 for every gallon of biodiesel that is blended with petroleum diesel. The other significant federal mandate is the requirement that 7.5 billion gallons of renewable fuel be put into the stream of U.S. transportation fuels by 2012. The new energy legislation increases that mandate to thirty-six billion gallons by 2022, of which amount one billion gallons of biodiesel must be included by 2012. The 36 billion gallon number is a pretty formidable number, very ambitious, and is tied up with a lot of other incentives and policies contained in the energy legislation.

Ethanol is expected to fill the majority of that thirty-six billion gallon requirement. But the legislation contains specific set asides for non-corn based types of fuels, such as biodiesel, biomass, and cellulosic ethanol. On the state

side, many states have enacted renewable fuel standards in lieu of the federal government's reluctance to enact federal standards. There are additional mandates or reductions in excise fuel taxes that have been enacted in at least twelve states to date and are pending in a number of other states. Other states have adopted biodiesel mandates such as the B-2 mandate in Minnesota. Under the Minnesota mandate, every gallon of diesel must contain at least two percent biodiesel. If you are a gas station owner and don't have biodiesel in your blend, you can't sell diesel gas. The gas station must shut down. That in fact happened in one instance when a biodiesel manufacturer produced off spec biodiesel. Biodiesel was not available. The price ran up quickly and many gas stations had to shut down. There is also an enactment pending in Canada.

Michael asked me to talk about financing biodiesel plants. Since it is near the end of the day, I focused on six key areas that I regard as the most important considerations in financing a biodiesel project. Several of these elements are equally applicable to obtaining financing for energy projects in general. I thought I would then share with you what I view as the most common bonehead mistakes that are made in developing biodiesel projects, and therefore ones to carefully avoid.

The six most important financing considerations are: 1) site selection, 2) selecting a builder for your project, 3) the role that equity will play in the development of your project, 4) allocating projects risk amongst the project participants, 5) going to the debt markets, and finally, 6) common mistakes to avoid.

Siting. Most of you are familiar with siting issues associated with electricity or natural gas projects. There are many parallels to siting a biodiesel plant. The production chain for biodiesel starts out with the feedstock, in many ways parallel to fuel supply in power projects. Feedstock may come from a soybean seed crushing facility if the feedstock is going to be vegetable oil. Vegetable oils used to produce biodiesel are a small by-product of the vegetable itself. Soybean oil is perhaps 20% of the soybean. To extract that oil, the soybean has to be crushed at a crushing plant. Similarly, with animal fats, the fats come from slaughterhouses or beef renderers who then sell the tallow or fat as a waste by-product. The fat is often sold in a translucent form. The fats or oils are then shipped by rail or other transportation to the biodiesel plant where they are refined and converted into fuels. The biodiesel fuel product then is transported to large fuel users or distributors. These may be fuel distribution terminals or refiners. Often the biodiesel is blended with the diesel, but it also may be sold neat in the form of B100 into the market, either to wholesalers or large customers who have large fleet vehicles, like the U.S. Postal Service, FedEx, and other fleet owners, or sold directly at retail to gas stations or truck stops.

The question of location that arises in constructing a biodiesel plant is similar to the considerations in other kinds of energy projects—do you want to locate near the fuel or feedstock source, or do you want to locate near the destination or demand market? In making this decision today in my view, the key consideration is access to multiple forms of feedstocks. Unlike ethanol in the U.S. which is primarily corn-derived, biodiesel is not dependent on a single feedstock. We have seen what happened to the ethanol industry when the price of corn ran up. So having access to multiple feedstocks is something that is very

attractive to investors and critical to banks these days. Other important siting considerations include 1) access to existing infrastructure such as utilities and waste disposal; 2) access to transportation, both for inbound feedstock and outbound product, including by rail, barge, or truck, and hopefully in the future, by pipeline; 3) access to blending facilities to allow the biodiesel to be blended and sold as a blend in the market. Blending with conventional diesel is important since biodiesel blends are the main product in the market and are expected to be so for the foreseeable future; 4) ensuring that permitting is available for your site; 5) availability of a labor force; and 6) good local county and state support for installing and operating the biodiesel plant.

Selecting the Builder. Selecting a builder is another critical consideration that comes into play early in the development of a project. Selecting the technology provider is key. You need to make sure it is someone who has a commercially proven technology. There are a variety of proprietary technologies—those that can run on single feedstocks, multiple feedstock technologies that can process recycled greases; those that include pre-refining, etc. Most technology providers out there are not creditworthy. So when you decide on a technology provider, being able to ensure that they are able to step up to the various obligations contained in the contract, including performance guarantees, is key. Because technology providers are not well capitalized, they often join together with a construction firm to offer a bundled package to the developer. This becomes an important consideration. For example, Lurgi will require you to use Lurgi Construction if you want to use Lurgi's technology. On the one hand this may be helpful in that you now have a creditworthy entity that can "wrap" the project. On the other hand, if you don't get along with the constructor or it is someone you don't want for one reason or another—perhaps one of your other vendors won't work with them, that can create a problem.

The Role of Equity. There basically are two equity markets. Each has its pros and cons. A project developer typically goes to the equity markets in the form of a private placement—effectively a securities offering. One way of tapping into the equity markets is going out to friends and family that are high net worth qualifying individuals. Under this approach you generally can set the terms. The other approach is going to the private equity players, hedge funds, or other institutional investors. This becomes more of a negotiation because you have a single large player that will want more of a say in the company. That has its benefits because it involves one-stop shop for capital and your partner typically is what we call "smart capital." This can help you implement your business and financial strategy more quickly. But going to an institutional player may come with a lot of strings attached. A third approach is going to a strategic player for equity. The strategic investor may be an upstream or a downstream player in the business. In our current project, for example, we are co-locating at an oil and gas terminal. The terminal owner is providing equity as well as providing us with local strategic and logistical assistance.

In raising equity as well as debt, having a strong management team in place is one of the single most important considerations to investors. It is more important than your business plan and your pro-formas (which they will throw out and do their own in any event). Investors and lenders, want to see if there is a strong management team in place more than anything else. Control is an important consideration when going to the equity markets. When you go to an institutional

player, they are going to want control over their money; they'll want to have a lot more say in management. And finally, having in place an exit strategy, everyone's dream, is an important part of raising equity. Investors want to understand how you want to exit the business when you are raising capital. You also need to have your exit strategy incorporated into your financial structure when you bring in your first dollar. Your initial offering must have sufficient flexibility built in to allow you to later aggregate more sophisticated dollars, perhaps in the context of a sale or public offering. You don't want your initial equity raise to confuse or clutter your balance sheet in a way that would act as a deterrent or make it difficult to execute on your exit strategy. Giving veto rights to initial investors upon a sale, for example, can make a subsequent sale extremely costly and time consuming.

Allocating Risk To Project Parties. Allocating risks is another important consideration. Optimizing construction risk allocation usually involves having a single point of responsibility for construction via a turnkey contract. Under that approach, a single design/build/construction company quotes you a price and is responsible for any cost overruns and delays of subcontractors. Alternatively, the owner may take on the role of project manager and go out and subcontract the various engineering services required. This second approach is usually less costly, at least initially. Under either approach, timing and delay damages are very important, as well as schedule, performance guarantees, and credit support.

Other risks should be allocated amongst the various players that can best handle the risks. The players include the technology provider, constructors, contractors, offtakers, feedstock providers, transporters, and other vendors. For example, you can enter into a tolling arrangements. A tolling arrangement will allow you to lay off risk of changes in feedstock prices to the off-taker. Risk allocation will need to take into account the federal and state government programs supporting the industry, and who is in the best position to optimize the benefits of these programs.

Debt Markets. There are a number of sources of debt for financing biodiesel projects. Generally it is not feasible going to the debt markets until after you've raised your equity. The banks will want to see committed equity before committing their resources to the project. The main source of bank financing these days are the Midwestern banks. They are not the large banks, but they have an agricultural base and are familiar with biofuels project risks. There are also Midwestern placement agent banks that don't put in their own money, but aggregate debt sources from Midwestern banks in exchange for a placement fee. The traditional money center banks in New York also are familiar with biodiesel project finance and are an excellent source of capital. New York banks generally are not interested in smaller capitalized projects, which is a problem for start-up biodiesel companies. New York banks typically are looking for projects of at least \$100 million dollars. New York money center banks also will be more likely to dictate lending terms than smaller banks.

Going directly to the capital markets is another way to aggregate capital, such as through an offering on AIM or other small cap public markets. But this approach can also be disastrous if the markets turn against you. U.S. Biofuels, an ethanol company, went public in July of this year with unfortunate results. The markets had turned against ethanol projects because of high corn prices, oversupply, depressed biofuel stock prices, and a number of other reasons. The

company had gone to market with an indicative price that had to be adjusted downward several times before the stock could be placed. It was recently reported that Verasun is buying U.S. Biofuels—only a couple months after the company went public. So now we are seeing a lot of consolidation in the markets.

Sub-debt is another form of capital that is available. The cost of money in the subdebt market is higher than traditional debt, but may be required to meet debt coverage requirements, along with working capital facilities.

Mistakes to Avoid. I would like to leave you with six mistakes to avoid in developing a biodiesel project. The first is prematurely single sourcing your project with a contractor. It's a natural tendency for a developer to enter into an agreement with a contractor when he or she finds someone who has the desired technology and is willing to sign a contract with you. You say, great, I now have someone who is going to build my project. Later on you may find that that person's technology may not be financially viable, or the contract has unacceptable terms, or other contractors have not had a good experience subcontracting with that company, and you will have trouble backpedaling. The better approach is to go out for bid. Resist the desire to single source a project.

Second, have realistic timing expectations, everything takes longer. Third, make sure you have provided for adequate contingency. Everything costs more. You may have a fixed price contract. But there will always be change orders. Your business plan will never be as written. Fourth, avoid overly optimistic base projections. The better policy always is to under promise and over deliver. For example, with today's market price of crude at \$90, I could show an IRR for a biodiesel project with some fabulous return to investors. But I don't know whether that price is sustainable. More importantly, there is no need to go to the capital markets showing a 50% return on their investment. If you go to the market with that projection, even if your investors make 40% returns, your investors will call you asking what went wrong—what the hell happened? So you end up having disappointed investors even if you're doing well. There's no need to go out to the market with those kind of base case projections.

Fifth, make sure you have adequate logistics in place before you begin. Logistics are critical in biodiesel. It is a new product. Unlike distillates, pipelines currently do not carry biodiesel. At conferences where I've conducted roundtable discussions of developers they most often say that their biggest mistake is inadequate storage. Things can go wrong. You can bring a train full of feedstock cars into your plant which turn out to be off spec. But now your side rail is loaded and you can't get in on-spec feedstock; or get your finished product out by rail. Meanwhile your storage begins to get filled up, the railroad starts charging you demurrage, and you have a bottleneck with no way to store your product or get it to market.

The final mistake to avoid is insufficient working capital. Companies frequently forget to put sufficient working capital in their budget. You can have a perfectly working project, you're the low-cost provider. But if you don't have the money to buy your feedstock, because you haven't taken into account the timing of your receivables, billing delays, slow pays, and no pays, you will be forced to shut down. So it is very important to make sure adequate working capital is included in your financing.

Since its Friday, I'll close with a cartoon from the New Yorker. It shows a guy driving his flashy convertible with his date and looking at the fuel gauge. He is saying to his date in the caption "we're almost out of cooking oil, the French fry light is on." Perhaps this may be the future.

Thank you very much.

MODERATOR: Thank you Merrill. We have time for a question or two or not.

Q: It is Friday but I have a couple of questions for Mr. Kramer and a third one for the wider group in terms of financing.

MODERATOR: You're only allowed one.

Q: Oh, am I? I'm curious, if you look at CBOT prices for soybean oil and you go ahead and include the government subsidy for creating biodiesel, its still really at a marginal benefit to the producer. Can you, are you willing to share with the wider group what your I guess your strategic plan is on feedstock and then also you didn't mention the waste by-product as a result of the transesterification process and that's 20% of your thirty million gallon per year project. Do you include that, are you treating that in your financial model as a, well how are you treating that? So there's really no market for glycerin as I understand it or there's only so much hand soap a guy can make and if they recall the government subsidy, how does the financing world market this idea to investors?

A (Kramer): On the feedstock issue, companies that are dependent upon a single feed stock, particularly soy oil, are barely marginal these days. The soy-based projects are mostly in the Midwest and are ag-driven to begin with. Our project is a multi-feed stock project. Our technology allows us to process vegetable oils, animal fats, or recycled oils. The current prices of animal fats are about seven to eight cents a pound less than the price of soy oil. With seven and one-half pounds per gallon, that provides about a fifty cent/gallon margin advantage over soy-based biodiesel. More importantly, it makes the project profitable. Recycled oils are about seven to eight cents cheaper than animal fats. But when you go to French fry grease and things like that, under the Energy Policy Act, you only get fifty cents a gallon, not a dollar. So effectively the price of the recycled oils need to be more than seven cents less than the price of vegetable oils or animal fats in order to make the switch. Even then, you have additional capital costs to refine those products. In short, projects that can only process soy oil are not being developed or financed today. Even the ones that are in operation are running at maybe 20% capacity. Your second question on glycerin, glycerin is in the model. The price of crude glycerin has actually risen to make it a valuable product. But there is an even larger and more profitable market for refined glycerin, which is selling at a decent premium. Glycerin by the way is not 20% of the output. Its is about 10% of the output. In our model we don't count glycerin for a lot because it is hard to predict what the price will be. So we model it as pretty much a wash with the operating costs. It really doesn't play into our P&L very much. If we put in refining capabilities, then it likely would be a positive and profitable would. Your third question is probably the most important one in my mind and that is the dollar or tax credit. The credit is scheduled to expire at the end of 2008. There is bipartisan support for extending the credit through 2010 as well as from the White House. I wasn't at the EBA session yesterday but I understand that the Hill speakers confirmed that

the blenders credit is not controversial. It is caught up in the tax title because of other issues relating to pay-go, eliminating certain tax subsidies given to the major oil and gas companies, and the café standards and the like. Based on legislative reports, it appears that the credit will be extended through 2010 for two years, although there are other bills to extend it further or increase the credit. Clearly, if government support for renewable fuels and biodiesel were to waiver, the industry will not move forward.

MODERATOR: The panel is going to be here for a few more minutes so you're all excused. Thank you very much.