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BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

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IN THE MATTER OF: : Docket Number:
ASSESSING THE STATE OF WIND : AD04-13-000
ENERGY IN WHOLESALE :
ELECTRICITY MARKETS :
- - - - - x

Adams Mark Denver Hotel
1550 Court Place
Denver, Colorado

Wednesday, December 1, 2004

The above-entitled matter came on for technical
conference, pursuant to notice, at 10:15 a.m., Chairman Pat
Wood, III, presiding.

APPEARANCES:
COMMISSIONER NORA MEAD BROWNELL
COMMISSIONER SUEDEEN G. KELLY

1 APPEARANCES CONTINUED:
2 JIM BLATCHFORD
3 MATTHEW BROWN
4 JIM BYRNE
5 JAMES CALAWAY
6 MATTHEW DEAL
7 BOB EASTON
8 STEVE FAUSETT
9 JOHN FIELDER
10 ROB GRAMLICH
11 MARK HEGERLE
12 ROBERT KENNEDY
13 JOE KERECCMAN
14 TOM KERR
15 DAN KLEMPPEL
16 JOHN KRAJEWSKI
17 MOLLIE LAMPI
18 DOUG LARSON
19 STEPHEN LARSON
20 YAKOUT MANSOUR
21 MARK MCGEE
22 JOHN MEYER
23 GREGORY MILLER
24 KEVIN PORTER
25 HAROLD ROMANOWITZ

1 APPEARANCES CONTINUED:
2 JANIE SELBY
3 JAMIE SIMLER
4 ROBERT L. SIMS
5 J. CHARLES SMITH
6 BETH SOHOLT
7 LES STARCK
8 CHRISTOPHER THOMAS
9 CAROL WHITE
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1 P R O C E E D I N G S

2 (10:15 a.m.)

3 CHAIRMAN WOOD: Good morning. Go ahead, I think
4 we've got plenty of seats for everybody. Welcome to the
5 Federal Energy Regulatory Commission Technical Conference on
6 the State of the Wind Energy in Wholesale Electric Markets.

7 I'm Pat Wood, Chairman of the Commission. I'm
8 joined here by my colleagues, Nora Brownell and Suedeen
9 Kelly. And we are honored to have with us the Governor of
10 the State of New Mexico, Bill Richardson, who will be
11 addressing us in just a moment.

12 Wind energy is a significant technology that has
13 really, in the last several years, come of age. The focus
14 of this conference is what tangible and realistic and
15 achievable steps can we take both in the short-term and what
16 ground work can we lay for the long-term to ensure that this
17 technology receives nondiscriminatory treatment in electric
18 power markets. It is only by irony -- we had actually set
19 up this conference before the November elections in which
20 this state, our host state, became the first state to, by
21 popular ballot, adopt a renewable energy portfolio mandate
22 joining some 19 other states that have adopted it through
23 legislation or through regulatory and administrative action.
24 So it's, I guess, fitting, and well that we are here in
25 Denver to examine this issue. But it's an issue we want to

1 look at across the country.

2 It is certainly -- I come from Texas, I grew up
3 there, I was a state regulator there under then Governor
4 Bush for six and a half years and in 1999 our state adopted
5 a renewable mandate to add 2000 megawatts of renewable power
6 most of which has been wind by 2009 and Texas is well on the
7 way to that. And I'm really pleased with that record.

8 It's been exciting as I prepared for this conference
9 and looked at the state of particularly wind energy, but
10 renewables more broadly, across the entire country, to
11 realize states like Minnesota and Iowa and New Mexico and
12 Colorado and, of course, California which has long been the
13 leader in renewable power are taking significant steps.
14 We've got a lot of catching up to do if we want to even come
15 within the shadow of the European community which has done a
16 lot on wind development and has a lot to offer.

17 There are some real basic things about wind that
18 I think we'll explore in a lot of depth today. But I think
19 I want to just, from a broad point of view, make a couple of
20 observations about FERC and wind.

21 This will be the biggest generation investment in
22 the next few years. It has the largest growth now. Our
23 sister country, mother country of England, actually says
24 almost 80 percent of their incremental growth in the next
25 ten years will be to meet their renewable mandate. In other

1 words, 80 percent of all the new build in the U.K. will be
2 from wind power, mostly wind. I don't think the other
3 renewables have quite the same potential as wind there.
4 And, of course, our Congress has recognized that by
5 extending, once again, although belatedly the renewable
6 production tax credit which has certainly been a stimulus to
7 this industry.

8 I do think, however, we are going to explore
9 today that the increased price of natural gas has done a lot
10 to give an envelope under which wind power can become
11 economic and can become a big part of the market. So
12 there's a lot of things that have changed both on, I think,
13 the social front, the political front, the technology front
14 with all the investment that's being made in R&D to improve
15 the technology of wind power, and on the financial front
16 with the changed in economics for wind. And I think that's
17 really an important thing.

18 So getting the plants built, getting the
19 generation built is a very big step, but it's not the
20 ultimate step. The ultimate step is getting that renewable
21 power to the customer. And our mission has been, since
22 1935, to oversee the interstate transmission grid. In the
23 last ten years we have done, I think, a very aggressive job
24 of promoting fair and open access to transmission across the
25 country through FERC Order 888 and FERC Order 2000.

1 Open access in the gas and electric industry and
2 in the gas industry, for example, has brought about \$600
3 billion of net savings to customers over what it would have
4 been had a competitive open market not been done for natural
5 gas which was started by our agency in 1986 and later
6 confirmed by Congress.

7 We do this important open access step by removing
8 barriers to entry. Barriers to entry for the wind energy
9 have been and continue to be significant. We will explore
10 those today. It is my hope that by the time we all run out
11 of breath and energy at 6:00 this evening, that we have a
12 good punch list from FERC, from the industry, from the state
13 perspective of what we can do to effectively and permanently
14 remove these barriers to entry to this technology. Because
15 it's all about nondiscrimination. This is not some grand
16 economic scheme. It's giving a new technology which has a
17 popular appeal, which has good environmental attributes,
18 giving that technology a fair seat at the table with coal,
19 nuclear, hydro, and gas. And that's an important step.
20 It's part of our statutory mandate in the Federal Power Act
21 to ensure that the grid is used in a nondiscriminatory
22 manner.

23 Wind energy is not a niche resource. It was
24 started under PURPA contracts. PURPA, the 1978 enactment of
25 Congress did a lot to open up renewable power and small

1 power and kind of decentralized power. But it, again, was
2 20-something years ago. We are moving now to where you've
3 got more consumers of this power and a lot more generators
4 of power than just the traditional utilities who have been
5 involved in it.

6 I think the biggest barrier today that's
7 preventing wide access to wind resources reaching customers
8 is a robust transmission grid.

9 In our pursuit of regional transmission
10 organizations in the west, in the south, and across the rest
11 of the country, the FERC has been very adamant to focus on
12 the need to have a robust and workable transmission grid, to
13 have good policies, to have good pricing, to have good
14 planning processes that support the development of
15 transmission. Transmission is a facilitator for broad
16 competitive markets and it has brought a lot of benefits
17 where it has been invested in. A dollar in transmission is
18 worth \$8 in savings to the customer because he or she can
19 get access to types and the cost of power that he or she
20 desires.

21 We have had some problem with this. Two-thirds
22 of the country's economy are now under regional transmission
23 organizations and that planning in the organized and
24 regional approach to looking at transmission, looking at
25 expansion, looking at generation resources across a broad

1 region is taking place there. But where renewable
2 resources, i.e., wind are most strong is in this region of
3 the country in the west where we do not have RTOs. And so
4 we've got to talk today about how do we get the benefits of
5 that? How do we get to a positive vision for transmission
6 to support this resource and to support the customers'
7 desires for it.

8 We are interested in discussing these barriers
9 today and reaching consensus on solutions. So I ask you in
10 the spirit of "can do" solving problems, that we focus today
11 on solutions that work.

12 I would like at this moment to introduce my good
13 friend for many years and a strong supporter of renewable
14 power, Nora Brownell.

15 COMMISSIONER BROWNELL: Thank you. We have a
16 busy agenda, and I know we are all anxious to hear from the
17 governor, so I would just like to thank everyone for coming.
18 When I look around the room, I see really the world leaders
19 in renewable and wind energy. I really hope this will be an
20 interactive meeting. At the end of the day we can walk away
21 with a "To Do" list and not be meeting on wind and how it
22 might work year after year after year as we have. It really
23 needs to take its place in the marketplace. And, frankly,
24 we need to make the marketplace respond to the opportunities
25 that are created here.

1 And I would be remiss if I did not say that just
2 before Thanksgiving, Pennsylvania passed a renewable
3 mandate.

4 And I'm pleased to introduce our newest colleague
5 who has been confirmed and we are very excited, Suedeen
6 Kelly. Thank you.

7 COMMISSIONER KELLY: Thank you, Nora. I would
8 just like to express my gratification at the outpouring of
9 interest here. The turnout is amazing. I am sure that most
10 of that is because of the topic we are going to discuss
11 today, but also a part of that is the fact that we are
12 holding this conference in the west. I am very happy that
13 the first technical conference that I've attended outside of
14 FERC since my tenure in the Commission is here in Denver.

15 Markets tend to respond quickly to customer
16 demand. Sometimes regulation doesn't. There is a great
17 customer demand out there for wind power and these
18 regulators are committed to ensuring that the regulation
19 that is within our jurisdiction is responsive to that demand
20 and that we do what is necessary at the regulatory end to
21 ensure that wind generation can make it to market.

22 I am pleased to have the honor of introducing our
23 special guest, Bill Richardson. Not only is Bill Richardson
24 Governor of New Mexico, he is my governor because I'm a
25 resident of New Mexico. And Governor Richardson not only

1 has state gubernatorial credentials, but regional
2 gubernatorial credentials as well. He has been the Chair of
3 the Western Governors Association. He has also been the
4 Chair of the Board of Governors Association. And his
5 credentials are extending nationally, because as of tomorrow
6 he will be Chair of the Democratic Governors of the United
7 States. But perhaps most importantly to me is that Bill
8 Richardson has been my personal friend for 24 years.

9 Governor Richardson is a leader in clean energy
10 and he has been a leader in clean energy for many years.
11 Not only as Governor of New Mexico where he presided over
12 the opening of the largest wind farm in the United States,
13 but also as Secretary of Energy where he championed
14 renewable energy and reliable technologically advanced
15 transmission to deliver that energy.

16 When he was ambassador to the U.N., I don't know
17 if he had an opportunity to talk about clean energy, but I'm
18 sure if he had that opportunity, he took it. And in his
19 many years as Congressman representing the northern district
20 of the state of New Mexico, clean energy and the environment
21 was at the top of his list of priorities. So I am very
22 pleased to introduce him to you now and have him say a few
23 words.

24 Thank you.

25 (Applause.)

1 GOVERNOR RICHARDSON: Thank you very much,
2 Suedeen. We are very proud of you. I hope you stay in New
3 Mexico. Maybe we can have FERC move to the west.

4 [Laughter.]

5 GOVERNOR RICHARDSON: Chairman Wood,
6 Commissioners Kelly and Brownell, thank you, and all of you
7 wind energy experts, financiers, entrepreneurs. I
8 appreciate the opportunity to disrupt this meeting. Because
9 when I learned that FERC was coming out west to talk about
10 wind here in Denver, I had to be here. And so for that
11 reason I hope you don't mind enduring my two-hour speech.

12 [Laughter.]

13 GOVERNOR RICHARDSON: Just kidding, just kidding.

14 I wanted to come here because I always -- when I
15 was Secretary of Energy, I used to say, well, technically
16 FERC is under the Secretary of Energy, but I have absolutely
17 no authority to tell them what to do. And it was very
18 frustrating because when I was secretary I wanted to see
19 FERC be more aggressive when it came to regional
20 transmission organizations, when it came to developing
21 renewable energy, when it came to finding a more aggressive
22 role for FERC in our energy policy. And it's interesting
23 that when I see the new Commissioners, and their new
24 attitude, and their relatively new chairman, I see a real
25 opportunity for FERC to step forward and be a leader in

1 energy. Be bolder.

2 So while I have seven specific recommendations on
3 wind energy, my message to FERC and to the new commissioners
4 and to Chairman Wood is, in the absence of leadership on
5 energy policy at the Federal level in the Congress, in the
6 administration, I might say, I think it's going to be up to
7 entities like FERC and the states and entrepreneurs like you
8 to take the lead. But FERC, I believe, has the capacity,
9 the substance, the strength in its commissioners to be
10 bolder than you have been. So that's message number one.

11 The west is ready to lead when it comes to
12 growing new energy needs. Wind power, we should really make
13 some commitments. It's always good to make goals. Right
14 now wind power is just 6 percent, according to the
15 Department of Energy, of the nation's projected power. And
16 we should make a goal that in the next 15 years we should
17 move wind a third or second behind some of the fossil
18 fuels. I know it would be tough, but I hope that you look
19 at some benchmarks at the end of your conference and say,
20 where are we going to be in 15 to 20 years? So I urge FERC,
21 I urge the power industry, those of you here to make a
22 commitment today to make wind energy the key centerpiece of
23 our energy policy in the future.

24 I don't believe we can wait any longer. We need
25 to break through what exists today. It's a glass ceiling

1 that prevents wind from becoming a larger source for
2 electric production in America. The glass ceiling is wind's
3 intermittent nature. We need to transform wind from a
4 predictable energy source that can be dispatched more
5 efficiently from states like Colorado and New Mexico to the
6 nation's power consuming centers.

7 We can use the grid itself as a storage tool, as
8 an energy storage tool. Which is essentially what the
9 Californians are starting to do. And I know the chairman is
10 very much behind this. I worked at the Western Governor's
11 Association with an unlike partner, unlikely because we're
12 from different political parties, but we are both very
13 committed to renewable energy. And that's Govern
14 Schwarzenegger and I got the western governors to approve a
15 resolution that says, energy is bipartisan and we should
16 have clean energy that means to create a blueprint of 30,000
17 megawatts of clean energy in the western 18 states by 2015
18 along with a 20 percent improvement in energy efficiency.

19 Every western state, mainly mountain states
20 signed this resolution. And in San Diego in two days we're
21 going to see how we are doing. And obviously the efforts
22 here in Colorado are extremely important.

23 What is also happening as I look at energy
24 policy, the most innovative policy initiatives are coming
25 out of the states. They're not coming out of the federal

1 government. States working in public/private partnerships,
2 states working with Wall Street, states like mine that are
3 ready to invest our natural resources, our financial
4 resources, are state investment funds into entrepreneurship
5 and energy and renewable energy policy and projects is where
6 I believe this country very much is heading.

7 And if you look at western states, the 18 western
8 states you see aggressive, renewable energy efforts in 16
9 out of these 18 states. What we need now is a stronger
10 federal effort.

11 Here are the seven points that I would suggest
12 that you consider today, both from the policy side, the
13 entrepreneurship side, from the FERC side. I'm also going
14 to make some suggestions to the U.S. Congress which doesn't
15 seem to listen much, especially to me these days. The
16 Chairman mentioned that the election just happened and in
17 New Mexico the last count was President Bush won the state
18 with less than one-half of 1 percent. And the Chairman is
19 very pleased, I'm lesser pleased.

20 [Laughter.]

21 GOVERNOR RICHARDSON: Anyway -- but he ran an
22 excellent race, the President did, in my state.

23 First, the Congress. Congress has to create a
24 stable environment for wind development. No more 14-month
25 extensions of the production tax credit. It should be a

1 five or ten-year commitment that allow investors and
2 utilities to plan and to build.

3 The Congress shouldn't allow -- should also allow
4 pollution credits under the Clean Air Act for wind projects
5 that don't release sulfur dioxide or oxides of nitrogen.

6 Second, the Congress needs to create investment
7 incentives and investment tax credit for wind energy storage
8 projects. It's time to move from research into
9 implementation. And what we should do is integrate wind
10 with conventional fuel such as coal which should be gasified
11 both for environmental benefits and to make it easier to
12 dispatch when as an energy source.

13 With U.S. Energy Department support several
14 states already, New Mexico, Texas, and Oklahoma, have begun
15 a compressed air study that will yield results in about six
16 months. We need more of these progressive initiatives and
17 we need incentives for utilities and wind developers to
18 solve the storage challenge right now. Then we can begin
19 filling openings on the utility's resource acquisition
20 schedules. And I know energy will be revisited again. And
21 the Congress will say, we already gave you your 15-month
22 renewal, so go away and now we've got to deal with other
23 fossil issues. I don't believe that should be the strategy.
24 And what I think is going to be needed is an aggressive
25 congressional strategy to give wind power more permanence

1 and more strength and more stability in congressional
2 legislation.

3 Third, the country should invest in electric
4 transmission infrastructure the way we invested in
5 interstate highways. When we resolve wind energy storage
6 challenge, it starts making sense for investors to construct
7 large direct correct lines from windswept, less-populated
8 areas, places like the Dakotas, Wyoming, New Mexico, to
9 population centers on the coast. Again, this is going to
10 need tax credits. But these tax credits will pay for
11 themselves over and over again when American businesses and
12 consumers gain a measure of protection from the energy
13 pricing uncertainty that exists today and that has gouged
14 our economy in recent years.

15 Fourth -- and I think this is where FERC can have
16 a major impact. We need to repair the regulatory planning
17 and citing problems, in our transmission system. FERC
18 should immediately revise its tariff structure to allow more
19 wind development, reflecting the facts that predictive tools
20 have improved. And too much transmission capacity is
21 currently underutilized. I'm pleased to hear that FERC is
22 working on standards for a national grid code. This is
23 good. This will help wind projects get into transmission
24 lines irrespective of opposition from competitors who might
25 control access. FERC can also continue to increase its

1 support for regional planning structures such as the Rocky
2 Mountains Area Transmission Study which some of the
3 southwestern governor hope to replicate soon.

4 Fifth, we need to step up and increase our
5 commitment -- as Commissioner Brownell said, it's a
6 renewable energy -- by enacting a nationwide renewable
7 portfolio standard. Nineteen states or, I guess 20 with
8 Pennsylvania, now have requirements for renewable energy.
9 Congress again has fallen behind the states. I mentioned
10 the western governors setting ambitious targets for clean
11 energy growth in the west. It's time for Congress to help
12 push their homegrown, job-producing, reliable, renewable
13 energy development by enacting a national standard. Here is
14 a suggestion I have; 25 percent by the year 2020. If we put
15 these other steps in place, such a goal is achievable.

16 Sixth, although the immediate reaction to our
17 natural gas supply problems is naturally to increase supply,
18 we need to act moderately in approving plans for natural gas
19 imports. Natural gas is a plentiful, relatively clean
20 source of energy. But this nation has experienced three
21 price disruptions in the oil markets. We know that it can't
22 re-OPEC itself on uncertain, imported energy supplies. If
23 we allow vast amounts of LNG imports, for instance, we might
24 suppress wind development and put our economy in further
25 danger of being held hostage when an overseas government

1 changes or when a producer falls out of favor or when
2 competition from other countries such as India and China
3 cause the price to rise.

4 Seventh, the Department of Energy and Congress
5 should increase investment in wind research and development.
6 If we had better monitoring data, we would make better
7 decisions about where to invest energy dollars. If we
8 continue to push wind turbine research, we could
9 significantly increase the efficiency of the technology.
10 Also, we need to research into rules that will incentivize
11 environmentally responsible off-shore wind development and
12 research that will increase transmission efficiency.

13 The role of the federal government in this
14 research effort is critical but needs to be expanded.

15 Lastly, the nation can't afford to relax
16 environmental protections that both protect our air and
17 create a market for less polluting alternatives. And the
18 administration's proposal to relax the new source review
19 rule opposed by a large number of states will reduce the
20 incentive for utilities and generators to choose clean
21 energy alternatives such as wind. We need to take the
22 global warming issue seriously in this country. Sometimes I
23 think that this is a very difficult and a very difficult
24 task for us to face the world on a very increasing problem.
25 We must address greenhouse gas emissions, preferably through

1 a cap and a trade system such as proposed by Senators McCain
2 and Lieberman. This will help create a further economic
3 preference for nonpolluting technologies while bringing down
4 carbon emissions.

5 Throughout my career as Secretary of Energy, a
6 very difficult job, I don't recommend any of you aspiring to
7 that job --

8 [Laughter.]

9 VOICE: We don't.

10 GOVERNOR RICHARDSON: You're better off with
11 FERC, you have more power.

12 [Laughter.]

13 GOVERNOR RICHARDSON: As Governor of New Mexico,
14 as Chairman of Western Governors, I've been deeply concerned
15 about the lack of an energy policy in our country. I'm
16 still concerned about the 2003 northeast blackout, the fact
17 that we still don't have reliability standards that deal
18 with those issues, the crippling increases in fuel costs
19 affecting industries and households, underinvestment in the
20 electric grid, growing emissions of greenhouse gases, the
21 export of energy dollars from the vulnerability of our
22 country to oversee supply disruptions.

23 When I was Secretary of Energy one of my last
24 acts in my last year was to have a wind powering America
25 initiative that said that we would have 15 percent by the

1 year 2015. What I am suggesting today is a vastly more
2 expansive program for wind in America.

3 The greatest concern I have is that our country
4 continues to react to the symptoms instead of addressing the
5 disease. The underlying disease that we haven't adequately
6 invested in an energy infrastructure that is affordable,
7 that is reliable, that is diverse, and that is clean. I'm
8 sure that some of you in the wind industry are sick and
9 tired of hearing it over and over again. But I am going to
10 repeat it, and I'm warning you, I don't think it's that
11 funny. Bob Dylan said it, "The Answer is Blowing in the
12 Wind." He wasn't singing about America's energy problems,
13 and a solution might not solve our nation's energy
14 challenge. All the same, he was onto something, a concerted
15 strategic push for wind energy development.

16 Again, I will close by thanking you for having me
17 here. But also to say to the Federal Energy Regulatory
18 Commission, I notice you're not calling yourselves FERC
19 anymore. Is that conscious?

20 VOICE: No.

21 GOVERNOR RICHARDSON: No? FERC? Okay.

22 VOICE: FERC is good.

23 GOVERNOR RICHARDSON: A lot of this initiative
24 that I've laid out, I believe you can be enormously helpful.
25 And I see three Commissioners here with vast experience,

1 excellent records, aggressiveness, and I'm asking you, as we
2 head into the next few years with potential deadlocks in our
3 energy legislation, and the states moving forward, the
4 states need an entity at the federal level, and that is you,
5 to move forward. I think bureaucratically and in terms of
6 your statutes governing what you can do, you have
7 flexibility and you should be bolder. I believe in pursuing
8 and following through on additional flexibility that would
9 allow you and allow us and allow wind energy to become a
10 bigger part of our nation's energy future.

11 Mr. Chairman, Commission Brownell, Commissioner
12 Kelly, thank you very much to all of you here that invest
13 deeply in wind. I know you have probably had some
14 frustrating years. But hopefully with a concerted strategy
15 with all of us working together, with the power of the
16 capitalistic system to invest, I believe that we can make
17 wind the premier -- as it should be -- energy source in our
18 country.

19 Thank you very much.

20 (Applause.)

21 CHAIRMAN WOOD: Thank you, Governor Richardson.
22 I just want to appreciate -- thank you for loaning one of
23 New Mexico's finest to us for the next five or six years,
24 and we're glad to have Suedeen. I think that set a nice
25 tone for what we want to be about today. And, again, that's

1 action and solutions.

2 With no further adieu, I would like to move on to
3 the action part of the morning agenda.

4 Our team lead, Jamie Simler, is head of our
5 markets, tariffs and rates west division, which is one of
6 the chief policy divisions within the agency. Jamie is a
7 long-time hand with us. Jamie will be moderating our first
8 panel. So I will turn it over to Jamie and let you go from
9 there.

10 MS. SIMLER: Thank you.

11 At this time we would like to go ahead and invite
12 the first panel up and get started. And once you get up
13 here I'll go over the structure for today's conference.

14 MS. MCKINLEY: Jamie, while our panel is coming
15 up, I'll deal with a little housekeeping here.

16 The hotel has arranged for us to have a quick
17 lunch across the street, for those of you who would like to
18 at the Tutoria (ph) Restaurant. It's a lunch buffet and to
19 facilitate they've allowed us to sell tickets to the lunch.
20 The tickets outside are \$14.50. They need to be purchased
21 with cash. You can purchase your lunch over there, but if
22 you get the ticket ahead of time it will just get you
23 through the line a whole lot faster. And because we have
24 such a large crowd, that might be helpful.

25 Thank you.

1 MS. SIMLER: Thanks, Sarah.

2 Some additional housecleaning. Our conference
3 today consists of three panels. We've got one for the
4 morning and two for the afternoon. I will be moderating the
5 first panel. Rob Gramlick from the Chairman's office will
6 be moderating the second panel, and Mark Hagerly the third
7 and Matt Deale is going to be doing the wrap-up and next
8 steps and the action that we can take away from this
9 conference at the close of the day.

10 For each panel each panelist is going to give
11 prepared remarks in the range of three to five minutes. We
12 are going to hear from all of the panelists on a panel
13 before we entertain Q&A. We will be asking the panelists
14 and everybody with a tent card to please put your tent card
15 on end if you want to make a remark or have a question. For
16 those of you in the audience, you can just make your way to
17 the microphone and we will try to take you in turn.

18 And I think the last little bit of information I
19 have is that we are going to provide parties an opportunity
20 to comment in this docket which is AD04-13. We will be
21 issuing notice subsequent to the conference with what the
22 dates are, the deadlines, for those comments to be filed.
23 And with that we are going to start with our first panel.

24 Our first speaker is Matthew Brown. He is the
25 Energy Program Director at the National Conference of State

1 Legislatures.

2 MR. BROWN: Well, thank you very much for this
3 opportunity to address the FERC session on wind energy
4 issues. I am Matthew Brown and I direct the National
5 Conference of State Legislatures Energy Program. NCSO is a
6 bipartisan organization that is dedicated to serving the
7 needs of state legislatures around the country. I spent a
8 great deal of my time working with state policymakers as
9 they develop new energy policies, including those that
10 address wind energy.

11 I applaud you for coming to Denver, coming to
12 Colorado. Colorado is located somewhere near the geographic
13 center of a great deal of new wind development and some of
14 the best wind resources in the country and I didn't have to
15 travel to come to this meeting since we are based here. As
16 someone who works a lot with state policymakers, I am also a
17 big advocate of encouraging Washington, D.C.-based people to
18 spend more time in the states. I don't think it's a big
19 stretch to say that much of the new wind policy that has
20 been developed in the past decade has come from the states.

21 Wind has for some time been the fastest growing
22 source of electricity generation in the country. Although
23 this growth was interrupted by the sunset last years of the
24 federal production tax credit. This growth does come off a
25 smaller baseline, of course, than the installed capacity of

1 natural gas or coal or nuclear power, but it is expected to
2 continue. The American Wind Energy Association tells me
3 that they expect an additional 2000 megawatts of new wind
4 capacity to be built, at least, in the coming year. But
5 this growth has also tended to come in a kind of dramatic
6 boom and bust cycle that corresponds precisely with the
7 expiration or the lapse or the reauthorization of the
8 federal production tax credit.

9 Why is wind growing this fast? It's the result
10 of a number of factors. The fact is that the cost of wind
11 energy has declined from around 40 cents per kilowatt hour
12 in 1979 to between 3 and 4.5 cents per kilowatt hour today,
13 that's without the production tax credit. Those numbers
14 range higher in poor wind resource areas or for smaller wind
15 projects. The cost of wind energy has now fallen to the
16 point that many utilities in the western United States and
17 particular now include it in their integrated resource
18 plans. PacifiCorp, Idaho Power, Xcel Energy, among others,
19 have included several hundred megawatts of wind energy or
20 renewable energy in their resource plans.

21 They are doing this in large part because of gas
22 prices that have for several years been volatile and are
23 trending upwards. Gas prices are now above \$5 per million
24 BTU and projected to stay there. Most price forecasts have
25 them between \$3 and 5 for the next several years, to the

1 extent we can depend on price forecasts. Gas is no longer
2 the highly attractive generating resource it was when gas
3 prices were below \$2 per million BTU.

4 Wind, therefore, from the perspective of many
5 utilities and state policymakers, the people that I work
6 with, is a way to reduce fuel price risks.

7 I mention the cost of wind to make an important
8 point. Wind energy is often cost effective on its own and
9 its very frequently cost effective with the help of the
10 production tax credit. This is not to minimize the
11 importance of state policy, particularly the renewable
12 portfolio standard for wind and other renewables. The
13 portfolio standard exists in some 18 states now. In the
14 last couple of weeks, as we've heard, both Pennsylvania and
15 Colorado have joined the ranks of states setting a
16 requirement for power retailers to procure some amount of
17 renewable energy. The Union of Concerned Scientists tells
18 me they are the only group that I think has done these
19 calculations that these RPS requirements in the states will
20 result in more than 22,000 megawatts of new renewable energy
21 being constructed. It's safe to suggest that the majority
22 of that new capacity will come from wind energy.

23 One of your questions asks if wind is viable in
24 states that do not have an RPS. I would like to respond in
25 a couple of ways. First, most state RPS policies allow for

1 renewable resources to be acquired out of state. Some, like
2 Colorado, might give extra credit to renewables acquired in
3 state. So even if Utah had an RPS, its utilities could
4 still acquire renewable power from Idaho to meet their
5 requirements.

6 The second point at base that the RPS is a very
7 important policy and a driver for renewable energy and it
8 demonstrates the importance that many state policymakers
9 place on the economic benefits, the economic development
10 benefits, the fuel diversity benefits, the environmental
11 performance benefits of renewables and wind in particular.
12 But wind is not solely driven by the RPS. It's increasingly
13 a part of a diversified strategy that many state
14 policymakers are encouraging and utilities are adopting to
15 build a portfolio of generating resources that will include
16 some renewables, it will include gas, coal, some nuclear
17 power.

18 Finally, I want to focus on the challenges that
19 lie in front of wind energy development. Transmission is
20 certainly one important challenge and we are going to hear a
21 great deal about that. I'm not going to focus on that. I
22 want to identify two other challenges very briefly.

23 The first is a state-level siting process for
24 wind generators. Just as with all generation it's sometimes
25 difficult to site wind turbines. It's likely, for instance,

1 that some of the windy land in Kansas in the Flint Hills may
2 be put off limits to new wind development. Other states
3 have considered moratoria on new wind development.

4 Some people view these wind turbines as
5 attractive. I've met people who view transmission towers as
6 attractive. Others do not. Some people view them as
7 disruptive to bird populations. State level siting
8 processes vary a great deal. But some of them will
9 certainly stand in the way of some number of megawatts of
10 wind generation capacity being built.

11 The other issue has to do with the certainty of
12 U.S. renewable policy. The wind industry is in a boom/bust
13 cycle that corresponds with the production tax credit. This
14 places tremendous stresses on the industry so that when the
15 tax credit is renewed for short periods, it places a boom --
16 it puts the industry in the position of developing a
17 boom/bust cycle.

18 Policymakers at both the state and the federal
19 level need to be aware of this distorting impact of the
20 extension of lapse of the credit and need to consider at
21 both levels, state and federal, what other policies or
22 alterations to the existing credit might be appropriate.

23 Thank you, again, for taking the time to come to
24 Denver and for focusing on this important issue. I look
25 forward to learning a great deal from the rest of the day.

1 Thank you.

2 MS. SIMLER: Thanks, Matthew.

3 Next we have Mr. Tom Kerr, the Chief, Energy
4 Supply and Industry Branch at the Environmental Protection
5 Agency.

6 MR. KERR: Good morning. I want to thank FERC
7 for inviting EPA to speak at this important event. EPA
8 electricity regulators like FERC share a common goal,
9 producing environmental impacts at the lowest possible cost
10 while at the same time maximizing power system benefits like
11 lower power costs, reduce volatility, improve reliability
12 and resource adequacy.

13 EPA believes that we can address much of the
14 expected growth in energy demand with well-designed,
15 renewable energy, energy efficiency, and clean distributed
16 generation and we are happy to be expanding our existing
17 partnership with FERC to explore and understand ways that we
18 can level the playing field for these types of important
19 solutions.

20 In my brief remarks today, I want to highlight
21 how environmental concerns have become a key driver for the
22 rapid growth of wind energy in the U.S.

23 There are three main groups that have shown
24 strong and growing interests in pursuing wind energy as an
25 environmental strategy, states, electric utilities, and

1 electricity customers themselves. I will touch on each of
2 these in turn.

3 Why are we seeing growing state support for
4 renewable energy? With natural gas prices rising, and a
5 number of new coal plants being proposed, states are looking
6 at renewable energy as a key strategy to help meet air
7 quality and climate change goals. While we may have a
8 national cap on sulfur dioxide emissions and regional caps
9 on nox, a local SIP attainment implementation attainment for
10 many states is becoming tougher and tougher each year. You
11 have just heard about the number of states that are pursuing
12 RPSs and many more are considering them.

13 We've heard about the numbers of what they are
14 expected to deliver. What we haven't heard as much about is
15 how this translates to significant environmental benefits.
16 The annual production from planned, state renewable energy
17 programs will reduce as much carbon dioxide as taking 7.8
18 million cars off the road each year or planting 2.5 billion
19 trees each year.

20 As we speak the northeast states are completing
21 the architecture for a mandatory cap and trade scheme for
22 carbon dioxide also known as the Regional Greenhouse Gas
23 Initiative or RGGI. Wind energy will likely play a key role
24 in helping RGGI meet its goals cost effectively.

25 You've heard also about western states taking

1 action. Wind energy is expected to make a large portion of
2 the goals that have been announced, and these goals were
3 also driven in part by concern about regional hays in our
4 national parks.

5 The second group interested in wind energy
6 because of its environmental profile are electric utilities.
7 In the past few years we have seen a shift in the utility
8 sector with several companies publicly stating that they are
9 planning for future carbon emissions constraints. We've
10 also seen an increasing number of climate-related
11 shareholder resolutions filed against electric utilities.

12 Some of these resolutions specifically ask
13 utilities to invest more in renewable energy. In response
14 to these concerns utilities are actively taking steps to
15 assess their carbon risk, to assign shadow carbon prices to
16 proposed investments, and to invest in wind and other
17 renewable energy as a strategy to prepare for the future.

18 The final group interested in renewable energy
19 are electricity consumers themselves. You Colorado
20 residents know first-hand that electricity consumers want to
21 see more of their power coming from wind energy. This is
22 backed up by action. We have seen rapid growth in voluntary
23 green power purchasing in the past decade. Today green
24 power markets are responsible for over 2,000 megawatts of
25 new renewable energy capacity much of it wind.

1 Larger customers are driving these markets,
2 including customers like Johnson & Johnson, Staples, and
3 Fed-Ex Kinko's, all of which have made corporate commitments
4 to have 10 percent of their total electrical load come from
5 green power.

6 Local governments are also leaders including Moab
7 Utah which is EPA's first green-powered community and
8 Montgomery County, Maryland which is voluntarily buying
9 almost 40,000 megawatt hours of wind energy as a strategy to
10 achieve compliance with their state air quality requirements
11 also called the State Implementation Plan or SIP. The
12 county claims that its purchase is one of the more cost-
13 effective strategies they can use to meet SIP as the
14 purchase is expected to reduce up to 800 tons of nox
15 emissions annually.

16 Montgomery County was the first to propose using
17 wind energy to meet their SIP, but we are already seeing
18 more other SIP proposals that rely on wind energy.

19 So these examples make it clear that a growing
20 number of groups have environmental motivations for pursuing
21 wind energy. The market is, in effect, beginning to value
22 renewable energy's non-energy attributes, things like RPS
23 compliance, emissions reductions and green power premiums.
24 Together we are seeing that these attributes can add up to
25 one to two cents per kilowatt hour to a wind farm's revenues

1 translating environmental concerns directly into increased
2 competitiveness. But the wild card, as we all know, and why
3 we are here today, are electricity market rules including
4 the transmission policy landscape.

5 State environmental regulators, electric
6 utilities and green power purchasers cannot meet their
7 environmental goals alone. Therefore, they have an
8 important seat at the table at meetings like this as
9 electricity regulators attempt to solve transmission issues
10 for wind energy. The cost and timing of expected air
11 quality and climate change improvements will be affected by
12 today's outcomes.

13 Thanks.

14 MS. SIMLER: Thanks, Tom.

15 Next we have Mr. Lee Otteni. He is a project
16 manager with the Bureau of Land Management.

17 MR. OTTENI: Thank you. It's a pleasure to be
18 here Commissioners and talk about how the Bureau of Land
19 Management can collaborate with other federal agencies to
20 encourage the development of wind energy. The BLM really
21 got started or restarted in its wind energy program in
22 February or 2002. Although we have had wind development on
23 BLM lands in the '80s, really there was about a 20-year
24 period where there was no activity and with the change of
25 administration in 2002, we started working with energy

1 developers again.

2 Following that meeting in February 2002, it was
3 apparent that we really did not know what kind of renewable
4 energy we had the potential for on federal land. So we had
5 an assessment done by the National Renewable Energy Lab here
6 right outside of Denver to determine what kind of potential
7 was on the land. Then we also started looking at developing
8 an interim wind energy development policy. We really, at
9 that time, had no policy, so developers would not know
10 really what the requirements were of going from state to
11 state or from office to office, what was needed.

12 Well, with the release of this first assessment
13 on public land -- when I say "public land" that really is
14 the Bureau of Land Management not including other lands like
15 the Forest Service parks. With a that release we had a kind
16 of a land rush on testing and monitoring applications. We
17 went from zero applications to 120 applications in all the
18 western states on BLM lands after release of our interim
19 policy. So obviously there was a lot of interest in BLM
20 lands once the industry knew that there was a policy and a
21 commitment by the administration to be serious about wind
22 development.

23 With that many applications for wind development,
24 we felt the next best step for us to take was to conduct a
25 programmatic EIS for wind energy development. In using this

1 document what we will do is take that interim policy and
2 finalize it so there will be a standard for development. We
3 will also set forth a best management practices so everyone
4 will know what it is that we expect on federal land in a
5 development. And also, which is really important, is we are
6 amending 52 resource management plans across the west in all
7 states except Arizona and California which are amending
8 their plans individually. By amending these plans we don't
9 have to go through the long process amending the plan before
10 we proceed with development of a wind project. So this is
11 going to be a huge savings in time for development.

12 Now, some of the things that we have learned so
13 far in this programmatic EIS are this, of the 174 million
14 acres that we administer in the 11 western states we have
15 over 20 million acres of good wind resource, 20 million
16 acres. When we did an economic analysis to bring down that
17 gross number to what is realistic, we're projecting that
18 there is 160, acres of BLM land that are economically
19 developable within the next 20 years. We are expecting
20 about 3,200 megawatts of wind development on that time frame
21 on those lands. What's even more interesting to me is the
22 number of actual acres that are going to be showing a
23 footprint from development. That acreage is only 16,000
24 acres for that many megawatts. So the analysis was done and
25 we will have the programmatic EIS, the public comment period

1 stops December that 10th, and we think we'll have it out to
2 the -- with record of the decision by July or August of next
3 year.

4 What does this PEIS do for the wind development
5 on public lands? Well, the first thing it does is this is
6 the first time we have a national wind policy that provides
7 the federal employee, the wind developers and the public a
8 clear, concise policy for all the lands we manage. As I
9 said before, it amends 52 land-use plans to expedite the
10 permitting process. It establishes best management
11 practices which will be the blueprint for each project on
12 BLM lands. This blueprint which we'll call a "plan of
13 development" will address all the resource issues that are
14 so important to us; wildlife habitat, wildlife numbers, road
15 construction, archeology, soil salability, hazardous
16 material disposal, all of those components will be in this
17 plan of development. And with the policy we have a fair
18 market value which is originally adjusted as a rental rate
19 on the rights of way.

20 So what is the outlook for development as we see
21 it? We obviously have very good accessible wind resources
22 in every western state. In the things that we witnessed so
23 far is that in states with the renewable portfolio standards
24 we tend to have more applications there. We obviously have
25 more applications closer to load than in remote locations.

1 So we have about half of our applications are in California
2 and in Nevada which are close to the load. The other states
3 have the other half.

4 I think what is really needed beyond what we are
5 doing right now to ensure that wind development on federal
6 land gets to the load centers is we need to have yet another
7 programmatic EIS on transmission. We were in hopes of
8 having dual analysis of the wind and the transmission,
9 unfortunately we had money enough for one and not two.
10 Without this programmatic assessment of corridors, it's
11 going to be another time warp that we find ourselves in, in
12 bringing the power to the grid and so my recommendation
13 would be to have the -- and actually, I think it needs to be
14 the Department of Agriculture because of the Forest Service
15 lands in the west, the Department of Interior, because of
16 BLM and the Department of Energy collaborate on a regional
17 transmission analysis.

18 Thank you.

19 MS. SIMLER: Thanks, Lee.

20 We are going to switch gears here a little bit
21 and we're going to talk to -- hear from Mr. Robert Sims who
22 is a Senior Vice President of SeaWest Wind Power.

23 MR. SIMS: Good morning. Thank you for the
24 opportunity to speak to the Commission here and thank the
25 Commission for your interest in the transmission issue as

1 relative to wind power.

2 As I think many people know, the current
3 installed capacity of the United States for wind energy is
4 approximately 6,375 megawatts. It's interesting to note
5 that approximately 25 percent of that capacity is installed
6 with states without RPS which does demonstrate the ability
7 to develop without the state support.

8 Significant capacity exists in California at
9 about 4.4 percent of the generating capacity, Wyoming about
10 4.5 percent, Iowa 5.4 percent, in Minnesota as much as 6.4
11 percent of the state generating capacity is wind energy.

12 Wind energy has the potential to supply a
13 substantial amount of low-cost environmentally benign energy
14 to the transmission grid. Estimates for the capacity
15 available range anywhere from 20,000 megawatts from the
16 Western Governor Association to as much as 100,000 megawatts
17 of potential as noted by the Department of Energy.

18 The drivers for wind energy are currently it's
19 low cost, it's minimal environmental impact, consumer demand
20 and most recently the rising fossil fuel prices,
21 particularly natural gas, along with that, state and federal
22 energy policies including the RPS and the production tax
23 credits.

24 The biggest challenge currently to the wind
25 industry, I believe, is the availability of transmission to

1 move that energy from the resource areas to the markets
2 where it will be utilized.

3 The principal resource areas for wind energy in
4 the western United States are currently constrained. These
5 include parts of North and South Dakota, Montana, western
6 Kansas, southeastern Colorado, New Mexico, western Texas,
7 and the Tehachapi area of California. My company has land
8 holdings in a lot of these areas as do other wind
9 development companies. We have proven resources to provide
10 projects to generate energy on the order of 3 to 4 cents a
11 kilowatt hour, but no way to bring that energy to the
12 marketplace at the present time.

13 While I'm sure that new lines will ultimately be
14 needed to be constructed, I also believe that a significant
15 capability exists in the present transmission infrastructure
16 to allow some further development in the near term.

17 Currently I see the problem is that the rules and
18 tariffs currently in place are designed for the transfer of
19 firm capacity from area to area. However, wind energy is a
20 low-cost energy resource, not a capacity resource.
21 Currently we are in a mode where wind energy projects are
22 required to arrange for expensive firm transmission service,
23 yet are usually credited with little or no capacity value at
24 the load end. So we are paying for that firm capacity, but
25 we are not being given the value of that capacity at the end

1 user or at the point of receipt.

2 We even see currently requests for proposals from
3 utilities that require the wind projects to arrange for firm
4 transmission capacity from point to point, yet are not given
5 a capacity value upon its evaluation and are often levied in
6 integration costs because of the intermittency. So it
7 really is a double standard as far as what's required of the
8 wind projects.

9 So we believe that the solution is really -- one
10 solution is going to be tariff reform that allows for long-
11 term commitment to interruptible service and that would be
12 interruptible during emergency situations.

13 We need a long-term commitment in order to
14 satisfy the banks and lenders that finance the projects.
15 Short-term commitments under the current tariff of one year
16 really leave too much of an unknown for the banks to be
17 comfortable with. We need that long-term commitment.

18 Reselling unused transmission in secondary
19 markets isn't a solution for us either because that's too
20 much of an unknown. There isn't currently a market and what
21 it can be sold for in the future is not clear.

22 I think the second consideration that needs to be
23 looked at is to reevaluate how available transmission
24 capacity is determined in constrained paths. Currently we
25 have a situation where, for example, two control areas may

1 have, for example, control area A, control area B, with
2 three, 500-megawatt lines between the two areas, that path
3 would be rated at 1,000 megawatts allowing for N minus one,
4 that one line to be out of service. I believe that that's a
5 perfectly good opportunity for the wind industry on an
6 energy basis to use that third line when it's in service and
7 the outages would be relatively infrequent.

8 In fact, the RMATS study which is going to be
9 talked about later today studied some of these possible
10 paths here in Colorado. It looked at the path from
11 southeastern Wyoming into Colorado which is currently a
12 constrained path. However, upon further analysis it was
13 found that a 100-megawatt wind project could utilize that
14 path 99 percent of the time, get 99 percent of its energy,
15 low-cost energy from Wyoming into the higher-priced markets
16 of Colorado 99 percent of the time.

17 RMATS also looked at that same path for 500
18 megawatts of capability from Wyoming to Colorado and found
19 that available 93 percent of the time. The other example
20 that RMATS studied was looking at moving 500 megawatts from
21 wind resources in Montana to the Pacific northwest where 99
22 of the wind -- wind energy to access the market that
23 otherwise it's currently not available. You can bring these
24 projects to market without constructing any new transmission
25 lines in the near term.

1 Thank you.

2 MS. SIMLER: Thanks, Robert.

3 Now we will hear from Mark Maher, Vice President
4 of Transmission at PacifiCorp.

5 MR. MAHER: Thank you. I want to thank the
6 Commission for inviting PacifiCorp to share its views and
7 experiences in integrating wind into our system.

8 I would like to start with a little background on
9 PacifiCorp. We have a transmission footprint that spans six
10 states, approximately 15,000 miles of high voltage
11 transmission, much of which is near good wind resources and
12 we feel we have good opportunities to look at integrating
13 wind into our system. PacifiCorp itself is aiming at
14 purchasing upwards of 11,000 megawatts in the next seven
15 years as planned in our integrated resource plan. And also,
16 we have the fifth largest retail wind energy program in the
17 country.

18 So how have we accommodated wind to date? Wind
19 is a viable resource to us, it's a resource we see as
20 needed, it's a needed resource to help us meet our load
21 growth in future years. We also have a proven track record
22 of working with developers, purchasers of wind to identify
23 and overcome challenges of interconnecting wind and
24 integrating those into our system. We have participated in
25 the Commission's ongoing proceeding to consider adoption of

1 national grid code standards for integration of wind and we
2 will continue to work on integration issues. So what have
3 we done on the transmission side? To date we have developed
4 a product in which we term partial firm. It's part of our
5 Commission-approved OAT tariff. It's a long-term contract
6 that we offer in a couple of versions. This can be offered
7 with a defined, I'll call a not available period, or what's
8 referred to a curtailment period where we would not allow
9 scheduling during that defined period, but it would be a
10 firm contract for the remainder of the year. We offer this
11 as ten-year contracts. The user of that can go to the
12 secondary market and pick up non-firm, if available.

13 Also we offer this a firm product across the year
14 but still define the theme where we'll trip off a generator
15 in an N minus one condition.

16 All of these are aimed at utilizing our unused
17 capacity on our transmission system. So today we've
18 integrated over 500 megawatts of wind into the PacifiCorp
19 system. And we have eight additional projects in cue
20 amounting to over 1,200 megawatts.

21 Also we have modified our existing tariffs and
22 rate schedules to accommodate wind. The first modification
23 we made was for point-to-point customers where they can
24 submit changes to their day-ahead schedules up to 20 minutes
25 before the hour and not incur a penalty. I believe

1 Bonneville Power and us are the only two that are doing
2 this. This allows scheduling flexibility and we've kept the
3 5 percent bandwidth in which they need to operate within
4 their schedule.

5 We found that this has been workable for
6 purchasers and the bandwidth has kept these folks sharp on
7 their scheduling. So we think that is workable.

8 Second, we've modified our generation and balance
9 schedule and eliminated the 100 mils per kilowatt hour
10 penalty and instead we charge incremental cost of energy
11 plus 10 percent.

12 So this combination of tariff updates and
13 scheduling practices, I think it's making our system more
14 usable for wind -- for purchasers of wind products. But we
15 understand this may not be enough. And we will continue to
16 work with -- we have -- we are joining with Bonneville, and
17 we want to participate in their development of their product
18 that they have ongoing. And internally we've developed a
19 set of principles that we believe we should be including in
20 any product that we may development. I'm going to go
21 through those quickly.

22 First we need to recognize the current paradigm
23 of transmission area resource planning and policy towards
24 dispatchable resources. That's the world that most of are
25 living in, in which we have some controllable resources. We

1 plan on those, we dispatch with them, but we have this new
2 set of resources that we need to get smart on and figure out
3 how to integrate. And they're a little more unruly and we
4 need to accommodate these intermittent resources such as
5 wind.

6 We need to recognize the environmental and the
7 energy security and resource diversity benefits that wind
8 bring. We want to achieve full optimal use of our existing
9 transmission systems and associated recovery of costs while
10 ensuring reliability and I think most importantly avoiding
11 cost shifts among customer classes. We want to ensure that
12 our -- in our case our WECC requirements for reliability are
13 maintained. We want to honor and preserve rights under
14 existing contracts and avoid favoring one supplier of
15 customers over others in all cases. In other words, we
16 don't queue jumping.

17 We want to take into account the dynamic nature
18 of load patterns and generation patterns and hence the scale
19 and timing of path constraints. These not available periods
20 are variable.

21 So let's have standards on a regional basis. For
22 us in the west it would be the western interconnection for
23 scheduling, regulation, and reserves for intermittent
24 resources to ensure consistency and compatibility.

25 Last, let's strive towards development of RTOs

1 that can provide long-term solutions for wind and
2 transmission.

3 So, I'm going to conclude here and say that we
4 want to continue working with interested stakeholders to
5 refine the products that we have developed and make them as
6 available as we can. And, I think it's time to put our
7 smart people to work and figure out how to make these issues
8 come together and produce the products that we need.

9 So, again, thank you for the opportunity to
10 speak.

11 MS. SIMLER: Thanks, Mark.

12 Next we have Doug Larson, the Executive Director
13 at the Western Interstate Energy Board.

14 MR. LARSON: Thank you. Is this on? Yeah.

15 The Energy Board is an association of 12 western
16 states and three western Canadian provinces and we serve as
17 a technical energy arm to the Western Governors Association.

18 I want to thank the Commission for being regular
19 participants in our meetings. So, thank you.

20 We filed some comments with you earlier this week
21 and some copies are out in the back. And I will be
22 referring to one chart in that filing. And a punch list
23 item for you which is my message. As the Chairman already
24 noted, with the exception of the California ISO region,
25 transmission access in the rest of the states in the western

1 interconnection is likely to be guided by orders 888, 889
2 for the foreseeable future.

3 And understanding how these orders are being
4 implemented and where improvements can be made is important
5 for wind development and greater utilization of the grid in
6 the western interconnection.

7 This examination would also help us answer
8 requests that our committee on regional electric power
9 cooperation made of the Commission staff in December of
10 2002. This is pursuant to a very generous offer of
11 Commission Brownell that you made to Crepsy (ph), what we
12 asked then and we would ask again is that the Commission
13 undertake audits of how 888 is being implemented in the
14 western interconnection. We think this would provide a
15 factual basis for reforms of tariffs in the west and a first
16 step -- let me say that that kind of audit, I think, should
17 not be blocking action on needed tariff reform in the near
18 term. Those things are two parallel actions that could be
19 undertaken.

20 We would offer the following suggestion of how to
21 approach this. The Commission could compare historic flows
22 on major transmission paths in the western interconnection
23 with postings of available transmission capacity. The Seam
24 Steering Western Interconnection Connection, SSWIC, did this
25 or looked at actual flows in 1999 to 2000 using data from an

1 extra high voltage database. It's a good starting point for
2 the study that we're recommending. The figure which is
3 figure 1 in the statement we made shows data from the SSWIC
4 analysis in 2003. The information in that graph is that
5 major paths in the western interconnection are loaded to 75
6 percent of their capacity only half the time. This is true
7 in all seasons of the year.

8 After looking at actual flows, so the next step,
9 I think, would be for the Commission to look at how they
10 compare to the ATC from western oasis sites. When you have
11 this comparison of actual flows and ATC, the Commission
12 should target paths for audits to better understand how 888
13 and 889 are being implemented.

14 In the selection of what paths to begin auditing
15 I suggest you start with those where there is a high quality
16 resource -- wind resource on one side of the path and a load
17 center on the other side of the path.

18 Now, our understanding is that there may be
19 assistance available to the Commission from DOE's National
20 Renewable Energy Lab to do this kind of comparison of actual
21 flows and ATC. The study would advance the objectives of
22 this technical conference and again provide the factual
23 basis on how 888 and 889 are being implemented and whether
24 we can squeeze more transmission capacity out of our
25 existing system.

1 Let me conclude, again, by thanking the
2 Commission for examining the potential for changes in FERC
3 policies that would enable our west to cap its vast wind
4 resources. As PacifiCorp has demonstrated, we have in
5 western IRP, integrated resource plans, large amounts of
6 wind resources that are coming out as very economically
7 attractive options. We've done some modeling in the western
8 interconnection, the SSWIC work modeled the addition of
9 21,000 megawatts of wind, RMAATSS modeled about 5,00
10 megawatts of wind in their footprint. We have five states
11 in the western interconnection who now have RPSs. And this
12 was mentioned earlier, there's a lot of other federal
13 policies -- federal and state policies that are advancing
14 wind development.

15 As Governor Richardson said, the Western
16 Governors have an initiative to develop recommendations that
17 could lead to 30,000 megawatts of clean energy in that 18-
18 state region. And wind is obviously going to be a major
19 contributor to those 30,000 megawatts.

20 Transmission is the key to this region's ability
21 to tap its wind resources and we need your help to enable
22 the transmission system to carry that resource to load
23 centers.

24 Thank you.

25 MS. SIMLER: Thanks, Doug.

1 Our last panelist is Mr. J. Charles Smith, the
2 Executive Director of UWIG.

3 MR. SMITH: I want to thank the Commission for
4 inviting UWIG to participate in this conference. I would
5 like to provide a perspective on European wind industry
6 developments and begin with a brief mention of the Utility
7 Wind Interest Group, a non-profit corporation whose mission
8 simply put is to accelerate the appropriate integration of
9 wind power into utility systems.

10 The UWIG has established an ongoing international
11 collaboration through cooperation with CGRAD, the
12 international conference of large electric systems.

13 The global wind industry has experienced rapid
14 growth and development in the last five years resulting in
15 40,000 megawatts of wind capacity worldwide at the beginning
16 of 2004. Twenty-eight thousand megawatts of that is in
17 Europe, about 70 percent of the total installed world
18 capacity, 6,400 megawatts in the U.S., about 16 percent;
19 5,600 megawatts in the rest of the world, about 14 percent.

20 Europe has made use of market incentives backed
21 by national targets to promote the production of clean
22 energy to achieve this growth. Europe has important high-
23 penetration experience with wind power. Countries currently
24 with the highest wind capacity are Germany, Spain, and
25 Denmark. Their ability to manage the system depends on the

1 quality of the wind forecast which includes the good, the
2 bad, and the ugly.

3 Denmark experienced approximately 20 percent of
4 annual electric energy production from wind in 2003 and is
5 planning to accommodate increased wind capacity for the
6 foreseeable future with a very positive attitude.

7 In some hours wind and combined heat and power
8 must run units, exceed 100 percent of the load in western
9 Denmark. The system depends on strong interconnections with
10 its neighbors and requires increasing amounts of reserve
11 capacity which can be self-provided or procured from the
12 market.

13 Improved communication and control capability are
14 being pursued to improve system operations under high
15 penetration scenarios.

16 There are two major policy drivers behind the
17 significant growth in Europe. First I the Kyoto protocol
18 dating to December of 1997.

19 Second, renewable energy systems directive
20 2001/77/EC which is signed indicative, individual renewable
21 energy production targets to member states and establishes a
22 basis to review future needs for mandatory targets. Under
23 the framework wind would contribute 5.5 percent to electric
24 supply in 2010. This framework is backed up by national
25 legislation in individual countries. Much of the European

1 policy is based on the recognition of external costs of
2 energy production dealing with impacts on health and the
3 environment. The EU externeE project conducted with the 15-
4 member states over the past ten years estimates wind
5 externalities of point 26 Euro cents per kilowatt hour and
6 coal at two to 15 Euro cents per kilowatt hour.

7 The report estimates that these costs vary
8 between 85 and 170 billion Euros per year, exclusive of
9 global warming and climate change impacts. It is the belief
10 of a broad cross-section of European policymakers that until
11 external costs are fully integrated, some form of market
12 incentives or support is required to develop the technology.
13 Support systems are provided for in the EU renewable energy
14 directive and are generally broken down into two major
15 categories, fixed price support systems, and fixed quantity
16 systems. The most successful of the fixed-price systems has
17 been the fixed feed-in tariff under which operators are paid
18 a fixed price per unit of output with extra costs paid by
19 all consumers. Germany, Spain, and Denmark make use of this
20 policy.

21 The Germany subsidy amounts to approximately one
22 Euro per month for the average household. Under the fixed-
23 quantity renewable quota support system, national government
24 decisions are made on the level of renewable electricity to
25 be achieved during some period much like our RPS leaving

1 market forces to establish the price.

2 I would now like to move to the specific wind
3 force 12 national policy recommendations as presented in the
4 May 2004 report which calls for legislation to first
5 establish legally binding targets for renewable energy;
6 second, provide defined and stable returns for investors;
7 third, introduce electricity market reforms consisting of
8 (a) streamlined and uniformed planning and permitting
9 procedures, (b) removal of discriminatory grid access and
10 transmission pricing barriers, (c) an end of subsidies to
11 fossil fuel and nuclear power, and (d) internalizing social
12 and environmental costs of energy.

13 It is important to recognize the public policy
14 driven nature of developments in Europe. European utilities
15 have generally accommodated the policy recognizing it as
16 part of their job. Operating rules have been modified
17 accordingly and utilities have not been hurt financially.
18 Costs are passed on to rate payers and taxpayers.

19 There is growing recognition that wind needs
20 fair, not preferential treatment in electricity markets and
21 that this is most likely to occur with leadership from the
22 public policy sector including legislators and regulators.

23 The pleas for more policy leadership illustrates
24 the situation of the European utility executive. The EU
25 should make it compulsory for European power companies to

1 produce or trade green power says the boss of a leading
2 European utility. Only in this way can the Netherlands meet
3 its target of 9 percent renewables by 2010 says Leudo Van
4 Halderon, CEO of Dutch power marketer Neuron, one of the
5 worlds top ten owners of wind-powered generation.

6 There is much to be learned from the European
7 experience.

8 Thank you.

9 MS. SIMLER: Thank you.

10 At this time we'll take questions from the
11 audience and members of the staff and the Commission.

12 Commissioner Kelly.

13 COMMISSIONER KELLY: Doug, you suggested that we
14 need more transmission to allow the export of wind power by
15 wire. Do you have any suggestions for how to incent the
16 building of that transmission?

17 MR. LARSON: First, my recommendation went to
18 using the existing wires more efficiently. Clearly that's
19 sort of the near-term, low-hanging fruit. But we do need
20 additional transmission. I think you will hear this
21 afternoon about the most recent effort in the west which is
22 the RMATS, Rocky Mountain Area Transmission Study.

23 My view, the underlying principle about
24 transmission expansion in the west, since we don't have RTOs
25 is that there needs to be a proactive, public process using

1 public data to model transmission needs where there be
2 economic conditions and that that information then becomes
3 the catalyst for individual beneficiaries to coalesce around
4 proposed projects.

5 There is some reason to believe this model works.
6 In Central Arizona, the Central Arizona Transmission Study,
7 CATS, in fact did result in several 500 KV lines have been
8 built, more are in the permitting process. So we do need --
9 you know, the Commission has been good about participating
10 in the RMATS process. We urge them to do similar
11 participation in the -- we have similar efforts underway in
12 the northwest and the southwest, so that's the model we're
13 pursuing right now in the western interconnection.

14 COMMISSIONER KELLY: Doug, did California
15 participate in RMATS?

16 MR. LARSON: Yes, California did participate in
17 RMATS. RMATS had sort of two sets of recommendations for
18 transmission expansion. One was within the five-state
19 footprint for -- to meet load growth within the region, and
20 a second set of recommendations addressed exports to the
21 west coast and the southwest. In my judgment there was --
22 you know, we had California participation. This is the kind
23 of integration between subregional planning that's needed
24 and it's on our "to do" list in the west.

25 COMMISSIONER KELLY: Well, I agree with you and

1 along those lines, do you anticipate California
2 participating in the northwest planning process and in the
3 southwest planning process?

4 MR. MAHER: If I can answer. Yes, we anticipate
5 California entering into the SIGWI process also which is, as
6 you may recall, started out when there was development of
7 three RTOs in the west. That was going to be the seam
8 steering group for the western integration -- western
9 interconnection, excuse me. And they are entering that.
10 The northwest NTAC, I believe it's called, Northwest
11 Transmission -- I don't know, Assessment Committee -- I do
12 not believe that California is in there yet, but I do know
13 that they are being invited into that. So, yes.

14 MR. LARSON: To add to that a bit. Governor
15 Schwarzenegger's office is very interested in the export
16 scenarios in the RMATS work and so there is ongoing dialogue
17 between the model that Wyoming and some of the other lead
18 states and California.

19 COMMISSIONER KELLY: And the -- I read the RMATS
20 study. It's an excellent, excellent study, I thought. And
21 what's happening next with the RMATS states in response to
22 that study? Is there a process going on to get that
23 transmission built and sited -- sited and built?

24 MR. LARSON: There are a number of
25 recommendations in the RMATS report, one of which was for

1 the PUCs in the RMATS footprint to get together on common
2 criteria by which they would evaluate projects. Another
3 recommendation was that the governors of the states convene
4 the likely beneficiaries of the projects and basically call
5 them in the office saying, well, here's the evidence so far,
6 what are you going to do about it? That step has not
7 occurred yet in part because in the five-state region we
8 have two new governors who are elected. So that is
9 anticipated, however, to be the next logical step. And that
10 would then lead to the kind of technical studies which RMATS
11 was not. RMATS was an economic screening study, not a load
12 flow kind of analysis. So the hope is, the expectation is
13 that the beneficiaries will recognize one another, they will
14 coalesce around a project worthy of detailed technical
15 study.

16 COMMISSIONER KELLY: Thank you.

17 Charles, you talked about the transmission
18 policies that were implemented in the European Union to
19 better integrate wind. Is that information available, the
20 specifics of those policies available in a form where we
21 could look at them easily?

22 MR. SMITH: Yes, there are two reports
23 particularly that are available, one by the European
24 Commission jointly with the Wind Energy Association and one
25 by the European Wind Energy Association that draws heavily

1 upon the transmission system operator's reports and I'll
2 include both of those references in the remarks that I will
3 file with the Commission.

4 COMMISSIONER KELLY: Thank you.

5 And at this point in time, do you want to
6 highlight any of those policies for us?

7 MR. SMITH: I think that the item that I referred
8 to specifically was a recommendation to remove barriers.
9 Some of those barriers have to do with the way balancing is
10 performed, the way -- what we refer to as "ancillary service
11 costs" are identified, recognized and spread. That's
12 probably one of the biggest ones. The other is balancing
13 energy. But so far a lot of the -- the difference you have
14 to recognize between the European and the U.S. development
15 is that much of the integration in Europe has taken place on
16 the distribution systems. It's only now that they are
17 really starting to implement and look at very large
18 transmission connected wind developments. So the
19 integration problems had been a little different for large
20 amounts of wind on the distribution system. And the
21 barriers have to do with voltage regulation, very technical
22 aspects of the distribution system design and operation.

23 COMMISSIONER KELLY: And on the European
24 transmission system, do you currently -- does it currently
25 have available transmission products which make the

1 transmission of wind the intermittent resource cost
2 effective?

3 MR. SMITH: The bulk of the experience to date on
4 the distribution system has been displacing local energy so
5 there haven't been as heavy movements of or as heavy flows
6 on the transmission system as there are anticipated in the
7 U.S. But the method of cooperation in Europe, I think the
8 transmission products are a little different from what we
9 have here. I don't have a detailed rundown of the
10 transmission products, but the report whose recommendations
11 I recounted identified transmission tariff barriers that
12 would like to be reduced, but there's 15 countries and each
13 one is different. So they're really recommending that each
14 country take a look at its own national policies and amend
15 them as required.

16 COMMISSIONER KELLY: Thank you.

17 Mark, you talked about what PacifiCorp has done
18 and I think you're a leader in the field. Are there changes
19 -- specific changes that you've identified as desirable?

20 MR. MAHER: There has been a lot of discussion on
21 a conditional firm product and for us to move actually
22 farther ahead on looking on how we are going to tweak our
23 tariffs or schedules and try to make better accommodations
24 for intermittent resources, we need to sit down and get a
25 common definition of what we are talking about. Because

1 when I talk to various individuals about what they think a
2 product is needed, I hear everything from a load-following
3 transmission product to something that is a firm strip with
4 just some interruptible periods in it.

5 So I think we need to start with sitting down --
6 and like I said, let's get our smart folks together and sit
7 down and get a common definition or definitions of the kinds
8 of products that we can develop that meet the needs, yet
9 don't have the cost shifts, retain reliability, allow us to
10 get full cost recovery, you know, sort of the punch list
11 that I laid out. So, the workshops that staff has suggested
12 are a great place to start and we're anxious to work on
13 those. But that's where I would start.

14 COMMISSIONER KELLY: Thank you.

15 MS. SIMLER: Mark, I've got a follow-up, if I
16 may, either to you or to Doug. Both of you mentioned, I
17 believe, some of the existing planning processes and the
18 need to go the next step in some of the planning and getting
19 down into some of the more detailed analyses. What time
20 frame are we looking at for that? And, again, will that be
21 done within the existing groups, the SEPs, the RMATS?

22 MR. MAHER: You can start with that.

23 MR. LARSON: I don't have a time frame. The
24 first phase of RMATS ended on September 29th. The objective
25 of -- one of the items was the PUCs in the region getting

1 together. There is hope to have some kind of interim report
2 back to their colleagues in April. They just had their
3 first conference call last week. So I don't have a good
4 time frame. In all candor one of the -- the processes we
5 have in the west are voluntary processes. And it has its
6 strengths because it brings a lot of expertise to the table,
7 it brings political commitment to the table, and it has a
8 downside too. And the question is, how sustainable are all
9 the follow-on activities? They were sustainable in the CATS
10 process. We are optimistic they will be sustainable in the
11 RMATS process. We don't have a time frame.

12 MR. MAHER: I don't have a time frame either.
13 And just to pick up on Doug's point, it is voluntary effort
14 and we put a lot of resources into the initial studies. I
15 have been talking with our folks to look at more stability
16 studies, load studies that we could produce in the next
17 phase and I got a lot of eye rolling because there's a lot
18 of work to be done in just sort of our basic workload.

19 There's a number of efforts that I think need to
20 coalesce and I think Doug talked about it. There's a WECC
21 has a planning forum in which planners come together and
22 make sure that you're not stepping on someone's footprint
23 there. And then RMATS that Doug talked about and Lee talked
24 about more. The SIGWI Studies, and I saw an e-mail just
25 yesterday that SIGWI is sort of changing its complexion, it

1 is outreaching, it's trying to bring control areas in now
2 and is looking to have a structure and to actually collect
3 dues, and to try to get a permanent staff. And I think that
4 SIGWI may join up with RMATS and start doing studies and I
5 think that's a hope for us is to get some paid staff. As
6 Doug said, it's voluntary. And so we need to get some
7 traction there.

8 MS. SIMLER: Thank you. Part of my question was
9 generated from -- at least my perception of -- you know, the
10 overall or the big picture timing on wind development.
11 We've got the production tax credit, the governor spoke
12 about, you know, hopefully getting investment tax credits.
13 We have the states working on implementing the renewable
14 portfolio standards and so from the perspective of kind of
15 like the tariff side, the FERC will sell market side, you
16 know, how fast are we looking at making, you know, possible
17 tariff reforms or sitting down and talking about tariff
18 reforms to make sure that we get the benefit of these, you
19 know, efforts at the state and the state legislative levels.
20 So I was just wondering if there was some sort of timing
21 issue that we need to be well aware of?

22 MR. LARSON: Again, let me emphasize, I think
23 these are two related, but separate items. I think you have
24 the authority right now to improve the administration of the
25 tariffs for the existing wires and you ought to move ahead

1 and do that as soon as possible. The transmission expansion
2 adding more wires is on, hopefully a long -- I mean, it is
3 on a longer track than the reforms you could make in the use
4 of the existing system. But we are -- we actually do build
5 transmission in the west. I mean, we have built more
6 circuit miles than all the RTOs combined in the last few
7 years.

8 So things do get done, they are probably not
9 being done at the speed that we would all like, but we are
10 getting wires. But we are getting wires. But I think
11 there's real opportunity for the Commission to sort of fix -
12 - take advantage of the policy momentum, the economics right
13 now by fixing existing transmission tariffs and then we'll
14 push ahead with new wires.

15 MS. SIMLER: Thank you.

16 COMMISSIONER BROWNELL: So, Doug, could we -- we
17 then could expect, if we took the initiative to initiate
18 tariff reforms, the support of your organization and the
19 governors as well as the support of the many, many, many
20 groups that have grown up in the west?

21 MR. LARSON: The governors already have a policy
22 that to encourage reform of control area practices to
23 accommodate intermittent resources, so you have the sort of
24 political score.

25 One of the things we are missing is the basic

1 understanding of how 888 and 889 are being implemented. And
2 I think that's sort of the next step to get the support of
3 people like the PUCs in the west and the like is to build
4 this common understanding of what this -- how the current
5 system is being operated under 888 and 889 and what are the
6 opportunities. I think it's probably very fertile ground
7 for support here.

8 COMMISSIONER BROWNELL: Okay. I think that's a
9 good suggestion and we'll pursue that. I think we're also
10 going to have some conversation today and I know Roger
11 Hamilton has worked hard to create some recommendations for
12 model tariff reform. So I think the study you recommend is
13 good. We've got a lot of studies and we haven't really made
14 much progress. So I think what we are looking forward to is
15 in fact acting on your recommendation that we leverage
16 existing transmission as quickly as we can.

17 And, Mark, I appreciate that SIGWI might join
18 RMATS. RMATS has really made huge progress and what I -- I
19 would love to see these many groups consolidated. What I
20 would not want to see is the RMAT project, which has been so
21 successful thanks to the leadership of those governors, I
22 wouldn't want to see that slow down. So, SIGWI has a vision
23 in mind that they want to actually accomplish something at
24 the speed at which RMATs has been working, that's terrific.
25 Otherwise, maybe they can continue to do whatever it is they

1 do.

2 MR. MAHER: I can appreciate that. And, yeah,
3 it's a bit frustrating, there's no doubt about it, you know,
4 the development of RTOs in the last -- and I think I may
5 have overstated that they're joining. The people who work
6 in SIGWI also work in the RMATS and they are doing studies
7 and have the production cost database essentially the same,
8 so there's a lot of interactions there. I don't see the two
9 efforts actually merging. But, it's almost shared staff at
10 this point.

11 COMMISSIONER BROWNELL: Thank you.

12 CHAIRMAN WOOD: What do you see as the potential
13 for the thing about what the governor said and what I heard
14 in the WGA meeting in Albuquerque last year, what do you see
15 as the potential for a lot of DC transmission that would go
16 from the cold wind regions into the load center, say, in
17 California and the southwest?

18 MR. MAHER: We hear a lot of talk about it. And
19 there are some proposals that I think are starting to get
20 floated that do address that. But we haven't seen any dirt
21 flying yet. And I think like most transmission projects,
22 you know, if you have a good business plan it will get
23 built. You know, if you're building on the come, it's a
24 little more difficult to get that financing and get that
25 moving. So unless there's a real wildcatter out there with

1 lots of money that wants to build that DC line, I don't see
2 it happening yet. I know the Wyoming -- what is it, the
3 Wyoming infrastructure authority is trying to coalesce coal
4 developers and get a critical mass going and intersect that
5 with interest in transmission or DC development out of
6 Wyoming. But that's as much as I have seen.

7 CHAIRMAN WOOD: Going on some of the specific
8 issues that PacifiCorp has tried to address, there is a
9 chart, and I don't know if we've got that one in the staff
10 report that went out beforehand that's assessing the state
11 of wind energy. You all might have seen that. There was a
12 chart, there was also one that was in the PacifiCorp white
13 paper from January this year.

14 MR. MAHER: Right.

15 CHAIRMAN WOOD: Kind of a bar chart that compared
16 the charges that are assessed on wind power in the different
17 control areas versus what the charges are for like a CCCT
18 type power. And, Mark, which one are you looking at, the
19 FERC one or the one from --

20 MR. MAHER: I've got yours.

21 CHAIRMAN WOOD: Okay. Great. That's the one I'm
22 looking at too. And for the folks who don't have a copy of
23 it, what it shows are bar charts that are cost comparisons
24 for wind, cost comparisons of transmission of wind, and it
25 includes losses, transmission, other ancillaries and

1 imbalance charges. And it looks at CAL ISO, APS, VESTA,
2 PGE, PacifiCorp, BPA and Idaho Power. And I'm looking at
3 PacifiCorp and if you could just kind of, just to help me
4 understand these things, break out how those charges are
5 assessed there? So that means, if you've a wind generator
6 attached to the PacifiCorp transmission grid --

7 MR. MAHER: Right. I think the -- I wasn't
8 around when they developed this, but I'll work through it
9 with you. The bottom part of that bar are the losses and
10 they appear to be equal with wind and other generation
11 resources. Then there is a difference in the actual
12 transmission charge. And that gets to the variability of
13 wind, I believe. And to purchase transmission it is
14 purchased on the actual capacity that's needed. And I think
15 that this is calculated such that you're paying
16 transmission. This transmission reflects the cost of moving
17 that energy across the system. And so they're actually
18 buying transmission they're not using and I think that's
19 what that is reflective of.

20 CHAIRMAN WOOD: So if you had that curtailable
21 firm or that, you know, semi-firm or whatever calling that
22 kind of in-between service that we have on the natural gas
23 side, would that be a way that you could avoid having to buy
24 the needle peak amount of transmission service and could
25 drop that lilac-colored charge down to parity with the gas?

1 Or would you not really be able to change that?

2 MR. MAHER: I think you could change it somewhat.
3 But, again, it comes back to, what is that definition of the
4 product that we're going to have? And then I think we can
5 get at how you apply charges to that that, you know, fully
6 recover the costs of that transmission and doesn't shift
7 costs off to others to bring their product across.

8 So, I would --

9 CHAIRMAN WOOD: I mean, just to shift to Robert
10 for a second --

11 MR. MAHER: Sure.

12 CHAIRMAN WOOD: -- as a wind developer, is the
13 kind of where you could -- the firm transmission service
14 that's got some shaving off the top and maybe for the -- I
15 don't know -- 5 percent of the hours in a year you would not
16 actually have firm service, but you would have it for the
17 rest of the year? I don't know exactly what is it he
18 financiers want to have.

19 MR. SIMS: Well, if you're looking at a situation
20 where it would be curtailable due to system emergencies,
21 most of these paths have a long historical record of those
22 emergencies.

23 CHAIRMAN WOOD: So you know what it is.

24 MR. SIMS: You could present to the financiers a
25 probability of the risk and that could be taken into

1 consideration in the interruption of the project and that
2 could be managed.

3 CHAIRMAN WOOD: Okay. So by probability you
4 would look at some of the data like was in Doug's chart for
5 some of the -- and you would know the paths?

6 MR. SIMS: Yes, so you look at a specific path
7 and you know that the capacity that is being allocated to
8 you perhaps on a semi-firm basis is available 99 percent of
9 the time then that's been the case over the last 15 years.

10 CHAIRMAN WOOD: Okay. Got it.

11 All right. Back to the bar chart, Mark. I see
12 the red which is other ancillaries is about at parity and
13 then the imbalances, you mentioned some of the -- would this
14 bar chart reflect some of the changes you all have
15 implemented on your tariff? Because I notice yours --

16 MR. MAHER: Sure, look at our compared to the
17 rest --

18 CHAIRMAN WOOD: Yes.

19 MR. MAHER: -- there and that is a direct result
20 of the scheduling flexibility that we put in.

21 CHAIRMAN WOOD: Now, the reason why your
22 transmission would be high and PGE's would be nonexistent is
23 because they're just not much of it there?

24 MR. MAHER: They are pretty nonexistent in the
25 transmission world.

1 CHAIRMAN WOOD: And so if you're building a wind
2 facility in -- I don't know what's a good windy profile up
3 in your service territory? Oregon? Somewhere in Oregon?

4 MR. MAHER: Probably or in Wyoming.

5 CHAIRMAN WOOD: Okay. And you're sending it over
6 to, say, Seattle, you would have to grill through a couple
7 of these different utilities. So all of these would be
8 additive?

9 MR. MAHER: Yeah, there's a lot of pan caking
10 you're looking at. Yeah.

11 CHAIRMAN WOOD: I mean, where is there policy
12 direction, I mean, I remember we approved --

13 MR. MAHER: It's the RTOs.

14 CHAIRMAN WOOD: We approved the order for RTO
15 west over two years ago and one of the big features of that
16 was pan caking and I know certainly not the wind -- the wind
17 people weren't the only people that wanted to get pan caking
18 out of the way, but is there any progress on pan caking or
19 any of these things?

20 MR. MAHER: Well, probably the most -- there
21 really isn't a lot of progress. But there are discussions
22 with PacifiCorp, Bonneville, and Idaho Power on collapsing
23 control areas. And that should lead to at least those three
24 systems coming up with, you know, a depancaked arena. But,
25 again, you know, that's not on a fast track at this point.

1 We are initiating discussions.

2 CHAIRMAN WOOD: And what's driving that?

3 MR. MAHER: The desire of those three entities to
4 have an RTO and to move ahead on that. So three large
5 players in the transmission arena in the northwest, if we
6 can come together and operate as one, hopefully, you know,
7 that's a catalyst to move the rest. But that's where we
8 are.

9 CHAIRMAN WOOD: Is there anything we can do to
10 help on that? Because I was pretty excited when I saw that
11 headline about four or five months ago that that was moving
12 forward, but I just hadn't heard anything since.

13 MR. MAHER: Yeah, can I talk to you after?

14 CHAIRMAN WOOD: Sure.

15 [Laughter.]

16 MR. MAHER: Okay.

17 CHAIRMAN WOOD: I can't wait. And on to the
18 imbalance issue, I notice we do have some high imbalances.
19 Is that because of some of the issues we've just discussed
20 with most of the earlier on tariffs? Maybe, Robert, is that
21 something -- I know --

22 MR. SIMS: As far as the imbalances in the chart
23 here?

24 CHAIRMAN WOOD: Yes, like APS has got a higher
25 rate, or Vista, Idaho.

1 MR. SIMS: Yeah, I think those would be the
2 traditional implementation of the 888 tariffs where if you
3 miss your schedule, you're responsible for imbalances that
4 are structured on a punitive basis rather than a cost basis.
5 Whereas I think, you see the difference in the PacifiCorp
6 number where as Mark mentioned, they are working more based
7 on a cost basis or with a small mark up. So you can see the
8 dramatic change in the PacifiCorp number. Yeah, and also
9 Bonneville, again, is more on a cost basis rather than a
10 punitive basis for the imbalances. Because, of course, if
11 we deviate from our schedule it's not because we're trying
12 to gain the market or to do something, we're just not in
13 control of that.

14 CHAIRMAN WOOD: Great. Thanks for the help.
15 Jamie.

16 MS. SIMLER: Thank you for your patience.

17 MR. MOSES: My name is Edwin Moses from Maritime
18 Capital. A couple of things building on that whole
19 conversation. I thought, Charles, I caught something that
20 you said was in the studies they've done in Europe, .2 cents
21 per kilowatt hour was the actual -- the real expense of
22 integrating intermittence.

23 MR. SMITH: I was speaking about externalities
24 with that .2 Euro cents per kilowatt hour for wind compared
25 to 2 to 15 cents per kilowatt hour for coal.

1 MR. MOSES: To make sure I'm right, does that
2 mean sort of the cost of integrating wind is about \$2 per
3 megawatt hour?

4 MR. SMITH: No, these were costs, the socially
5 driven examination of the health and environmental benefits
6 or costs associated with energy production. They were not
7 what we call the ancillary service costs of integration and
8 those costs we've examined, I think, more carefully in the
9 U.S. than in Europe based on conferences that a number of us
10 have looked at and tried to compare numbers. In the U.S.
11 we've seen numbers in the \$2 to \$5 a megawatt hour range for
12 penetrations ranging from about 5 to 20 percent.

13 MR. MOSES: Okay. And what made me think of that
14 was, Mark, you mentioned you have a product and from a
15 finance perspective I have to point out that a fixed known
16 cost is much better for us than even a 99 percent with a
17 slight unknown cost that could happen at any time. We would
18 respond to that by perhaps charging, you know, \$10 to make
19 up for that.

20 So, Mark, in the pricing of your products, is
21 that in the range with what Charles has said? Or how do you
22 determine the pricing of this transmission product and is it
23 five or six bucks or two bucks?

24 MR. MAHER: No, the pricing is the same as a
25 point-to-point right now. And they are not charged for that

1 not-available period. But if you choose to carry it
2 through, it's like any other point-to-point contract where
3 you have an alternate point of delivery and so you just pay
4 the full rate.

5 MR. MOSES: But they're paying you a fixed price
6 for ten years to guarantee the delivery during that 95
7 percent time of 90 percent time?

8 MR. MAHER: Yes.

9 MR. MOSES: And that's who sets the price and I
10 imagine in your service area only you can set that price?

11 MR. MAHER: Yes. It's, you know, FERC approved,
12 yeah.

13 MR. MOSES: And so it's FERC approved and does
14 FERC have any basis for really understanding the cost of
15 providing that service in order to get that approval?

16 MR. MAHER: You want me to answer?

17 [Laughter.]

18 MR. MOSES: I guess I'm suggesting that there is
19 potentially a monopoly situation and potentially a floor
20 price that could be looked at. And I really wanted to
21 compliment Charles on, you know, the European market is 75
22 percent of the wind market and they can't supply solutions
23 to the U.S. certainly, but they definitely will have
24 insights. And in this specific case there is a cost of
25 implementing wind and there is various products by BBO and

1 PacifiCorp for mitigating some of that cost, but I'm not
2 sure if the two are directly related. And it might be an
3 ideal position for the FERC to look at.

4 MS. SIMLER: Thank you.

5 MS. WHITE: Actually, I had a follow-up question
6 for both of you in terms of how do we count those
7 externalities? Should we be counting the cost of those
8 externalities or -- anybody can answer it, but, you know,
9 how does that affect a project developer's risk profile?

10 MR. MAHER: I guess I would say, what we do is we
11 look at predictability of revenues. The more predictable,
12 the more we are guaranteed that the energy is going to get
13 to market and it's going to get paid. We can handle the
14 wind risk, and we can offer a cost of money to install the
15 projects.

16 As you get less and less predictable, our cost of
17 money has to go up. And in fact, in some instance in
18 California when we were looking at this in the late 1990s we
19 would decline to invest in certain projects when the
20 imbalance question essentially made the predictability
21 completely unknown. You could lose six months worth of
22 revenue in one imbalance situation. In a circumstance where
23 the wind project that you're working with is not producing
24 and the wind project, you know, ten miles away, 50 miles
25 away is over producing and there's really no net cost to the

1 system. But it's just the rules were set up for
2 dispatchable power and we declined to look at some of those.

3 MS. WHITE: So are there any parts of the OATT
4 tariff as they exist now that make it particularly difficult
5 for you as a developer that we could help on our end?

6 MR. MAHER: Well, I'm actually a financier. So
7 it's --

8 MS. WHITE: I meant -- okay.

9 MR. MAHER: -- I would say it's too complex to
10 really comment at this time.

11 MR. SIMS: Maybe I'll respond to your question
12 being the developer. Of particular concern are the
13 imbalance charges. If they are structured on a punitive
14 basis they can basically put a project underwater as
15 mentioned in a matter of weeks. So that is a key problem.

16 MS. SIMLER: Jim.

17 MR. BYRNE: My name is Jim Byrne. I was the
18 facilitator for the phase one effort at RMATS. And I know
19 the next panel is dealing with the planning issue, but the
20 questions of Commissioner Kelly and Commissioner Brownell to
21 Doug and Mark raised the issue of planning in this session.
22 And as they indicated, it's problematic in the west because
23 the planning effort is done on an ad hoc basis primarily and
24 a volunteer basis. RMATS would not have happened but for
25 the contributions of PacifiCorp which I have to presume came

1 out of PacifiCorp's bottom line.

2 And SIGWI and West Connect face the same problems
3 of getting money for staff, for planning efforts on a
4 regional basis out of their members or participants.

5 Mark has served on the board of WECC and knows
6 there's a continuing battle within the organization on
7 whether there is going to be planning money and how much and
8 who is going to pay. And I'm thinking, well, transmissions
9 by and large are regulated service, therefore, is this a
10 regulatory problem? And is this one FERC can solve?

11 FERC has a policy of incentives on the investment
12 side for new transmission, but do we have a problem with
13 regulatory lag on the planning side? Because the folks who
14 have to deal with the getting the money together to get
15 staff and to do technical studies all have to go back to
16 their board to find out whether they're going to have that
17 money. WECC has to go to its board to see whether its
18 members should contribute. And we're talking about a
19 regulated service here. So is there some kind of mechanism
20 -- dare I call it an incentive -- that could be built into
21 transmission service rates that would assure a funding
22 stream of some kind for these kinds of efforts, even if we
23 don't have our act together yet for an RTO or a formal
24 planning organization, we certainly don't have our act
25 together on funding those efforts that we do attempt.

1 CHAIRMAN WOOD: Jim, that's some excellent
2 points. I think the thing we have seen across the country
3 that happens with these organizations, RTOs, but other type
4 organizations is if they have an independent type governing
5 structure or a set up governing structure that is done and
6 they have the authority to file a tariff and collect money.
7 So I don't know if you want to bury that a step away from
8 the process or, you know, have an adjunctive WECC do all the
9 planning, or, you know, whatever it is, but that that person
10 have tariff authority which we can offer, it doesn't cover
11 the non-FERC jurisdictional areas, so it's not going to be
12 totally equitable across the west. But, you know, having an
13 ability to assess a tariff is a pretty big deal. And if you
14 assess it on all the transactions in the west, you know, it
15 is a planning tax, but it is a pretty transparent way to
16 collect money.

17 MR. BYRNE: We are in an OATT world and we don't
18 have an RTO to establish a tariff. So we are talking about
19 the individual tariffs of all the transmission operators in
20 the west, and that's a large problem, but it's not one
21 that's not being addressed in my opinion.

22 CHAIRMAN WOOD: Could you put a charge in OATT
23 that would be used for that purpose?

24 MR. BYRNE: You are the guys that can do it. So,
25 I would assume yes.

1 CHAIRMAN WOOD: How do you break out of it being
2 that it would still be utility centric, that PacifiCorp
3 would take care of PacifiCorp's planning needs, you know,
4 they're probably doing that fine. It's the inoriginal stuff
5 that we're worried about.

6 MR. BYRNE: All of these, either the formal
7 organization of WECC, which when it was formed was
8 prohibited from doing expansion planning because we were
9 going to have RTOs in a couple of years. I understand they
10 have at least removed the prohibition, but there is still
11 not on the board of WECC, as I understand it, the policy to
12 move ahead and actually do expansion planning at WECC.
13 There is still a tension between developing RTOs and WECC on
14 that issue. But nonetheless, you have a process there to
15 most of those funds over time are collected through tariffs,
16 but either through regulatory lag or the lack of incentive
17 for planning that money does not occur. There's a battle at
18 WECC every year on that. These ad hoc organizations like
19 RMATS or SIGWI or the planning that's going on at
20 WestConnect in the southwest, or CATS or STEP, they're all
21 dependent on volunteer efforts of people by and large who
22 are -- whose transmission revenues are under FERC
23 regulation.

24 CHAIRMAN WOOD: Matt had his card up for a while.

25 MR. BROWN: I wanted to mention a couple of items

1 that came to mind, I guess, particularly in response to some
2 of your thoughts and questions, Commissioner Kelly,
3 regarding financing. And there are some efforts which are
4 underway at the state level that would address financing of
5 transmission.

6 There is one state now that has a transmission
7 financing authority and that's been around for -- well, it's
8 still at very early stages of development. But I think
9 what's interesting to me -- that state is Wyoming. What's
10 interesting to me is that there are other states, New
11 Mexico, as I'm sure you're aware, Utah is looking at doing
12 the same thing; Montana is looking at doing the same thing;
13 North Dakota is looking at the same thing. This is, I guess
14 I would characterize it as a new trend, potentially, in the
15 way that states and state legislatures are looking at what
16 they can do, what's under their jurisdiction to help in
17 financing. Or if not financing, then in at least
18 facilitating development of new transmission.

19 So I think that's an important thing. The State
20 of Kansas also has provided some ability to use -- and I'm
21 not as clear on this, but some ability to use essentially
22 state bonding for financing of transmission as well.

23 COMMISSIONER KELLY: Wyoming -- well, these
24 transmission authorities, I am familiar with them. Do they
25 allow for State ownership or is it just a financing vehicle?

1 I suspect it could be set up either way. That's one
2 question I have.

3 Secondly, if it's not funding of state-owned
4 transmission lines, do they target financing to particular
5 types of transmission companies, for example, independent
6 transmission companies? Because we look at the kind of
7 transmission needs that are arising and they're not the
8 traditional transmission needs that are certainly regularly
9 funded by integrated utilities who are interested, of
10 course, in having transmission from their generation to
11 their load, but here we are talking about a transmission
12 infrastructure that doesn't have precisely that focus and
13 the integrated utilities by and large would -- I would think
14 not be interested in, in going through all the hassle of
15 siting and building a transmission project like that.

16 MR. BYRNE: These facilities or these
17 authorities, first of all, they only exist in one state at
18 this point in the very early stages of development and it's
19 proposed there's legislation being drafted, or that's been
20 drafted in other states.

21 In general, my understanding is that they would
22 not necessarily contemplate state ownership of the actual
23 facilities, although one of the ideas of setting up an
24 authority is that an authority can do a lot that the state
25 itself could not do. So it's kind of like a quasi-state

1 entity.

2 My sense is that the philosophy in general is
3 that state ownership or even necessarily a state equity
4 stake in the transmission would probably be a kind of a --
5 not necessarily a last resort, but kind of far down the line
6 among a number of options in order to get the transmission
7 built. The idea is to figure out where the authority can
8 step in when the private business isn't getting the job
9 done, whatever the job -- however that job happens to be
10 defined. And then as far as whether that -- I don't think
11 that the answer to that second question has been defined at
12 this point.

13 COMMISSIONER KELLY: Whether they target
14 independence, you mean?

15 MR. BYRNE: Correct. That I don't think has been
16 defined. I think it's still at an early enough stage of
17 development. The idea here, as you pointed out here is in
18 many of these cases looking to export power, this is an
19 economic development tool more than anything. In many cases
20 a combination of these states or all states with a lot of
21 wind and a lot of coal and so looking to export power from
22 those markets.

23 COMMISSIONER KELLY: Is it also looking to
24 finance a transmission project that is requisitioned, if you
25 will, by the state? As opposed to traditionally it's the

1 entity within the service area that decides to construct it.
2 Of course, the problem is that -- one of the problems is
3 that the transmission lines go across service areas. So who
4 is going to construct it? But I see a lot of power in
5 having the state say there's a cross-service territory need
6 here and we're going to put out an RFP or we're going to
7 request that this be built. That lead to maybe how do you
8 get it funded problems.

9 MR. BYRNE: Yes, and I think integrating these
10 transmission authorities that are happening in individual
11 states and allowing them to coordinate with one another is a
12 -- I think is one of the kind of ultimate objectives, but,
13 yes, I think integrating those transmission authorities into
14 the larger planning perspective into a kind of larger
15 planning perspective from the perspective of a statewide
16 planning as opposed to individual entity planning, certainly
17 is one of the ideas underlying it. But, again, it's so
18 flexible, I guess, at this point in that these don't exist
19 in many of the states and at very early stages of
20 development in Wyoming.

21 COMMISSIONER KELLY: What it does underscore
22 though is that there is a need.

23 MR. BYRNE: It underscores the need. I think it
24 underscores different kinds of motivations and in this case
25 it's the economic development motivation for sure.

1 COMMISSIONER KELLY: Thank you.

2 COMMISSIONER BROWNELL: Just a couple of quick
3 questions. Matthew, what is the discussion at NCSL about
4 the siting issue, that is the elephant in the living room
5 and the degree of uncertainty it creates makes financing
6 impossible regardless of the structure you have, I think.
7 Is there any discussion about resolving that issue either on
8 a state level or a regional level?

9 MR. BROWN: We are working with our sister state
10 organizations, National Association of Regulatory Utility
11 Commissioners, National Association of State Energy
12 Officials, National Governors Association to try to
13 essentially improve, find ways to improve the state siting
14 process for transmission.

15 I guess that our general take on this issue is
16 that state siting processes can and do work. But there's a
17 real need to really encourage states to work together on a
18 regional basis in transmission siting. We are actually at
19 NCSL undertaking an initiative to develop some sample
20 legislation that would essentially allow or encourage state
21 utility commissions to work with their neighbor commissions
22 or with other commissions in their region.

23 Often what we have found is that commissions are
24 reluctant, as you probably would recall from your days on
25 the Commission, commissions and commissioners are reluctant

1 to work with neighboring states without some kind of
2 authority or encouragement from their state legislature to
3 do so. So we are really -- we are trying to encourage that
4 kind of regional perspective in transmission siting.

5 The other side of it is that we are looking at
6 finding ways and helping states to find ways to improve
7 their own siting process. As an example, the state of
8 Kansas has a siting process for transmission that says that
9 there is no requirement that a transmission owner,
10 transmission builder acquire a new permit for an upgrade of
11 an existing line or a new lines on existing rights of way.
12 That was put in place either last year or the year before.
13 It may have been two years ago. There's a couple of states
14 that have that kind of provision in place.

15 Streamlining is sometimes a dirty word, but I
16 think making that distinction between areas where its truly
17 difficult to site a line and for legitimate reasons and
18 situations where there's probably not a lot of reason to go
19 through that full siting process. So I think there's -- I
20 guess in summary, one, the regional aspect of it, and the
21 states are looking at finding ways to really work together
22 and we are helping them with that. And, second, is looking
23 at the individual state processes.

24 So I think there's a lot going on. I think state
25 processes really can work quite well. So that's the

1 perspective.

2 COMMISSIONER BROWNELL: I actually have never met
3 anyone other than you that thought the state processes
4 worked well, including in Pennsylvania. So you are seeing
5 things we are not seeing.

6 MR. BROWN: Well, yeah, I think state processes
7 can work well. I would be remiss, certainly, if I didn't
8 say there was certainly room for improvement. And there
9 certainly is room for improvement.

10 COMMISSIONER BROWNELL: Thanks. I just wanted to
11 comment, Lee, on your presentation. We hear a lot about the
12 problems of individual policies within your organization and
13 some of your sister organizations as a barrier to -- siting
14 as a barrier to effective vegetation management. So I'm
15 hoping that we can take a look at what you've done and
16 create a template and export it to other agencies and maybe
17 export it to other kinds of issues that we're dealing with.

18 So I commend you for your work and look forward
19 to seeing the final project. You said in June or July?

20 MR. OTTENI: July is our hope, yes.

21 COMMISSIONER BROWNELL: Right. Thanks.

22 MR. OTTENI: Thank you.

23 MS. SIMLER: We will take the comment from the
24 gentleman in the audience, and then Doug.

25 MR. FREEMAN: Thank you. My name is Bryce

1 Freeman. I am actually from Wyoming and I guess fortuitous
2 for this morning I am actually currently serving on the
3 board of the Wyoming Infrastructure Authority. So, I
4 thought I would just offer some information about the
5 authority and the work that we are doing, maybe to clear up
6 some of the things that Matthew said. And Matthew did give
7 a pretty good background about what we're all about.

8 The Wyoming infrastructure authority is an
9 organization that was created by the legislature in the 2004
10 session, so we've only been around since the first of July.
11 But we have tried to cover a lot of ground in that period of
12 time.

13 The Infrastructure Authority is not a state
14 agency. It doesn't represent the state of Wyoming as a
15 government entity. As a matter of fact, the statute calls
16 it an instrumentality of the state. It's a body --

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1 MR. FREEMAN: And so there is a provision in the
2 Wyoming Constitution actually that prohibits the State from
3 owning infrastructure and facilities that would compete with
4 private enterprise.

5 So the way that the State got around that,
6 obviously the way that they could do that is just to
7 appropriate money from the General Fund, give it to state
8 agency and say, go build transmission.

9 That's not allowed by the State Constitution, so
10 they created this infrastructure authority and gave it the
11 authority to issue up to a billion dollars in revenue bonds
12 that could be used to finance transmission infrastructure
13 that could be either owned by a third party.

14 Owned in partnership with the infrastructure
15 authority and a third party or owned and operated entirely
16 by the infrastructure authority. So there is that provision
17 in the statute that would allow the infrastructure authority
18 actually to own and operate transmission facilities.

19 We don't think that's a particularly viable model
20 in the Western Interconnection. We are actually more
21 interested in developing partnerships. We see our roll as
22 kind of an aggregator because the types of transmission
23 projects that really would generate consumer benefits in the
24 way of reliability and access to more affordable power in
25 the west are very large projects.

1 They are the type of projects that were
2 identified in the RMAISS report, particularly in the
3 recommendation to report. And those types of projects
4 aren't going to be able to be built by a single entity and
5 certainly not going to be able to be financed by a single
6 entity.

7 So we kind of see our role as an aggregator of
8 generation projects of loads that may be interested in
9 having access to those and also as a conduit for financing
10 those projects.

11 One of the things that is pretty significant
12 about the statute that created the infrastructure authority
13 is it did give us the right of eminent domain within the
14 State of Wyoming.

15 Obviously, most of the projects that we're
16 interested in, because we don't have a whole lot of load in
17 Wyoming, would be to export load and we certainly don't have
18 eminent domain authority outside the State of Wyoming but I
19 think that's an area where we've been actively working with
20 folks from Montana, in particular, Utah, and some of the
21 other states that are looking at this type of regulation so
22 that we can help them understand the pitfalls and the things
23 that we are challenged with in our own legislation.

24 And so certainly to the extent, as Matthew said,
25 that we can work with these other states in their efforts,

1 whether its through an infrastructure authority or some
2 other body, to kind of advance a multi-state way of
3 financing a transmission.

4 We're certainly open to that, as well as not only
5 the vertically integrated utilities, but all of the other
6 stakeholders that might be interested in financing.

7 So that's kind of where we are at with the
8 infrastructure authority. I guess I would say that I think
9 it's a great opportunity. It certainly presents great
10 opportunities for the State of Wyoming to not only enhance
11 its own economic development, which of course, we would be
12 disingenuous to say that we're not interested in advancing
13 economic development, but I think there has been a number of
14 studies done, including the RMATS study that shows that the
15 development of generation in remote areas, wind generation
16 certainly included.

17 The RMATS study specified that probably a little
18 less than half of the generation that was assumed to be
19 developed in the RMATSS regions, would be from wind.

20 So certainly it presents a tremendous opportunity
21 for Wyoming and the other RMATS states. But I think there
22 is also a great opportunity for other states in the West to
23 benefit from the development of those low-cost resources
24 that are remote from load and need transmission to deliver
25 their energy to markets.

1 And I guess I would just -- I'd certainly be
2 happy to answer any questions the Commission might have. I
3 did want to make one other observation as long as I'm here.
4 I wouldn't have made it if I didn't feel compel to offer
5 some information on the infrastructure authority.

6 But, I think the Commission probably knows and
7 certainly some of the Panelists, Doug, knows that we have
8 been actively engaged over the last three or four years,
9 actually since the Indigo days in trying to get a regional
10 transmission organization established and one that works for
11 at least the Northwest and hopefully one that works for the
12 entire Western interconnection.

13 And one of the questions I wanted to ask Doug and
14 certainly anybody else on the panel is, I have always said
15 that we need to make first, make better use of the existing
16 transmission capacity that we have now because in my view,
17 the assets that we have and the way that we manage the
18 capacity on the transmission system, is pretty inefficient
19 when you look at the contract paths that are managed and
20 they're not managed the same way that power flows on the
21 system.

22 I guess my question is, is it good to look at the
23 way that available transmission capacity is established and
24 try to reconcile that with actual flows on the system but
25 ultimately, does it make sense that we need to arrive at a

1 point where we actually manage the system on a flow basis,
2 rather than on a contract path basis?

3 MR. LARSON: This is Larson speaking only for
4 myself. The answer is yes. It makes sense to manage the
5 system on a flow basis.

6 But in the meantime, we have hopefully the
7 ability to squeeze out of 888 as much as we can, in terms of
8 capacity.

9 MS. KELLY: Bryce I have two quick questions for
10 you. Does any state agency have to approve your exercise of
11 condemnation authority?

12 MR. FREEMAN: No. And as a matter of fact, at
13 least within the State of Wyoming, and we're admittedly
14 still feeling our way through a lot of this stuff. We know
15 that we are going to have a relationships with the
16 Commission. We don't know what that is and we're getting to
17 the point where we are going to want to sit down with you
18 folks to figure out what our relationship will be.

19 But as far as the State Public Service Commission
20 goes, the law specifically exempts the WIA from any
21 jurisdiction of the State Public Service Commission.

22 MS. KELLY: And when you look to aggregate
23 generation and load, do you look outside the State for
24 either or both of those?

25 MR. FREEMAN: Yes, as a matter of fact, we have -

1 - we've been talking to everybody that we can think of.
2 We've solicited conversations with people that we know are
3 interested and we've also entertained conversations with
4 people that have approached us.

5 And those include large loads, they include
6 generators within the State of Wyoming, they include state
7 agencies and government officials outside the State of
8 Wyoming.

9 MS. KELLY: Have you tackled yet the problem of
10 how that transmission projection would be paid for?

11 MR. FREEMAN: That has been a consuming substance
12 of our initial discussions. You know, the way the
13 Infrastructure Authority is set up, we don't have the
14 ability to have access to cash that we could put into the
15 put necessarily.

16 Although we are making a budget request in the
17 next session to get additional loans from the State's
18 treasurer's office, those loans will have to be paid back.
19 We initially had a loan of \$250,000 to kind of a token to
20 get things going and everything, and we quickly discovered
21 that that wasn't going to even put us on the map.

22 So in this next session, we're hoping that the
23 legislature will authorize an additional loan of about \$6.5
24 million for us to get going.

25 But to the point of financing, the Infrastructure

1 Authority is really no different from anybody else out there
2 that's trying to finance transmission infrastructure. We
3 think that while there is some small window of opportunity
4 in the Internal Revenue Service Code to possibly do a tax
5 exempt financing, we don't think it's going to be practical
6 in the long run.

7 So we think that the bonds that we issue will be
8 taxable bonds, will have to convince whoever is potentially
9 interested in buying those bonds that they are secure, that
10 we have a revenue stream that will pay those bonds back.
11 That they are low enough interest rate that since they are
12 going to be taxable bonds, in all likelihood that they will
13 be a low enough rate that they will be attractive to
14 investors in the market.

15 So really, all the same types of things that
16 PacifiCorp or FDL will be looking at when they're trying to
17 invest and finance infrastructure.

18 MS. KELLY: Well, if you have any thoughts about
19 how we might reform regulation to help you with the revenue
20 flow, we sure would appreciate your thoughts.

21 MR. FREEMAN: And we certainly would appreciate
22 the opportunity to have some discussions with the Commission
23 as well.

24 MS. KELLY: Thanks.

25 MS. SIMLER: Thank you, Doug.

1 MR. LARSON: Just to add something to
2 Commissioner Brownell's question about collaboration among
3 states on the siting of transmission. The western
4 governors, 12 western governors and actually the Premier of
5 Alberta and four federal agencies have signed an interstate
6 transmission permitting protocol for the purpose of
7 coordinating their reviews of proposed interstate
8 transmission lines.

9 This was initiated in 2002. It has not been used
10 yet because we haven't had a new interstate transmission
11 line proposed in that period.

12 One other item is, I concur siting transmission
13 lines through a state process is extremely difficult. We
14 search the records, we could not find an example where a
15 western state had denied a permit for an interstate
16 transmission line.

17 The major challenge in the west is getting
18 permits across federal lands, and that's why the resources
19 to the BLM and the forest services are critical so that they
20 can do their jobs efficiently and move on with designated
21 corridors.

22 MS. KELLY: Is it correct that there is still a
23 problem among the federal agencies of seriatim approvals as
24 opposed to one synchronized approval process?

25 MR. LARSON: I defer to Lee.

1 MR. OTTENI: We have found in the planning
2 process that we will have a transmission corridor coming
3 across a piece of federal land. The budding piece of land
4 has a transmission corridor that does not sink up. So
5 typically, when we do planning processes, it is by an
6 administrative unit in not looking beyond a particular
7 agency, and certainly not beyond states at this time.
8 That's why we needed a overall analysis.

9 MS. KELLY: And is there anybody who is working
10 on that Lee?

11 MR. OTTENI: The Forest Service and the Bureau of
12 Land Management are ready to go on that planning effort. AS
13 a matter of fact, we thought in the Energy Bill that the
14 money is going to be there. That did not happen, but we had
15 the people in place to start that analysis. But right now,
16 no, we are not doing it.

17 MS. BROWNELL: Has the Western Governor
18 Association made recommendations to the agencies about how
19 they think they could improve that process?

20 MR. LARSON: There are no specific
21 recommendations but those agencies are signatories to this
22 Western Governors transmission of permit protocol under
23 which you would form teams.

24 When a project is proposed you would form a team
25 of all the agencies with permit responsibilities and in that

1 would be, in fact, written into the protocol that the
2 Secretary sign with the governors are provisions for things
3 like sharing information, common request of the applicant
4 for data, common public meeting, so you could get away from
5 the serial treatment of permit applications.

6 MS. BROWNELL: I think the model that has been
7 created by the Western Governors is commendable. We would
8 be interested to see what happens when there is an
9 application and we get the implementation.

10 While I appreciate the fact that no interstate
11 line has ever been turned down, when you talk to
12 transmission providers, largely what they say is, they don't
13 make those applications because they are too concerned about
14 the outcome. They're too concerned about the expense that
15 it will take to get it through a process that they can't
16 count on with any degree of certainty.

17 So I think we don't want to suggest the process
18 is working perfectly because nothing has ever been turned
19 down. Because I think that the experience that people have
20 had makes them just simply unwilling to go through the
21 experience.

22 MR. LARSON: I agree the process is not perfect.
23 We do have examples. We have a 500 kv line that was
24 permanent from mid point Idaho down to the Las Vegas area,
25 which all the permits were issued for. It just wasn't built

1 because there was a financing problem.

2 MS. BROWNELL: I'm not saying it never happens.
3 I'm saying that more does not happen because people are
4 fearful.

5 MS. SIMLER: Well, if there is no other questions
6 or comments I think we are right on time. I hope 12:30
7 local time and with that, I would like to thank the
8 panelists and everybody who had questions and comments. I
9 think we had a productive first session and we look forward
10 to seeing you at 1:15. Thank you.

11 (Recess.)

12 MR. GRAMLICH: I'm Rob Gramlich, I work for
13 Chairman Wood at FERC on generally RTO policies and resource
14 of transmission issues.

15 In this panel we will be talking about
16 transmission issues, transmission planning, which we touched
17 on to some extent in the morning session. I don't think we
18 beat that horse completely dead. We've got an eastern
19 interconnect to talk about. A couple panelists mentioned to
20 me and we're also going to have a contest at the end for the
21 most regional transmission planning entity acronyms. So
22 file your list with me.

23 Generation resource planning is another area we
24 want to cover in this panel as well as operation issues and
25 I want to point out that the last panel we will really get

1 into more detail on some of the tariff issues but there is
2 some overlap so I know a couple of the panelists want to
3 talk about some of the actual solutions to some of these
4 operational issues.

5 And again, I just characterize the general
6 framework here as focusing on areas of entry and we're going
7 to get into more detail now and some of the specific
8 barriers that could be removed to bring wind into the
9 wholesale markets better.

10 And one other related issue that is not
11 explicitly listed here is interconnection, and that relates
12 to operation issues as well as planning issues and I'll just
13 suffice it to say that we had a technical conference at FERC
14 on wind interconnection issues to fill out some details
15 related to wind interconnection related to our order 2003.

16 We're moving along in that process. There
17 appears to be quite a bit of consensus so we're going to be
18 moving forward with rulemaking I think in that process. And
19 so I don't think we need to discuss it in too much detail
20 here since we've already covered that in another conference.

21 So I'll move right into the panelists now. Let's
22 start on the left with Steve Faucett.

23 MR. FAUCETT: Thank you Rob. My name is Steve
24 Faucett, I'm Senior Vice President for transmission at
25 TriState G&T. For those of you who are not familiar with

1 TriState, we are a wholesale electric supplier to 44
2 distribution REAs in public power districts in four states
3 in New Mexico, Colorado, Wyoming, and Nebraska.

4 We have about a 2,100 megawatt load, 2,000
5 megawatts of generation and another 1,500 in purchase power.
6 We serve about 200,000 square miles of service territory and
7 about the equivalent of about a million people. So we are
8 small to intermediate, I guess in the utility world.

9 We are very interested, and we appreciate the
10 opportunity to speak to you today about transmission issues
11 surrounding wind, for a number of reasons.

12 Much of our member service territory is located
13 in areas that have high potential for wind development and
14 we do own transmission facilities in those areas.

15 While they are limited in capacity, we are very
16 interested in helping all we can to further wind
17 development. We also have many similarities to the problems
18 faced by wind developers. We operate in five different
19 control areas and pay imbalance in three of those control
20 areas so we would like to see an improvement in imbalance
21 procedures also. I think that would be very fruitful.

22 One of the delights about being on the second
23 panel is you get to hear your speech made during the first
24 panel. So I'm going to improvise my way through some of the
25 material I prepared in the interest of not being redundant.

1 Wind does have some unique needs. I've broken
2 out five characteristics that I really think make it
3 different and unique from other resources, other types of
4 loads that we integrate.

5 The intermittency have been mentioned. Inability
6 to dispatch high output or a lot of output in off seasonal
7 peak months; in the spring and in the fall, and low output
8 during peek months in many sites.

9 The rural location is remote from load. We are
10 familiar with that and then the short development time
11 between wind development and what it takes to build
12 transmission infrastructure to serve that wind development.

13 These characteristics can be accommodated to some
14 extent for low penetration of wind within a control area or
15 load serving entity, typically less than 5%. After that,
16 they get to be a real problem.

17 I'm speaking mainly in the context of a control
18 area now. The intermittent and non-dispatchable nature of
19 wind generation really leads to control area performance
20 problems and I think this will be talked about some more in
21 the next panel also.

22 It doesn't seem like it would be much of an
23 affect to you until it either takes variation and
24 generation, but when you talk about large amounts and
25 swinging area, control area about, piling up imbalances,

1 well somebody has to meet those swings within the control
2 area to maintain discipline for both frequency schedules and
3 interchange values.

4 In the absence of that, there can be some pretty
5 severe results. In this region, we do have some installed
6 generation that can provide good regulation to an extent.
7 We have a hydro, all of that continues to be limited by
8 drought and increasingly by environmental constraints on
9 river operations.

10 We have large pulverized coal units, space load
11 coal units and now some large combined cycle units. And of
12 course, those are very poorly regulated because they have
13 some very low ramp rates and generally don't cycle well at
14 all.

15 That leaves for the resources in the area and
16 perhaps future resources simple cycle turbans provide the
17 regulations, smooth out the area control area, avoid the
18 imbalances.

19 They can be effective, especially if you install
20 aero-derivative turbans that that really respond to ramp
21 rates and cycling. And it may fit hand and glove with I
22 think what is becoming the next market for wind energy, that
23 is as a replacement fuel for natural gas.

24 With natural gas prices appearing to go north of
25 \$5.00 for maybe quite some time, I think the load serving

1 entities, the generating entities in the area would be
2 interested in doing something besides burning natural gas.

3 So the only caution there, and that would be a
4 solution to some of these control area performance problems.
5 The only caution is that simple cycle turbans really can't
6 operate below 50% of rated value because of emissions
7 considerations per knots.

8 So I think that the intermittency of the wind and
9 the problems it introduces can be mitigated, perhaps even
10 solved by the application of the proper type of machines,
11 the proper type of control regiments.

12 The energy and balance costs, it's my opinion
13 that if you buy wind resource, you know the hog you buy the
14 warts and if you buy energy resource as a low-serving
15 entity, you should be prepared to deal with the
16 intermittency. And if it's in another control area, it can
17 be dynamically scheduled out to become part of your area or
18 control area.

19 There was question about the value of wind. I'm
20 trying to address some of the questions in the paper, of
21 wind's contribution to reserve requirements. Of course,
22 it's our opinion that it really doesn't contribute to
23 operating reserve because of non-dispatchability.

24 However, in reading some papers, I think it could
25 make modest contribution to planning reserves, if those

1 reserve requirements are set by loss of load probability
2 studies that establish reserve margins if you can add the
3 wind in and it demonstrates a lower reserve margin, it could
4 certainly be given credit, capacity credits toward that end.

5 There is question on planning processes and
6 modifications. I've been doing planning a long time, longer
7 than I care to think about, but I think that the traditional
8 practices and tools that we have for planning can be used
9 for assessing the availability of existing transmission or
10 if for transmission expansion planning for wind models.

11 The only thing I would say is, we are probably
12 going to have to move more away from power flow modeling and
13 stability modeling, which are snapshot cases and more into
14 power production and market simulation models that are
15 continuum modeling, which looks at production and
16 transmission usage over a typical year's period of
17 operations.

18 I think that will tell us a lot more about the
19 model, about the availability of transmission and about the
20 optimum transmission expansion. The RMATS study used this
21 and seem to be a pretty good tool.

22 I'd like to make a pitch that, if we've talked a
23 lot about RTO formation, but I think if we are going to move
24 ahead, there are structures in place, whether you have an
25 RTO an ISO or regional planning group, there are structures

1 in place, organizational structures for transmission system
2 planning that can be expanded and include more stakeholders.

3 Perhaps could be made more transparent, but that
4 have talent from the utilities and other stakeholders
5 available to them as we've seen in the RMATS process and
6 some of the other studies we participated in, that can bring
7 forth good results.

8 So I would hate to see the effort moving toward
9 integration of wind, the development of wind held up in the
10 interest of forming institutional entities that supposedly
11 would promote that.

12 We've done a lot of exploratory studies and there
13 has been a lot of talk today here about yet more of them,
14 but these studies, I think they give us good information.
15 They tell us about possibilities and likelihoods, but
16 possibilities and likelihoods do not build transmission.

17 I think the next round of studies, we need to
18 have concrete proposals. By that I mean, generation sites,
19 proposed contracts between producers and load serving
20 entities, regulation responsibilities delivery points and so
21 forth.

22 And identify need and commitment because it's
23 need and commitment that will build transmission, not
24 possibilities and likelihoods. So I'd hope we could move on
25 into that.

1 Another point I'd like to talk about is cost
2 recovery. We've done study work on exploratory studies that
3 have developed elegant transmission plans for integration of
4 wind as well as some more resources but it always runs
5 aground on cost allocation and it seems to end there.

6 I think that's once again because of lack of
7 commitment and need, also because of low expectations by
8 beneficiaries of all types. Whether they be generation
9 developers or other load serving entities, that it really
10 isn't going to cost much and maybe somebody else can pay for
11 it and maybe it will be folded into somebody else's tariff.
12 And that's not likely to occur.

13 Like I said, to modify my remarks. I'd like to
14 leave you with one thought. I think we have not just with
15 transmission infrastructure for wind, but transmission
16 infrastructure altogether, including that for other
17 conventional sources of load.

18 We have a big problem but I think big problems
19 are solve by big ideas. We like to draw an analogy between
20 the interstate highway system and the transmission system
21 but let's go back and revisit the interstate highway system.

22 The interstate highway system was built for a
23 national purpose in the Eisenhower administration. It was
24 formulated that we needed it in the interest of national
25 defense, or what we call national security now. It was not

1 a commercial endeavor. Nobody expected commercial
2 activities to pay it back. In fact, the cost recovery
3 system was a federal gas tax.

4 But if you look on the interstate today, you
5 don't see troop convoys going up and down the interstate.
6 You see truckers, people on vacation, specially those RVs
7 who always seem to be ahead of me, in the left lane.

8 (Laughter.)

9 So we had quite a different outcome and an
10 explosion of economic development along the interstate
11 highway corridors. I think we need a big idea for
12 transmission infrastructure and wind plays a very important
13 part in this because I think there is a national interest in
14 energy independency, and especially something to offset
15 something that looks like it's going to be a push to import
16 L&G from foreign shores making us even more dependent on
17 foreign sources to handle what is a slowly emerging crisis
18 in natural gas in our own country.

19 I think it's in the national interest to develop
20 an alternative to natural gas. Be it wind, be it clean coal
21 or other technologies but as you know, one of the problems
22 is, the transmission always takes a long time.

23 I don't see why it wouldn't be in the national
24 interest and the federal government's interest to sponsor
25 the idea that we will select wind fields, that we will

1 provide federal loan guarantees for financing of
2 transmission and carrying charges on transmission
3 infrastructure in those fields. Not appropriations because
4 they don't score very well in OMB, but loan guarantees I
5 think will fair better.

6 That we will look for credit worthy entities,
7 wind developers, conventional generation developers, to step
8 forward, take capacity on the transmission and make
9 commitments for cost recovery down the line.

10 Along with this, the idea of federal siting and
11 eminent domain and I think Commissioner Brownell hit it on
12 the head when she said it's not a piece of cake to sell
13 transmission line in some states.

14 This state is particularly difficult because it's
15 a home rule states. We have county-by-county siting in
16 Colorado and municipality-by-municipality site. So along
17 with federal siting and eminent domain, similar to what, I
18 think the pipeline companies enjoy in many respects, I think
19 this would be a big idea that could solve a big problem and
20 I would encourage you all to think about that. And with
21 that I'd like to conclude my remarks. Thank you.

22 MR. GRAMLICH: Thanks a lot Steve. I didn't want
23 to interrupt that eloquent statement at the end. We do have
24 a lot of eloquent panelists here, and again tight timeframe
25 so we want to move on to Bob Markee, who is a member of the

1 Board of the Upper Great Plains Transmission Coalition.

2 Thank you for coming.

3 MR. MARKEE: Thank you Rob. First of all, thanks
4 to Chairman Wood and Commissioner Brownell for inviting the
5 Coalition to appear here. We appreciate it.

6 I will tell you that the Chairman of the Great
7 Plains Coalition is Robert Harms and he fully intended to be
8 here but obviously he could not due to a conflict. So he
9 sent his second string. But if I don't muddle myself too
10 badly through this, maybe somebody would be nice enough to
11 write a letter to Bob Harms and tell me he sent the first
12 string. We'll see.

13 The Coalition is two years old. It basically is
14 going to change your geographic focus from this morning's
15 session western states to southwest, up North to the
16 Dakotas, Minnesota, Iowa, Wisconsin, those states.
17 Minnesota I mentioned and the membership of this Coalition
18 is what makes it unique.

19 It is comprised of investor-owned utilities, co-
20 ops, munies, wind developers, of which, that's my
21 profession, I'm just representing the Coalition today. Wind
22 On The Wires is a participants and groups like that.

23 The mission of the Coalition is transmission,
24 transmission, transmission. And the part of the country I
25 just mentioned, you generate anything. Be it with wind or

1 anything else, it's going somewhere. There is no demand in
2 that part of the country until you get to population centers
3 and there are tremendous constraints right now that we can't
4 move transmission in any direction, most importantly,
5 eastward.

6 You can readily appreciate from my description of
7 the membership makeup that we don't always agree on all
8 issues. As a matter of fact, I can remember, the very first
9 meeting we had, if you were a third party observer, you
10 would have thought every participant there had an invisible
11 fence around he or she and inside that fence was their
12 attorneys and bodyguards, because it was very chilly.

13 We've come a long way, and where as we don't
14 agree on all issues, I will tell you that the one issue that
15 the Coalition fully agrees on is pricing, transmission
16 pricing.

17 And basically, there is the translink model of an
18 average price that all the generation would pay per
19 transmission movement and local distribution would still
20 remain the venue for the local delivery in utility.

21 However, even though that diverse group of
22 entities and stakeholders agree universally to that kind of
23 a pricing scheme, it does not exist yet.

24 We believe strongly that it should exist and we
25 urge every stakeholder that is here and throughout other

1 interests, be it FERC or MYCO or public service commissions
2 or utilities or wind developers, to come together to figure
3 out what the hassles are, figure out what the barriers are
4 to getting it done and get it done sooner rather than later.

5 That's the message of our Coalition that we wish
6 to present to this group today. Now if I take my Coalition
7 had for just one final word and put my wind developer hat
8 on, as a wind developer we think one of the quickest ways to
9 develop wind coming out of these areas is to upgrade
10 existing transmissions rather than wait for the long term.
11 Thank you.

12 MR. GRAMLICH: Thanks Bob. Next is John
13 Krajewski from the Municipal Energy Agency of Nebraska.

14 MR. KRAJEWSKI: Thank you Rob. Chairman Wood,
15 Commissioner Brownell, thank you for inviting us to sit on t
16 his panel here today.

17 I'm here on behalf of the Municipal Energy Agency
18 of Nebraska. We are a municipal joint action agency that
19 serves 57 participants in Nebraska, Colorado, Wyoming, and
20 soon will be serving two new ones in Iowa.

21 We have a load of about 400 megawatts, so if
22 TriState was small-to-mediums size, we are puny. I'm are
23 also here on behalf of the Transmission Access Policy Study
24 Group, or the TAPS Group.

25 We are an informal association of transmission

1 dependent utilities like MEAN. We have members in over 30
2 states. We promote open and non-discriminatory transmission
3 access. So my comments today are going to be geared more
4 from a transmission dependent utility perspective.

5 I would like to focus on two primary points that
6 were raised in our written statement. We had at the door
7 and we will be filing those in this docket.

8 The first is simply that a stronger transmission
9 grade is necessary to accommodate all network resources, not
10 just wind. As the statement Chairman Wood made this
11 morning, we feel that all transmission customers, all those
12 serving entities will benefit from that.

13 Transmission investment simply hasn't kept up
14 with the pace of network resource additions and network load
15 additions over the last 20 years. The result has been
16 particularly problematic for wind resources. They are
17 located in remote areas with little load.

18 Because of the lack of reasonable transmission
19 investment, the only generation that's getting built anymore
20 is natural gas fired generation that could be build close to
21 loads centers. And I think if you drive around the Denver
22 area you can see that a lot of gas fired generation is being
23 built close to Denver, so you don't see the large capital
24 investments in wind plants, in god-forbid coal generation
25 plants. They have to be remote from load centers.

1 We prepare a white paper, the TAPS did, an
2 effective solutions for getting needed transmission built at
3 a reasonable cost. That all seems like an oxymoron, but it
4 advocates more of a regional planning approach.

5 The approach that we see now is more of a
6 roulette wheel queue driven approach. Somebody gets in the
7 queue, who just happens to be there at the right time when
8 some transmission is available, they can be accommodated
9 without building new transmission.

10 The next guy comes along, he is the unlucky one
11 that pushes the system over the edge and he gets stuck
12 paying for major transmission improvements or his project
13 doesn't get built.

14 The upgrade that that second customer builds or
15 would fund are going to benefit the first user, they will
16 benefit existing users, and they will benefit future users.
17 So we need to see more of an approach where all customers
18 will benefit from transmission or paying for it.

19 We think participant funding aggravate these
20 inequities and will result in less transmission being built,
21 further weakening and greatly discouraging development of
22 wind.

23 Our white paper advocates the couple of
24 approaches that can solve this. We advocate open, inclusive
25 independent transmission companies such as the American

1 Transmission Company in Wisconsin. They are open to all
2 load serving entities. Owners of transmission and non-
3 owners alike.

4 We also like the approach seen in the upper
5 Midwest with the integrated system, WAPA, Basin, Heartland
6 Consumer District, Missouri River Energy Services.
7 Transmission owners and non-owners alike.

8 We also like the innovative rate design that was
9 proposed by TransLink allocating highway facilities across
10 all users of the system that benefit from it and allocating
11 the load zone and the generation zone to those unique
12 facilities.

13 Second major we want to make is regard to long-
14 term delivery rights. This has been a major issue in MYSO
15 and some other regional transmission organizations for high
16 end cost facilities like wind and like coal. A short-term
17 FTR of one month or one year, this doesn't cut it for
18 getting financing.

19 So we need to see something that is long term.
20 MEAN for example has delivery obligations that extend out to
21 2038. We have financing obligations that extend out to that
22 term. We need to have some surety, cost surety, whether
23 it's through physical delivery rights or financial
24 transmission rights that will give our members cost surety
25 over the life of those projects.

1 I know I said two things but I have one third I'd
2 like to add and then I'll be finished. There are two kinds
3 of people in the world. Those that can count and those that
4 can't.

5 (Laughter.)

6 The current ancillary services is an important
7 part of our wind farm. We have a 10 mega watt wind farm.
8 The problem is so acute for non-controlled area dependent
9 utilities that I have to bring it up here and I know it's on
10 the next session as well.

11 We file comments on November 19 in this docket
12 specifically about energy imbalance. The punitive nature of
13 the \$100 megawatts hour out of bandwidth excursions. We
14 think those unfairly discriminate against non-control area
15 transmission dependent utilities.

16 We strongly believe that there needs to be some
17 kind of comparable treatment. We're not asking for a free
18 ride. We think the Western area power administration's
19 rocky mountain region has come up with a very good approach
20 for energy imbalance. They don't impose a bandwidth, but
21 you're going to pay what their incremental cost of purchase
22 is or what they are selling for if you're out of the
23 bandwidth.

24 We think that keeps western whole and it doesn't
25 resolve a punitive charge to wind developers or wind

1 generation owners.

2 I guess in summary I want to say, we think there
3 are just three things that are important to the development
4 of wind resource. A robust transmission grid, long term
5 delivery certainty, and ancillary services that are provided
6 under fair and reasonable terms and conditions. Thank you
7 very much.

8 MR. GRAMLICH: Thanks John. Next is Mark Smith,
9 Director of Market Affairs for FPL Energy.

10 MR. SMITH: Thank you and I'm honored to have
11 been invited to this conference, I appreciate the
12 invitation.

13 I'm going to use my 300 seconds to focus on the
14 one issue and that is the treatment of imbalances under
15 Order 888 as being the primary barrier to entry for wind
16 project development that exist today.

17 I'm also going to impress upon you a sense of
18 urgency that you have control over that tariff provision now
19 and can make changes immediately.

20 FLP Energy owns about half of the wind power in
21 the United States, 2,700 megawatts in operation and we truly
22 hope to put in about a billion dollars in capital over the
23 next 12 months in additional wind resources.

24 In order to do so, however, it would be very
25 helpful to have imbalances restructured in certain ways.

1 Again, posing to the point of urgency, we've talked about
2 the 19 or 20 states, I'm not sure which it is now, I'll say
3 20 states, that have adopted some type of an RPS standard.

4 If you look at the requirements, under all of
5 those RPS standards in aggregate, you will see that nearly
6 15,000 average megawatts of new renewable generations,
7 generation will have to be built by the year 2010.

8 That's well before what I thought was a very
9 interesting discussion this morning of transmission
10 additions might bring forth. So we need to make changes
11 now.

12 The conditions for wind project development
13 today, on a scale of 1 to 10 are probably about a 6. They
14 are much higher in the organized ISO/RTO markets, which I'll
15 talk about in a second, than in other areas, significant
16 lower in other areas. In those ISO/RTO markets, we really
17 offer two dramatic and important benefits.

18 The first is, in those ISO markets where we have
19 bid based transmission access, we are allowed exceptional
20 opportunities to get onto the transmission grid and are
21 offered a multiplicity of counter-parties.

22 The second is a reasonable, often penalty free
23 settlement of the imbalances that naturally occur and are
24 inherent in our wind projects.

25 Of the ISOs and RTOs we are much in favor of the

1 California ISOs treatment, affectionately known as PERP,
2 which I think there will be other panel members discussion,
3 so I won't belabor that issue.

4 In other areas outside where the ISO are not yet
5 operational, at least, we believe that similar principles to
6 what's been adopted in the California ISO market design can
7 indeed be implemented.

8 Now the California PERP program probably isn't
9 fungible, it can't be picked up and dropped into other
10 markets, in other transmission operators, but there are five
11 principles that I'll touch on in a second, that I believe
12 are within the control of FERC currently, to either impress
13 upon others or order.

14 In Order 888 you established conditions to allow
15 entities to charge for imbalances and simply what I mean by
16 imbalances is the difference between a schedule and the
17 actual generation.

18 I suggest that wind deviations were not really
19 the intent or the focus of that condition under Order 888
20 when it was adopted some time ago, but rather we believe
21 that those imbalance conditions, and I think many have
22 stated that, were intended to be incentives to schedule as
23 accurately as they can and then perform to that schedule.
24 By the way, a concept which we fully endorse and support.

25 Of the voices crying out for the PIRP program in

1 California, we are one of the loudest asking and requiring,
2 as a required item of the PIRP program, that wind schedules
3 be based on state of the art wind forecasts.

4 Nonetheless, the imbalance provisions of Order
5 888 in areas outside those ISO markets really do inflict
6 significant financial harm unto the interest of wind
7 development, and create a significant barrier for entry as
8 it relates then to the ability to finance those projects.

9 For example, exposure to price and volume risk
10 under the open access tariffs, such as the administrative
11 deviation penalties that we've heard much about, the \$100
12 per megawatt hour penalty for deviating, can make reasonable
13 project financing simply impossible to attain.

14 We believe now is the time for the Commission to
15 take action. Specifically, as intermittent generation
16 imbalance charges are imposed. And we offer these five
17 potential principles to guide your reaffirmation.

18 First allow wind scheduling and wind generation
19 to follow those schedules as close as possible to real time
20 deliveries. Leveraging the inherent and natural improvement
21 in forecasting that occurs in wind forecasting as you get
22 closer and closer to real time.

23 Second, consider a requirement that wind
24 scheduling be based on state of the art wind forecasts.

25 And the third component, to the extent those wind

1 schedules are based on state of the art forecasts, eliminate
2 administrative deviation penalties.

3 Fourth, allow expanded volume based netting of
4 deviations and fifth, settle deviations -- and we've heard
5 this time and time again also -- to the extent possible at
6 market prices.

7 With these imbalance principles in place, we
8 think that a significant barrier to entry will have been
9 reduced. The principals will put in place a durable design
10 that it could unlock opportunities while respecting the
11 unique characteristics of one of the fastest growing renewal
12 resources available to us today.

13 Thank you and I will be happy to answer any
14 questions you might have.

15 Number four was allow expanded volume netting of
16 deviations. One of the components that's clearly a part of
17 the California ISO program.

18 MR. GRAMLICH: Thanks Mark. Poor old 888 tariff
19 taking a big beating today. We can't even keep you off the
20 third panel, getting right into it on the second panel.
21 Yakout Mansour, Senior Vice President of Operations, I think
22 might do a little more of the same.

23 MR. MANSOUR: Thank you very much for inviting me
24 and I'm glad to be on panel two and a half.

25 (Laughter.)

1 government encourage, it means if you don't do it, God help
2 you.

3 We are currently in the middle of a new open
4 access transmission tariff proceedings under the direction
5 of our Commission, the BC Utilities Commission. Our
6 strategy continues to be, avoid major scenes and
7 discrepancies with our neighboring transmission providers by
8 adopting a FERC 888 pro forma model.

9 We are not FERC jurisdiction, we are not U.S.
10 company but we believe in seeing elimination through unified
11 models, as close as possible except when it is absolutely
12 necessary. We continue to recognize, however,
13 that until original transmission organization is
14 established, and we win the battle, again is the vocal
15 minority, implementing 888 to accommodate the evolving needs
16 of the remaining decentralized market is becoming more
17 necessary than ever.

18 Mark and I are not related but we seem to be
19 saying the same thing. Accommodating distributor generation
20 resources, particularly the likes of wind power is a good
21 example and this conference can't be more timely.

22 The issues we needed to address in our new
23 proposed tariff, which is currently under consideration of
24 the Commission, is largely similar to those identified in
25 the Commission's staff paper, excellent paper, but I wish it

1 came two months ago.

2 Let me share with you the highlight issues that
3 we face on our proposed solutions. As we all know,
4 interconnection requests from all resources that were used
5 in the planning process form a significant part of the basis
6 of our network plan.

7 Whether it is interconnection from wind, from
8 native load, nets, point-to-point, it all form the basis of
9 the planning process.

10 First, we heard in the morning several calls for
11 more efficient utilization of the existing system and that
12 is really a key to utilizing network and accommodating wind.
13 The high level of characterizing the issues associated with
14 wind power planning in this respect and operation, we found
15 that size matters. Surely accommodating distributed
16 resources of limited sizes around the network is of orders
17 of magnitude, less in complexity than significant volume
18 concentrated in just one spot of the network.

19 The latter drives the network planning and
20 operation rather than relying on the network to support the
21 special nature of the resource as in the case of the limited
22 size distribution type. This is to say, the impacts of
23 contingencies and their mitigation is different for large
24 concentrated single resource than many smaller resources
25 distributed around the network.

1 issue by supplementing the first come, first serve with a
2 proposed open season and cluster approach which enables the
3 transmission provider to study all the applications made and
4 aggregate those that can mutually benefit by shape and
5 location to minimize the upgrade cost allocated to the
6 members of the cluster.

7 Third, planning for firm interconnection request
8 based on the peak demand is needed for, nor realistic in the
9 wind power case. Depending on the seasonal variation, we
10 have proposed a new tariff to allow resources of largely
11 varying nature to apply for shaped, long-term, firm point-
12 to-point service.

13 Where there is no ATC available on the seasonal
14 block basis as opposed to an annual flat block basis. If
15 approved, this will make the plans more efficient, harder
16 for the planner, but doable, and improve the utilization of
17 the network. It will also reduce the point-to-point charge
18 to the applicant significantly.

19 Fourth, the results of the facilities planning
20 exercise and pricing go hand in hand. Applying the rule of
21 higher embedded or incremental cost of the upgrade as the
22 basis for transmission cost for wind power, penalizes the
23 producer significantly.

24 In our case, this adds \$12 per megawatt hours. I
25 used to say Canadian or U.S., but the Canadian dollar is

1 doing very well, I don't have to do that anymore.

2 (Laughter.)

3 Therefore, we propose the two-tier rate structure
4 for the clean and green projects of less than 50 megawatts.
5 The first tier is priced based on the long-term affirm
6 point-to-point price applied to only the average production
7 over the year.

8 The second tier applies to capacity generated
9 above the contracted average and is based on the monthly
10 average of the discounted daily short-term rate, which we
11 post every day of the month based on transparent market
12 indices in Alberta and Midsee.

13 The -- must be equal or higher than the cost of
14 any facilities upgrade but if we utilize the existing
15 network effectively, those will be insignificant.

16 Again, in the absence of an RTO, we extended an
17 olive branch, and offer the same offers to out of province
18 resources that goes into and through our system, if they
19 prove that the source is genuinely renewable.

20 Of course, in the absence of an RTO and
21 centralized entity, it becomes difficult and subject to a
22 lot of audits, but sometimes we'll get an RTO.

23 Fifth and lastly, the operation of the power
24 system would largely vary outward has its obvious challenge
25 which the staff people recognize nicely and I don't have to

1 repeat. We believe that the tolerance for imbalance before
2 imposing an hefty penalty on resources like wind power
3 should be relaxed some, but not totally.

4 The demarcation point is subject for debate and
5 depends on the society's tolerance, should cause the shift
6 or societal benefit.

7 In proposing all of those initiatives, some have
8 questions whether this is discrimination against other
9 resources. The debate is of that kind in D.C. My answer
10 is, the society has to come to ground as to whether the
11 distributed clean and green is a societal responsiveness or
12 just another resource of energy measured strictly by
13 delivered dollars per megawatt hour.

14 It is reasonable to come to the conclusion that
15 it is the former and if that is the case, it is not
16 different from many other examples in our daily life. I
17 drive to work, but contribute in my gasoline and electricity
18 bills to the benefit of those who use the public transmit
19 system. I don't have school age kids, but pay school taxes.

20 I invite you Mr. Chairman and Commissioners to
21 invite innovative approaches in the adoption and
22 implementation of 888 Order. It is timely and thank you
23 very much for the opportunity.

24 MR. GRAMLICH: Thanks Yakout. Next is Bob
25 Easton, Manager of Engineering and Planning for the Western

1 Area Power Administration.

2 MR. EASTON: Good afternoon. Thank you
3 Commissioner and staff for inviting me to be a member of
4 this panel addressing the planning grid operation and
5 utilization to account for wind and other emerging
6 technologies in electric wholesale markets.

7 By way of background, the Western Area Power
8 Administration is one of four power market administration in
9 the United States Department of Energy. Western is 1.3
10 million square miles of service territory, it covers 15
11 Western and Midwestern states.

12 Western market is over 10,000 megawatts of
13 hydroelectric power generated at federal dams owned and
14 operated by the U.S. Bureau of Reclamation, the Army Corp of
15 Engineers, the International Boundary Water Commission. We
16 sell this power to 683 customers including municipalities,
17 rural electric operatives, state and federal agencies,
18 irrigation districts in the Indian tribes.

19 We own, operate, and maintain 17,401 miles of
20 high voltage transmission lines and 268 substations in our
21 service territory delivering this power to our customers.

22 We market FERC surplus transmission capacity on
23 the open access, same time information system to utilities
24 and marketers.

25 We also operate four control areas within the

1 Western Electricity Coordinating Council and Mid Continental
2 Area Power Pool reliability regions. We sell our power and
3 transmission to repay the U.S. Treasury our annual expenses,
4 construction investment with interest and assistance to
5 irrigators in reclamation projects.

6 Our revenues in fiscal 2004 were just under one
7 billion dollars. From a planning perspective, Western
8 support efforts like the recent Rocky Mountain Area
9 transmission study, mentioned earlier. I co-chair the RMATS
10 transmission addition work group.

11 The process was well designed and accomplished
12 its goal including interested stakeholders throughout the
13 west. Western staff was involved in the technical analyses
14 and we believe that the recommendations of the study are
15 well supported from economic analysis basis.

16 The study mounted three resources scenarios, each
17 3,900 megawatt compounded, of which between 3,000 and 10,000
18 megawatts of installed capacity was wind generation.

19 The National Renewal Energy Laboratory in Boulder,
20 Colorado supplied specific wind regime data for the site's
21 model so the production costing software could model
22 megawatts in blocks close to what these wind sites might
23 actually generate.

24 The production cost model lower these wind
25 resources and all other of these cost resources first and

1 paid attention to constrain transmission paths, however
2 there were no power flow or simulations performed.

3 These require technical -- be accomplished when
4 project sponsors come forward with a project proposal.
5 Recommendations in one of the studies supports a proposed
6 Wyoming to Colorado project which is a path enhancement on
7 the constrain path known as Tote 3 or Path 36.

8 This is a transmission path between southeastern
9 Wyoming and northeastern Colorado. Western's Rocky Mountain
10 Regional Office operates this path out of our Loveland
11 control center. 80% of Colorado's load is in the front
12 range between Ft. Collins in the North and Pueblo in the
13 South.

14 Upgrading this path will allow an opportunity to
15 import low cost resources to serve front range loads. Once
16 constraint paths are identified, Western has authority to be
17 a partner with others in constructing new transmission to
18 alleviate the congestion.

19 Western's construction management and right away
20 acquisition expertise are very valuable assets to any
21 project. We've demonstrated our ability in these areas most
22 recently with the Path 15 upgrade project in central
23 California, where we are the project manager.

24 Western will bring this project in slightly ahead
25 of schedule and well under budget.

1 The study that financing of new transmission
2 construction remains a barrier. Western as a federal agency
3 can seek appropriations from the Treasury for new
4 transmission line construction that supports reliability of
5 the Western system.

6 Federal dollars are in short supply these days,
7 however, given the demand for appropriations for their
8 federal purposes.

9 We are able to partner with non-federal entities
10 to accept non-federal funds advanced by those entities for
11 construction and work out arrangements for repayment of non-
12 federal investments.

13 Of course, each joint participation project is
14 unique and what works for one project may not work for
15 another. The study mentions the need for some sort of long-
16 term non-firm transmission product for wind resources.
17 Western is proposing a new order or more in the next panel
18 discussion from Bob Kennedy in this very product, offer on a
19 case-by-case basis, based on regional practices.

20 From an operational standpoint, Western Aramar
21 area has 76 megawatts of wind generation interconnected to
22 our transmission system in the Western Area Colorado
23 Missouri, or WACM control area.

24 On this capacity, 16 megawatts of secondary
25 networks service under Section 28.4 of the tariff, the

1 remaining 16 megawatts are dynamically scheduled to the
2 Public Service Company of Colorado Control Area and have
3 transmission service under a grandfather network-like
4 contract that terminates in 2010.

5 We also have 1,000 megawatts of interconnection
6 request for wind in Wyoming and Colorado in our queue.
7 We've conducted engineering studies on the impact of wind
8 generation interconnection to our Loveland control area and
9 are engaged in continuing to the facilities study phase on
10 these projects.

11 We've just started work on a new transmission
12 study that will assess the impact of 500 megawatts of new
13 wind generation on our transmission in North and South
14 Dakota.

15 Information that links to these studies are on
16 our website at WAPA.gov. We look forward to continuing to
17 work with wind resource developers who file good-faith
18 request for interconnection with Western's transmission
19 system.

20 Wind resources cannot contribute to operating
21 reserve requirements. Operating reserves have to be online,
22 frequency responsive are available within 10 minutes. The
23 unpredictability is the issue. Reserves have to be counted
24 on as being available to meet disturbance control standard
25 requirement.

1 Wind resources can qualify, however, to call on
2 reserves like we have allowed it within the Rocky Mountain
3 Reserve Sharing Group due to over speed cut out or loss of
4 physical equipment such as a step up transformer or loss of
5 the interconnecting feeder line.

6 We have seen the wind resource on our
7 transmission system vary from zero megawatt to full out put
8 and back to zero within a very short timeframe. This
9 results in consumption of control area regulation. These
10 and other reliability impacts of large-scale wind
11 integration need to be evaluated on a case-by-case basis.

12 Again, thank you for inviting Western to
13 participate on the panels this afternoon.

14 MR. GRAMLICH: Thanks. One, let me return this
15 to Kevin by saying, well Kevin Porter is Vice President of
16 the Exeter Associates and a well-known consultant in the
17 wind energy area. But one issue we haven't talked about
18 really yet today is capacity credits and generation
19 planning.

20 As you know, most generators depend for their
21 survival on capacity markets or reserve margins to some
22 extent and Kevin called me in 1999 when I worked at PJM to
23 say, hey, should wind get some capacity credit, granted not
24 100% name plate but something above zero and I said yes that
25 sounds right to me.

1 So now Kevin I know has been researching this for
2 some years. I think we've made some progress, so you can
3 tell us.

4 MR. PORTER: Well thank you Rob and actually I'm
5 pleased to say and I didn't know that Joe Kerechman from PJM
6 is on the next panel, I'm sure he'll talk about it but I was
7 pleased to participate with PJM in forming a way to figure
8 out the capacity value of wind and was pleased with how that
9 turned out.

10 And yeah, I'm going to say a few words about that
11 but before I do, Exeter Associates is a small consulting
12 company in Columbia, MD. We do work on electricity and
13 natural gas issues. We do work for DOE and the Air Force
14 and the National Renewal Energy Lab, among others.

15 I want to joint several other folks in applauding
16 this staff paper that was prepared on wind energy. I think
17 the staff paper did a nice job of describing loss of load
18 probability and effective load carrying capability.

19 Cocktail conversations, I'm sure, we could have along time
20 on ELCC and LLLP. But in any event, one thing I thought was
21 missing in the staff paper is some of the disadvantages with
22 methods of approximating effective load carrying capability.

23 Effective load carrying capability is a time-
24 consuming and data intensive process and so there is always
25 a push to try to do something that may be simplified.

1 And in think in general, if you look at the
2 capacity valuable wind generating plant over the top 10 to
3 20 percent of load hours in a year, you'll get close to it.
4 You'll slightly underestimate the effective load carrying
5 capability.

6 My concern is that of too small a number of hours
7 at peak hours are included in this approximation method and
8 then you may get way too high or way too low a number for
9 what the real capacity contribution of the wind generator
10 is.

11 To take the most extreme example, if you measure
12 the top -- the very top peak demand in an hour, in a year,
13 then you may get a really high number for wind if the wind
14 generator happens to be contributing that year or basically
15 zero. And I would submit that that's not really the way to
16 go.

17 These capacity value methodologies have a
18 financial impact as well. Even if you don't have a
19 financial market for capacity as this indicates with the
20 eastern RTOs. After all, if the capacity value of wind is
21 arguably considered to be too low, then the system operator
22 may end up committing more reserves than is necessary.

23 I would also note that there are three other
24 regions that have measured the capacity value wind that we
25 are now discussing in the staff paper, are the main American

1 Power Pool which is housed in the Midwest ISO, looks at the
2 meaning and value about the 10 years of wind generation, if
3 available, during four hours each month, including the peak
4 hour.

5 The southwest power pool looks at the top 10
6 hours in the month and picks the value for wind that is
7 present any 5% of the time.

8 Most of that time then you get a value that is in
9 the low single digits or basically near zero. Quite
10 candidly, I view this method as pretty questionable and I
11 would argue that if that method was applied to conventional
12 units, you would have a lot of conventional units basically
13 down near zero as well.

14 I'll probably steal some of David Hawkins'
15 remarks by noting that California is in the midst of
16 evaluating the capacity value of renewal -- technologies not
17 just wind.

18 I think unique to this is that this is -- by the
19 California Renewable Portfolio Standard that requires
20 renewable resources to be least cost and best fit with
21 utility resource portfolios.

22 The idea here is that if you're going to pick
23 renewables, you want to make sure they fit in well with the
24 utility resource portfolio.

25 Since when does growing is a generating resource.

1 A lot of folks are sort of re-looking at how to do their
2 capacity value methodologies. I understand that ISO New
3 England is looking at maybe measuring the capacity credit of
4 generators to the top 110 peak hours in a year, which would
5 be about 1% of the hours in a year and here again, I get a
6 little concerned that that number of hours may be a little
7 too low. One important factor for the eastern ISO or RTO
8 capacity market is that, at least an ISO New England and New
9 York ISO they will weigh provisions for wind that require
10 generators to have been in the day-ahead market if they are
11 considered a capacity resource.

12 The staff paper I think -- well, let me say it
13 this way, I view wind forecasting as a really important tool
14 and I would join Mark Smith -- I would second Mark Smith's
15 remarks on this. But there is a real difference in quality
16 of the forecast between day ahead or two day ahead and the
17 hour ahead type forecast in real time.

18 So I think one thing I would certainly encourage
19 as we look at capacity value wind generators, is that to
20 allow wind generators to be able to be a capacity resource,
21 to be able to change their schedules into the real time or
22 hour ahead market but to have them use the best available
23 wind forecasting protocols.

24 So to sum up here, what FERC can do, is certainly
25 encourage, or as I said, require waiver provisions to

1 require wind generators to have been in the day ahead
2 market, as long as it is statistically unbiased wind
3 forecasting method is used and I would have a preference for
4 an RTO administrative forecasting methodology, just for
5 consistency sake.

6 And I want to ensure that the capacity and
7 contributions of generators are determined at least on a
8 comparable equivalent basis and I would encourage FERC to
9 maybe look at this by some of the transmission operators and
10 by some of the RTOs.

11 And Rob, if I have a little more time, I'd like
12 to address some of the wind integration costs because we
13 haven't really talked about that so much today.

14 MR. GRAMLICH: Maybe briefly.

15 MR. PORTER: Maybe briefly? Well, alright I'll
16 just simply note that there have been several government
17 utility studies that have looked at small loads of wind
18 penetration of about 5 to 20 percent and so far it looks
19 like these costs are relatively modest.

20 I will say that some of the newer studies are
21 going to be looking at higher levels of wind penetration and
22 one such that was done in Xcel Energy Minnesota's service
23 territory. Estimates say the cost of integrating 1,500
24 megawatts of wind in a 10,000 megawatt utility service
25 territory looks like to be about \$4.50 per megawatt hour,

1 which is higher than some of the earlier studies at lower
2 levels but certainly I think is quite manageable.

3 So those are some of the questions we might want
4 to tackle as this issue comes on and gets more prominent
5 play. How much integration cost of the increasing levels of
6 wind penetration and whether this is a linear or non-linear
7 kind of function.

8 What are the impacts of varying generation
9 portfolios on wind integration cost? You heard earlier that
10 if you have a hydro or perhaps a gas unit, it may be easier
11 to do wind integration than perhaps if you don't.

12 We really need the development of rules of thumbs
13 to do wind integration cost estimates. These studies are
14 extremely expensive, they're done on a case-by-case basis.
15 Probably is kind of difficult but it would be nice to be
16 able to just kind of come up with a quick rule of thumb so
17 that we can apply this as wind begins to penetrate more
18 markets. And I will conclude right there. Thank you.

19 MR. GRAMLICH: Thanks. Steve Larson, Executive
20 Director of the California PUC.

21 MR. LARSON: Thank you very much Rob and thank
22 you Commissioners for giving me the opportunity to come and
23 make a presentation today.

24 The RPS program adopted in 2002 in California is
25 a really important tool in California's efforts to diversity

1 its electricity, generation mix, stabilized prices, to
2 improve environmental quality and to reduce reliance on
3 imported fuels.

4 But in order to accomplish these goals, the
5 State's transmission grids sorely needs to be upgraded. The
6 California Public Utilities Commission has estimated that
7 the necessary upgrades needed to fully meet the objectives
8 of the State's RPS program are expected to cost about \$1.8
9 billion over the next five to ten years.

10 With most of the expected construction in the
11 service territory of Southern California Edison, also known
12 as Edison. However, citing federal law and more
13 significantly FERC rules, Edison has challenged the PSE's
14 decision that seeks to facilitate transmission development
15 necessary to accommodate the full build out of significant
16 wind resources up to about 4,000 megawatts of capacity in
17 the vicinity of Tahatchby, which is about 100 miles north of
18 Los Angeles.

19 Specifically, Edison is refused to cooperate with
20 that portion of the California RPS statute which directs
21 utilities to seek FERC approval for the financing of
22 transmission system upgrades necessary to accommodate
23 implementation of the RPS.

24 If Edison's view of the laws is upheld by the
25 California Supreme Court, implementation of the RPS for all

1 of California's utilities will be much more difficult and
2 the State's clearly stated goal to significantly increase
3 the percentage of electricity produced by renewable sources
4 of generation will be undercut fundamentally.

5 However, contrary to Edison's reading of the law
6 and to the FERC rules, the PSE believes that FERC actually
7 allows the utilities to choose either generator or utility
8 financing for the transmission upgrades necessary to
9 accommodate new generation interconnecting to the grid.

10 The CPUC believes that FERC could not have
11 intended that a utility is able to use that chose to
12 frustrate important state interest in procurement and
13 resource planning.

14 In California's view, FERC was expressing
15 indifference to the mechanism for the financing of such
16 necessary transmission upgrades.

17 Indeed, FERC's recent discussion in Order 2003,
18 which was under the title of Regional State Committees as an
19 appropriate body to make such financing decisions
20 demonstrates this indifference.

21 As the PUC understands FERC policy, FERC accepts
22 generation procurement policy, such as California's RPS and
23 it is a matter of state policy and state decision-making and
24 therefore not subject to the FERC jurisdiction.

25 That being said, even if the state were

1 preempted, we believe that FERC still has the ability to
2 address these apparent ambiguities and we do not think that
3 Congress intended that a regulated monopoly utilities choice
4 of financing options should be immune from oversight from
5 both the state and federal government.

6 Rather than creating another jurisdictional
7 dispute, and to be quite specific, California requests that
8 FERC clarify its policy, FERC should require utilities to
9 abide by state law when making decisions about the method
10 for financing necessary transmission upgrades to accommodate
11 the general policies such as California's RPS.

12 Such a clarification could be in the form of
13 California's specific order in connection with the
14 implementation of existing provisions of FERC orders.

15 For example, FERC could articulate a rule to
16 require California's utilities to avoid choosing a financing
17 option that is incompatible with established state
18 procurement policies. To accomplish this objective, we
19 would suggest that FERC direct its staff to work with
20 California to find an appropriate procedural path for
21 resolving this problem in a timely manner.

22 Based on the results of this collaborative
23 effort, FERC will hopefully adopt at the earliest possible
24 opportunity, appropriate language in this docket and in the
25 generator interconnection dockets to clarify the need for

1 utilities to seek to accommodate legitimate state energy
2 policy such as California RPS when making financial
3 decisions relating to transmission upgrades.

4 In doing so, Governor Schwarzenegger and PUC
5 President Peeve, as well as the California public is
6 absolutely committed to diversifying the state's energy
7 resource mix through the inclusion of renewable energy.

8 The current goal set forth in the state law is to
9 achieve 20% of renewables in the generation mix by 2017.
10 However, the PUC's own policy as articulated in our energy
11 action plan and in recent decisions is to achieve this goal
12 by 2010.

13 Thoughtful transmission planning and construction
14 is key to success in reaching this ambitious goal. We
15 cannot afford to waste more time in bringing on renewable
16 energy, especially given recent concerns about the adequacy
17 of natural gas supplies, frivolous law suits and bickering
18 must finally give way to intelligent and useful action.

19 We are confident that the FERC shares or
20 commitment for transmission planning that supports renewable
21 energy integration and we hope you can help California to
22 become and overcome the recent barrier posed by Edison
23 lawsuit. And as always, thank you for your time and
24 consideration.

25 MR. GRAMLICH: Thanks. And one more from

1 California, David Hawkins, Manager of Special Projects
2 Engineering for the California ISO.

3 MR. HAWKINS: Thank you very much. Thank you for
4 the opportunity. As you know, California has tried to be
5 very friendly towards wind generation and we now have over
6 2,000 megawatts of wind generation in our state.

7 Over the last seven years, the Cal ISO has
8 learned a lot about wind generation and even though we tried
9 initially to say why aren't they just like any other
10 generator, just get on and schedule, we discovered that
11 really was onerous to both wind generators and it did not
12 solve any of our operating problems.

13 So out of that, we have learned a lot about wind
14 generation in scheduling and what could be done with that
15 and we learned how to do a lot of work with forward
16 forecasting of that wind generation.

17 We worked with the generation owners to better
18 understand the operation and we learned that we could
19 forecast pretty accurately one to two hours in advance, even
20 though we couldn't accurately forecast day ahead.

21 There are times where we have five, six, seven
22 hundred megawatts of generation coming out of the wind parks
23 and we can nail that forecast within about 40 megawatts in
24 the hour ahead. As you get to two hours ahead, of course it
25 deteriorates and three hours it does deteriorate more.

1 But at least it showed us that there was real
2 potential in doing forward forecasting and getting that
3 energy lined up against loads, which is what you want to do
4 and not run gas-fired generation.

5 So out of that we created what was called the
6 participating intermittent resource program for wind
7 generators and the key part of that was taking these forward
8 forecasts and turning them into deemed delivered schedules
9 and then relieving some of the imbalance energy charges that
10 were associated with the risk associated with that. And
11 it's turned out to be a reasonable successful program and
12 Jim Blatchford from our group will describe that program in
13 details in our next presentation.

14 At this point, what I'd like to do is to share
15 with you at least five findings from the operations
16 perspective of working with the wind generation.

17 First one is that we really need real time data
18 from these sites. We need scata and data for sites with
19 over 10 megawatts or more of generation and in order to find
20 out exactly what is the actual energy production from the
21 sites and how to be able to forecast with that energy
22 production going forward.

23 But not only do we need to have the real time
24 data but we also need the meteorological data. We need to
25 know not only the wind speed but we need to know the wind

1 direction and the impact of that and also the temperatures
2 of barometric pressures.

3 As we build more of our forecasting models, for
4 example, one of the things we discovered is that if you know
5 the barometric pressure in Fairfield, CA and you know the
6 barometric pressure in Portland, OR, you can do a much
7 better job of predicting how much marine layer is coming in
8 through the bay and how much then corresponding wind you
9 might get coming through some of those key areas.

10 So building better forecasting models with these
11 kinds of accuracies is certainly the road to success for us
12 in the future.

13 We've also not only looked at building better
14 forecasts, we are also now going back at building forecasts
15 that are five minute interval forecasts for up to three
16 hours in advance and looking at building forecasts hourly
17 going up to seven hours in advance as part of our unit code
18 commitment programs so that we get the right amount of
19 energy committed, and unit started three to four hours in
20 advance. And we can only do that if we know what the wind
21 generation is going to do.

22 We're continuing to work with funding from the
23 California Energy Commission to put in more work into day
24 ahead forecasting and hope very much to increase the
25 accuracy of that kind of forecasting.

1 The one thing we would like to see is to have the
2 federal government start to fund more weather data sites for
3 improving the information about weather data. They
4 typically put in weather stations, of course at airports,
5 and it helps the aviation industry a lot but there are other
6 sites we really need to have which are upstream from where
7 these wind parts are at that will help us do a lot better
8 job in the power industry.

9 And also as part of that is certainly improving
10 the day ahead forecasting models that now include
11 temperatures but what some of the wind speeds will and the
12 barometric pressure differences between areas.

13 Third issue that we have is the wind energy
14 production at night still continues to be a problem and we
15 are having a problem finding a sync for this energy.

16 Turning off generators is often the only solution
17 but unfortunately, with the new combined cycle generating
18 plants, they often have five to six to seven hours start up
19 times so getting them turned off at night and then turned
20 back on for the morning load pull is a real problem.

21 So what is really needed is some new energy
22 storage technology and what we would like to encourage the
23 Department of Energy to significantly increase the funding
24 of new funding for new storage technology. It's coming
25 along but the funding levels have been significantly reduced

1 and we think DOE can do a lot more to put energy, storage
2 technology out there that would compliment the wind
3 generation and it would give us firm energy then in the
4 afternoons coming across some of the peaks.

5 The fourth thing is although we have the
6 advantage in California of having a lot of aggregation of
7 wind generation, and the advantage of course to the
8 aggregation is it tends to move not so rapidly up and down
9 as you've see with some of the other charts, and that makes
10 it more forecastable, but it also give us the less problems
11 with overall system control because different pieces fill in
12 for the different missing parts.

13 However, we do get periods where we have storms
14 that come in, pacific storms, where we get very rapid
15 ramping. We did have an occasion the other day where the
16 energy ramped 700 megawatts in less than an hour and all of
17 those really drive our regulation to the wall.

18 So therefore, we have agreements with the wind
19 generators now to start working with them on taking dispatch
20 commands to look at trying to regulate or mitigate some of
21 the problems of having very rapid ramps which only happen a
22 few times out of the year, but when they do, they really
23 cause us major problems.

24 So we need to work with that to improve that and
25 also there are times when we have also the units do trip out

1 on overspeed which you've also heard.

2 The fifth issue that I wanted to share, of
3 course, I've already mentioned is there is significant value
4 and diversity of wind generation location and aggregation of
5 large amounts. And there are those who claim, gee, if we go
6 from 2,000 megawatts to 4,000 megawatts to 6,000 megawatts,
7 all the problems go up linearly.

8 But that will be true if they were all located in
9 the same area. If you geographically disperse these, they
10 do not all operate the same and they are subject to all
11 different kinds of meteorological conditions.

12 So therefore, it does not linearly extrapolate
13 and you do get some diversity of filling in the different
14 pieces. So as we do resource planning in the State, I think
15 that was the key issue.

16 And there is finally the last issue, which I
17 think the first speaker mentioned, which is dynamic
18 scheduling of resources because you are ending up in the
19 future with these wind generation resources in different
20 control areas and the current scheduling and tagging, energy
21 tagging practices really make it difficult to move this
22 intermittent resource across control area boundaries.

23 This is going to be an increasing barrier for the
24 wind generation. Dynamic scheduling solves the problem to
25 some degree but it also exports from the control area with

1 the wind to the control area receiving it, the regulation
2 requirement and really focuses us to really look ever harder
3 at how to mitigate some of these problems.

4 What the solution is, I don't know yet, but I
5 think we really have to study it on a regional basis, is to
6 how to work with better rules and concepts of dynamic
7 scheduling between areas.

8 And finally in close, I want to say I think one
9 of the key issues is really a close working relationship
10 between the operators and the wind generators and I think as
11 we work together we can work on both data communication
12 issues, dispatchability issues and the kinds of reliability
13 issues that we all need to solve. Thank you.

14 MR. GRAMLICH: Thanks David. We are going to
15 shift a little to the east now. Mollie Lampi is Assistant
16 General Counsel of a New York ISO.

17 MS. LAMPI: Thank you and thank you to FERC too
18 for inviting the ISO to participate in this panel. It's
19 been extremely rewarding for me personally to understand all
20 of the issues and how much recognition there is of some of
21 the issues that New York continues to grapple with.

22 The New York ISO grew out of a centrally
23 dispatched power pool. It's celebrating its 5th anniversary
24 today and almost all of our generation is divested. So we
25 have an enormous pool of merchant generation.

1 New York today has only about 48 megawatts of
2 wind on the group but New York has recently adopted a
3 renewal portfolio standard so we are expecting upwards of
4 2,000 megawatts between now and 2013 and we need to get
5 ready for that.

6 I join some of my fellow panelists in expressing
7 our delight with the staff paper. I think the FERC staff
8 has identified many of the operational characteristics that
9 wind experiences and some of those do have to be dealt with
10 by ISOs. New York utilizes an LMP congestion management
11 system, very much like PJM's and New England's, and
12 schedules the use of our transmission system through the
13 centralized energy dispatch function.

14 Generators are scheduled based on loads costs and
15 recognizing the transmission constraints may exist on the
16 system. Wind does not have to pay for transmission service
17 unless it has actually used that transmission service.

18 Internal New York pays license plates fees for
19 using the transmission system and New York has been working
20 with its market participants and control area neighbors to
21 eliminate barriers to efficient cross-border trading.

22 Effective today as well, customers moving power
23 between New England and New York will not longer have to pay
24 a transmission usage fee. We are now evaluating how best to
25 move that issue ahead on our border with PJM.

1 The New York ISO believes that a statewide or
2 regional independent planning function that identifies needs
3 and looks to the market for solutions may serve wind
4 generators well, even without any particular accommodations.

5 New York depends to a very great degree on market
6 forces to provide expansion proposals, whether they are
7 generation based or transmission based. The New York ISO
8 has now in front of FERC a new reliability planning process
9 that will give the NYISO a key role in identifying needed
10 reliability enhancements.

11 But even under this proposal, the NYISO will not
12 plan for or select the solution. If we find that the market
13 is no coming up with meeting a reliability need that we have
14 identified, we will request market options and will evaluate
15 them as to how well they solve identified needs.

16 The NYISO will also request regulated solutions
17 in the event that an effective market solution doesn't
18 materialize. However, even under the new planning tariff,
19 the NYISO cannot order new transmission capacity be built or
20 select among competing solutions. Those choices still fall
21 ultimately within the domain of state regulators.

22 In a market based electricity system, market
23 design is the strongest driver for increased grid
24 utilization. The New York ISO believes its LMP congestion
25 management system, its locational capacity requirements and

1 its locational reserve markets already focus our markets on
2 increased utilization on our transmission infrastructure.

3 These all provide price signals that should lead
4 to increased grid utilization and should incent new
5 investment, whether it be new generation or new transmission
6 to locate where it would be most valuable to meet load.

7 New York's proposed 10-year planning horizon will
8 augment these price signals by increasing market information
9 on current grid utilization and future needs.

10 Our generator minimum interconnection process
11 will also identify inexpensive techniques that could
12 increase grid utilization. New York allows wind to
13 participate in its capacity market. It values the capacity
14 of wind resources in small run off river hydro resources
15 based on their historic capacity factors.

16 We felt that this is comparable to the capacity
17 measuring E4D calculations that we use for fossil units.

18 As has been mentioned, New York does not require
19 our intermittent renewable resources to bid into the day
20 ahead market. We've come to learn though, that the capacity
21 factor manner of valuing wind resources does not necessarily
22 correlate well with the need for capacity resources during
23 peak periods.

24 As I will mention in a minute, the GE wind study
25 has found that the capacity valuation methods we use now do

1 not produce LOLP equivalents with the capacity values for
2 fossil generation.

3 So New York will be looking at whether it needs
4 to revise its capacity valuation systems to include some
5 measurements of the value peak or to LOLP reductions that a
6 particular generation may provide the system.

7 The New York ISO and the New York State Energy
8 Research and Development Authority produced a phase 1
9 evaluation of the impact of new wind resources on or grid in
10 early part of this year. We are expecting phase 2 to come
11 out in the early part of next year.

12 Phase 1 found no inherent reason that the New
13 York grid could not accommodate up to 3,300 megawatts of
14 wind reliably. We do know though that market rules
15 adjustments may be necessary to fully integrate the expanded
16 wind resources that we are expecting.

17 Even an LMP two settlement system however, does
18 not successful address all of wind's operational
19 characteristics. Wind generators as has been pointed out
20 are less able to follow dispatch instructions and as a
21 result may face balancing obligations and imbalance
22 penalties more so than other generation types.

23 Good quality forecasting techniques can mitigate
24 much of this exposure and New York expects that its large
25 wind resources will employ state of the art forecasting

1 technology.

2 As a result, New York does not expect that winds
3 desire to follow wind pattern will require additional load
4 following or regulation capability on our system. But this
5 is an issue that the second phase of the GE study is looking
6 at and we will be waiting for the GE study to confirm those
7 early predictions.

8 New York uses daily in-day scheduling on the hour
9 and is moving in February to 15-minute scheduling which we
10 think will also be very beneficial to wind resources
11 scheduling in-day.

12 We will, though as I mentioned be looking at
13 revising market rules in the early part of next year to be
14 proactive and forward looking at accommodating these new
15 wind resources. We're looking very eagerly at the
16 California experience and the usefulness of wind forecasting
17 to help build market rules around those new technologies.
18 Thank you.

19 MR. GRAMLICH: Thanks a lot. We are running a
20 little late, though we do have quite a bit of time on the
21 last panel. So if there are a couple questions now.

22 CHAIRMAN WOOD: Whoever is good at answering this
23 would be useful, but at what level, now that we've got the
24 RPSs come and go there is a lot more potential. I think
25 everybody agrees that this will be a pretty big -- going up

1 as far as development.

2 At what level do you start to have, I guess, some
3 of the issues you raised, what percent level of total
4 generation level in the foot ground whether that's a control
5 area or an ISO or some larger. Do you need to start
6 thinking about some of the reliability considerations?

7 MR. HAWKINS: Let me do a first cut at that.
8 It's probably dependent not only on the level of, say, 10%,
9 that certainly is the number, what we are trying to say is,
10 there is a seasonality component and that specifically
11 drives what we look at in January/February, where our loads
12 are low, other generators are gone, and yet we are
13 susceptible to very large amounts of wind really ramping up
14 during those periods because we have huge storms and other
15 things that come through.

16 So in periods like that, we probably have a lot
17 more problem than we do during the summer months where
18 weather patters in California are much more stable during
19 that period. It just gets hot, cooler at nights and warmer
20 in days, but it doesn't change.

21 So I think the seasonality component is an
22 important issue as well as the amount of regulation that
23 goes in there.

24 MR. FAUCETT: Well, I agree with that. Also, a
25 lot of it depends on the power resources that you have

1 within your system. As I did make the point very well, we
2 largely use pulverized coal and in some cases hydro which is
3 very little regulation capability under contracts with WAPA.

4 If you want to inject a large amount of wind
5 energy, you have to have matching conventional generation
6 equipment. As I said, simple cycles are probably best
7 suited. An aero-derivative is a simple cycle, which are
8 designed around aircraft engine principles that will go up
9 and down very quickly, or will turn off, turn on with ease
10 as compared to other types of resources.

11 So even though it may become a larger part, if
12 you have that sort of thing to deal with and if you have
13 appropriate gas transportation arrangements and smoothing
14 agreements with your natural gas supplier, I think you can
15 get through that.

16 And if wind is designed to save natural gas,
17 areas that burn large amounts like California, would have
18 perhaps a capability to install -- retire old machines and
19 install new aero-derivatives and do a lot better on
20 regulation. And I understand California is on gas 8760 so
21 there is a lot of opportunities there for gas displacement.

22 MR. EASTON: And just to follow on with that
23 point, I don't think there is a one size fits all. If it's
24 a control area, the control area specific analysis that
25 needs to be done to address that issue.

1 MR. GRAMLICH: Can I just follow up. Does it
2 depend though on the size of the control area? Kevin I know
3 you've reviewed some of these studies and we heard earlier
4 about a couple of control areas who are consolidating. If
5 we had more control area consolidation, does the amount of
6 operational impact decline?

7 MR. PORTER: Yes, I think it does help a lot and
8 I actually was hoping that question would come up. I'd like
9 to encourage some of these folks that have small control
10 areas to work on, at least collaborating with nearby control
11 areas to try to broaden their control area and I think that
12 will help mitigate some of these issues.

13 But I wanted to pick up on what David said
14 earlier about some of the ramp up from some of the weather
15 fronts that come across. I hear this from many system
16 operators and I think it is fair to say and it may be fair
17 to ask the wind generators to control their ramping up
18 during those extreme weather events.

19 These events don't happen very often, but as
20 David was saying, and this experience is repeated across the
21 country, that they can have an impact on your regulation
22 burdens. And we haven't touched upon this but there is some
23 overlap between this and the grid code that is in the
24 interconnection docket as well, too.

25 And again, I guess David, I'm turning into a fan

1 club or yours, but I wanted to echo David's call for scata
2 and data availability. That's also a part of the
3 initiative. The data quality is really is becoming to be a
4 problem.

5 Not mentioned in the earlier panel, but the RMATS
6 study of the conditional firm, or whatever terminology you
7 want to use, say they were hoping to do three case study and
8 sort of look at all the issues. The data was bad enough
9 that they could only do one. And I'm just not sure what it
10 is, but this is something -- this is not something unless
11 FERC wants to use the -- with this idea, there is something
12 wrong here. But this is something that I think as an
13 industry, we need to fix.

14 Because we are never going to be able to really
15 get beyond this sort of, in my view, fear mongering that
16 happens of, we have a lot of wind, we're going to bring the
17 system down, unless we can kind of look at this in a
18 rational, analytical way.

19 CHAIRMAN WOOD: How expanded is this data
20 collection system in the Cal ISO grid?

21 MR. HAWKINS: My comment is that when originally
22 wind started going in, they were under QF type contracts and
23 they were really out at remote locations. They often were
24 like a modem that the utility would pull maybe every 15
25 minutes to find out what the energy production was out of

1 those sites. So as the amount of wind has grown
2 over the last several years, it really has become -- we
3 really didn't get beyond some of this fairly remote
4 inaccurate or flaky kind of communication out to these
5 sites.

6 So as we try to build data sets now, we're trying
7 to build a comprehensive three-year data set of all the wind
8 generation from all the different facilities that we have
9 and it has been a real challenge and there are drop outs of
10 the data, there are lines go offline. There are all kinds
11 of problems that we've had as we've done this.

12 It's not unique to wind, it just happens to be
13 like any other IT project, that if nobody looks really hard
14 at the data, nobody does any quality control.

15 Now that we need it, you really get into the
16 quality control of this data, you go back -- you know, I
17 talk to Mark Smith and said, you know, yesterday we got bad
18 data out of one of your sites and he pays a lot more
19 attention to it. But you have to monitor it and put this
20 type of thing in.

21 Unfortunately, the amount of data sets that we
22 are trying to build, as we look back at 2001/2002, that data
23 is not as good as we would like. So 2003 looks a lot
24 better, 2004 we're getting pretty good data now but it's
25 really been a challenge to build these detailed data sets.

1 MR. GRAMLICH: Go ahead Mark and then we'll take
2 two quick questions from the floor.

3 MR. SMITH: I'll just add a little bit more
4 detail to that answer. We provide the California ISO with
5 four second generation meter data and meteorological data in
6 a similar frequency and that is, wind speed, wind direction,
7 barometric pressure and --Dave help me, one other thing --
8 one other channel on that.

9 MR. HAWKINS: Wind speed, wind direction,
10 barometric pressure and uh, temperature, temperature.

11 MR. SMITH: Thank you ambient temperature.

12 MR. MACDOUGALL: Hi there, Mike MacDougall with
13 Powerex. I'm just going to make an observation about the
14 scheduling and then maybe get a clarification from Mark
15 because I think you addressed it most directly on this panel
16 but I heard it this morning.

17 My understanding of the scheduling rates under
18 the 888 tariff is once you've purchased the transmission,
19 whether it be firm or non-firm, daily or longer term, you
20 have up until 20 minutes to the hour to actually put your
21 schedule into place.

22 Now with ETAG and stuff it might be 30 minutes
23 but in essence, you've got what we call the real time market
24 in the west but it's probably next hour market for most
25 people, the ability to wait until that time to put your

1 schedules in so that you've got better forecasting
2 capability of what the wind output is going to be.

3 Now, from what I heard this morning, most people
4 sounds like they're doing day ahead schedules and then
5 riding on those day ahead schedules even when you're output
6 is changing whereas, I think the tariff today already gives
7 you the flexibility to make the adjustments or wait and put
8 the schedules in closer to the time that you have your
9 output.

10 MR. SMITH: My main point in bringing that up and
11 thank you. My main point in bringing up scheduling is
12 because our forecastability does change rather dramatically
13 towards the end. And if the controller is that you are most
14 familiar with, allows scheduling right up to 20 minutes
15 before the top of the hour, that provides us a great
16 opportunity to come up with a very accurate schedule of wind
17 generation.

18 There are areas, certainly across the United
19 States where there are significantly more delayed timeframes
20 for scheduling and some areas where there is a day ahead
21 scheduling required.

22 One of the issues that I saw within the context
23 of the staff white paper, which by and far, I entirely
24 support, but the one area I do draw a little question with
25 is the area of being able to day ahead schedule.

1 From our perspective, what we would want to
2 schedule a day ahead is only that that we have a very high
3 confidence level is actually going to be generated in the
4 particular hour that it's scheduled to generate. Most often
5 a 95% confident level is pretty close to zero.

6 MR. GRAMLICH: Go ahead Kevin and then we'll take
7 a next question.

8 MR. PORTER: Just quickly. I conclude with Mark
9 on the difference between day ahead and near time scheduling
10 on ISO I thought the FERC staff paper may have been a
11 little optimistic about the capabilities of event
12 forecasting. But I want to throw a question back to the
13 FERC staff.

14 It's been a while since I've looked at the Order
15 888 performance tariff but I thought the 20 minute
16 scheduling change that you could do was kind of left up --
17 it wasn't a requirement, it was left up to the transmission
18 provider if they want to put that in, and I wanted to ask
19 that clarification.

20 MR. HEGERLE: The tariff that I have right here
21 says 20 minutes or some other practice is regionally
22 accepted. So unless the whole region is doing something
23 other than 20 minutes before the hour, they will be required
24 to have 20 minutes.

25 They would have had to come in and make a

1 demonstration when they file their tariff that the region is
2 doing something else in order to do something else.

3 MR. GOUGH: Mr. Chairman, panel, my name is Bob
4 Gough. I'm the Chairman of the Intertribal Council on
5 Utility Policy. That's a Council made up of a number of the
6 tribes in the North and South Dakota territories that
7 probably the windiest in the country. Probably the sweet
8 zone for wind.

9 We are very interested for wind development
10 opportunities and if you look at Indian country, you notice
11 a couple of things. Let's start from where we are right
12 now. According to -- tracking on wind projects, right now
13 there are 9 tribes with sort of first steps projects
14 accessing their wind resources, 31 in feasibility and 5 in
15 development.

16 The tribes are looking to play a substantial role
17 in wind energy and I just wanted to make a couple of
18 comments here because there is no place for tribes to sit on
19 these panels. There is not a tribal slot today and I would
20 hope at some point, we may look at a tribal consultation
21 with FERC because the jurisdictional nightmare that everyone
22 here has to deal with, is only compounded once you are in
23 Indian country.

24 So whereas wind developers in the wind industry
25 or the new kids on the block with the new toy, trying to get

1 into a system whose rules are made by someone else, we are
2 in that same boat but of color and poor.

3 So the end of a different jurisdiction. You are
4 the National Federal Energy Regulatory Commission. I serve
5 as a consultant to the Rosebud Tribal Utility Commission.
6 There are 300 tribal nations in WAPA service territories.
7 Each one of them eligible as sovereigns to have their own
8 regulatory commissions to be looking at these issues, to be
9 looking at development.

10 In the Northern Plains, we represent something
11 upwards towards 200 gigawatts of wind power potential. In
12 some of the poorest communities in the United States. So we
13 are looking at wind as an opportunity for sustainable
14 development. Long-term sustainable development in some of
15 the poorest communities in the country.

16 A couple of points I just want to make. The
17 assumption in this country since the 19th Century was that
18 the Indians were the vanishing Americans. They were going
19 to disappear. They've not appeared on your panel, they
20 don't appear on the maps of the wind resources in the FERC
21 paper, but they're there. And in the 1930s that
22 hemorrhaging was stopped. The hemorrhaging to the loss of
23 tribal land was stopped.

24 But as infrastructure was built and utility grids
25 were built through the 20th Century, tribes were still out

1 of the picture. Their jurisdictions were not respected.
2 And now at the 20th, the beginning of the 21st Century,
3 tribes are still here, they are strong, they are serving
4 their rights into a system that has never contemplated their
5 participation.

6 So there is need I believe for the federal
7 government and FERC as a representative agency of the
8 federal government, with your own treaty responsibilities
9 and trust responsibilities to the tribes to sit down with us
10 at some point in a consultation manner to begin looking at
11 some of these issues.

12 For tribal development on the reservations, we're
13 told, for example, that you interconnect into the system
14 with a 20 megawatt wind farm, on say Rosebud, for example,
15 we have to go to the back of the queue, even to meet our own
16 needs. For the last year or so when the PPC was expired,
17 they are all phantom projects. None of them were moving and
18 yet we had to get to the end of that line to see what we can
19 do to get our own boundaries to meet our own needs.

20 This is just one of many number of issues, net
21 metering is another. Tribal renewable portfolio standards
22 may be another opportunity for tribes to secure this kind of
23 development within the reservation boundaries.

24 These are just some of the issues and I'd love to
25 take more time but I will supplement my comments and submit

1 them in writing. I thank you for the opportunity to at
2 least raise that issue because we have Western here, this is
3 the only sort of federal relationship connection we have to
4 the panelists.

5 We've got most of the tribes and most of Indian
6 people in this country sitting in the WAPA service territory
7 so there is a pretty opportunity for FERC, for WAPA, for the
8 Department of Energy to work together to bring sustainable
9 economies on reservations based on wind. If we can get it
10 committed to the system. Thank you.

11 MR. GRAMLICH: Well thank you and that's exactly
12 the reason why we have an open mike session. I appreciate
13 that comment. I think we do have again -- we're late and we
14 have a third panel so I think what we are going to do, as
15 quickly as we can, get the third panel up here and we'll
16 start as soon as they're situated.

17 CHAIRMAN WOOD: If everybody could take their
18 seats please, we'll get on with our long anticipated tariff
19 panel. While everybody is getting seated, I wanted to
20 introduce some of our staff folks here today as part of the
21 transmission and the wind team at FERC and I wanted to let
22 you all know who they are so you can get to work with them.
23 Matt Deal, Technical Team Lead Mark Hegerle, Chris Thomas,
24 Carol White, Jiganasa Gadani and then Sam McKinley was
25 coordinating all this. He is the friendly face you see when

1 projects in our portfolio with over 1,000 megawatts of wind
2 in production today and we have a solicitation on the street
3 as we speak, looking for a few hundred more megawatts.

4 Steve Larson talked about the California RPS, so
5 I won't comment on that. Without getting into the legal
6 issues and the merit or demerits of the case that Steve
7 Larson talked about, I want to give you a solution and I'm
8 going to give you three things for your punch list that will
9 resolve this issue, hopefully make the lawsuit moot,
10 sidestep the issues that are teed up in the lawsuit.

11 Probably more importantly, get some transmission
12 lines built at Tahatchby or the wind developers want to
13 develop. So the problems that we've got with wind in
14 California and the lack of transmission revolve around the
15 remoteness of the wind resource. And it's really not that
16 remote.

17 When you think remote in some states, it's
18 hundreds of miles. But in Southern California territory,
19 Tahatchby is roughly 25 miles away from the last
20 interconnect point of the ISO grid that the ISO manages.

21 And so we're really not talking about a huge
22 distance here. And so the first think we would like FERC to
23 do is to change their policy with respect to treating wind
24 projects as interconnect projects and instead, adopt a new
25 type of transmission category and we've come up with a title

1 for you, called a renewable resource trunk facility.

2 In this, the notion here is that where you have a
3 renewable resource pocket, in the Tahatchby area to use
4 those as an example, we have the California Energy
5 Commission has estimated some 3,000 to 4,000 megawatts of
6 potential wind in this 40 square mile area that we call
7 Tahatchby.

8 What we would like to do is set up a transmission
9 category call this trunk facility where we could build, in
10 this case, a 500 kv line up there, with the ISO's approval
11 and that FERC would say that this is not a genti. That this
12 is part of the grid where enlarging the grid to encompass
13 this new territory and enable wind generators to develop and
14 have transmission access and deliver their power to the grid
15 and to the load centers beyond that.

16 That's a change because right now, as I
17 understand it, there is only two categories of transmission,
18 one would be the a genti and the other one would be the
19 network upgrade or network facility, which may also be
20 driven by a generator need. And the rate making and cost
21 recovery consequences of those decisions are significant.

22 What we would like to see is this new category
23 that would have the following attributes. If something is
24 deemed to be a true facility, then it goes into the
25 transmission owners transmission revenue requirement and

1 gets rolled into the ISO rates for recovery through the ISO
2 tariff, like other grid transmission cost.

3 And that's a significant distinction. It gets us
4 out of this debate as to whether the generator funds or
5 whether the transmission owner funds. It becomes part of
6 the infrastructure of the grid, and that we think is
7 important. The second item on your punch list
8 that will enable this to happen is to give some pretty
9 strong policy guidance to the transmission planning
10 entities. In our case, it's the Cal ISO because the Cal ISO
11 is the transmission planning organization for the
12 transmission owners that are part of the ISO.

13 We input into their transmission planning
14 process, they have a fairly elaborate transmission process
15 and it involves the rest of the southwest and other control
16 areas that touch the ISO. But the ISO needs to get the
17 direction and if a transmission owner proposes, which is
18 consistent with state policy, one of these trunk facilities
19 to connect their renewable resource pocket, that that should
20 be approved as part of their transmission plan.

21 And that's important because right now, the
22 transmission planning process does not make that clear.

23 The third thing that you need to do to make this
24 happen is to modify or update your abandoned plant policies.
25 The abandoned plant policies were developed in the days when

1 we had integrated utilities and transmission plan and the
2 transmission planners were integrating utilities and the
3 basic FERC policy at the time was that if a project has
4 began, dollars are incurred, costs are incurred, but the
5 project was never finally approved by FERC, then the
6 shareholder or the transmission holder eat 50% of the cost.

7 That doesn't work in this environment where we
8 have an ISO planning process where we have some public
9 policy that wants to expand the grid, that if it's an
10 approved project and for whatever reason it looks like an
11 abandoned project -- and this could look like an abandoned
12 project because we could build a 500 kv line to the
13 Tahatchby area and it may take several years for the wind
14 developers to actually get its projects connected to the
15 facilities.

16 It could look like an abandoned project because
17 it wouldn't have any real service on it and the shareholders
18 can't take that risk to make that investment.

19 So you do those three things, that facility will
20 get built and I'm going to switch into the timeframes. You
21 can do this stuff in the next 90 to 120 days. We are filing
22 next Thursday, two applications at the California Commission
23 to build this facility. It's about a \$207 million project,
24 three segments, two 25-mile segments, one 17-mile segment,
25 500 kv facilities, two new substations in the Tahatchby

1 area. As soon as we file that, which is, as I say, next
2 week, we're going to file a request for a declaratory order
3 at FERC to ask you to do these three things that I just
4 suggested.

5 And so you I have teed up, and the process at the
6 PUC is probably -- we will see how fast the PUC acts now
7 because we are going to start the clock at the PUC and we
8 are going to see how fast the PUC can act on these
9 applications. But we're hoping that they can give us the go
10 ahead in 12 to 18 months and if they do, and if FERC can do
11 the three things I suggested, the first segment will be
12 online by the end of 2007 and the other two segments will be
13 online by the end of 2008.

14 And we've got the detailed engineering done,
15 we've got all the transmission studies done and we're
16 prepared to go. This will then resolve the issues that
17 Steve talked about with the lawsuit because it will just
18 kind of jump over this jurisdiction and cost recovery issue
19 that is the subject of the lawsuit.

20 We have Tahatchby integrated into the grid and
21 wind developers can develop their projects and we will get
22 the resources we need to meet the RPS statute.

23 CHAIRMAN WOOD: I know we have a lot of folks but
24 I do want to just talk while it's somewhat fresh on my mind.
25 In that work upgrade under our current normal criteria,

1 cannot be recovered through the Cal ISO transmission access
2 charge? MR. FIELDER: It can. Certain network upgrades
3 can. As I understand it, if there is a network upgrade that
4 is driven by a generator interconnect request, then that
5 network upgrade may be funded by the generator. The
6 generator may be responsible for that and then it's credited
7 back to the generator over five years.

8 But that is a real tough nut for wind developers
9 because if the network upgrade is \$50 million project and
10 they are only a 50 megawatt wind project, that just swamps
11 the economics of your project.

12 CHAIRMAN WOOD: But if the Commission clarify
13 that you could -- the main thing we wanted in the rule was
14 that you didn't have the transmission or network upgrades be
15 borne by the generator.

16 The crediting is the common middle ground but
17 clearly as I advocated in Texas, the utility is paying up
18 front, getting normal cost recovery for that is an option
19 under our current regulation.

20 It sounds like you're arguing that that should be
21 something that's clear that that doesn't have to go through
22 crediting.

23 MR. FIELDER: Beyond that is a genti because if
24 you look at those grids -- I didn't bring a grid map but,
25 one of the links or two of the links in this project go from

1 the last substation of the grid up and create two new
2 substations up in Tahatchby, and there are no generators up
3 there yet.

4 And so that could look like a genti, and that's
5 the issue that FERC needs to change its policy on.

6 CHAIRMAN WOOD: So it's the definition of where
7 the line between generator upgrades are what we call
8 driveway facilities and highway facilities exist?

9 MR. FIELDER: Right, right.

10 CHAIRMAN WOOD: Got it.

11 MS. KELLY: John, did I hear you correctly that -
12 - who would fund this? Did you say not the generator and
13 not the transmission owner?

14 MR. FIELDER: No, the transmission would, Edison.

15 MS. KELLY: Oh, the transmission owner, okay.

16 MR. FIELDER: We will build it, we will finance
17 it, we will fund it, put it in our transmission revenue
18 requirement, roll it into the transmission access charge
19 that the ISO, just like the rest of the transmission charges
20 that the ISO administers.

21 MS. KELLY: Do you anticipate any opposition to
22 your proposal?

23 MR. FIELDER: Not in this room.

24 (Laughter.)

25 MR. FIELDER: We have done a lot of the

1 environmental work and the site work. We have existing
2 right away up there. I don't know where it would come from.
3 Maybe some of my generator friends can answer it.

4 It may raise an issue with respect to fossil
5 generators because it is a bit of an exception to the way we
6 would treat a gentis. But the argument that I think makes
7 sense is with nuclear coal and gas, the generator can locate
8 anywhere it wants and move he fuel to the generator.

9 With these renewable wind resource pockets, you
10 can't do that. You have to locate the generator where the
11 fuel is. And this will also apply, by the way to a geo-
12 thermo field. If down in the Imperial Valley of California,
13 we have the geo-thermo potential but not transmission. The
14 same policy could encompass something like that, or even a
15 small hydro watershed.

16 MS. KELLY: And is it all in your service
17 territory?

18 MR. FIELDER: The Tahatchby, it is. All in the
19 service territory.

20 MS. KELLY: Thank you.

21 MR. HEGERLE: John, any more or are you finish?

22 MR. FIELDER: I think I will stop here. I think
23 I've used my time up. I have to catch a plane but I do want
24 to hear the rest of the panelists.

25 MR. HEGERLE: Okay, very good.

1 MR. FIELDER: Thank you.

2 MR. HEGERLE: Next we have Jim Byrne from RMATS,
3 he is the Coordinator and Facilitator for that whole process
4 and we would like to hear what you have to say Jim. Thanks.

5 MR. BYRNE: Thanks Mark and the Commission.
6 We've already had a couple of discussions in each of the two
7 panels this morning about RMATS.

8 Doug Larson talked a little bit about how RMATS
9 came about and Bob Easton talked about some of the specific
10 recommendations and I'm going to focus a little bit on some
11 additional work that we did in RMATS above and beyond the
12 transmission planning aspect.

13 As was discussed this morning, the Rocky Mountain
14 Area Transmission Study ("RMATS") is an ad hoc stakeholder
15 driven process. It was a transmission screening study by
16 and large, and it was initiated by the governors -- Governor
17 Friendthal of Wyoming and Governor Levitt of Utah.

18 We operated as a sub-regional transmission
19 planning entity associated with the SIGWEE process which was
20 a planning effort that was west wide. Not sort of the other
21 way around as it was discussed this morning.

22 Although RMATS was a transmission planning study
23 focusing on what new transmission was needed in the
24 regional, our principal recommendations were for new
25 transmission construction both in the Rocky Mountain region

1 and across the west.

2 We did get involved with a number of issues
3 related to the operation of the existing transmission system
4 and specifically, transmission tariff treatment under OATT
5 Order 888 tariffs. So there are a number of good reasons
6 why we got involved in that.

7 First RMATS was a stakeholder driven process and
8 we had -- we basically inherited from the SIGWEE process a
9 timeframe of 2008 through 2013 as our planning horizon,
10 which is certainly appropriate for new transmission
11 projects.

12 But we had numerous stakeholders in our process
13 whose timeframe was a good year shorter than that and they
14 are planning horizon when you can build up wind projects in
15 18 months, somehow a project that looks at new transmission,
16 5, 8, 10 years out is not all that they were interested in.

17 So our stakeholder effort raised this issue
18 earlier on of the disconnect between some generation
19 resources that can build now or very soon and transmission
20 that takes a long time to develop. And so we agreed to take
21 a look at some issues in terms of operation and efficiency
22 of operation of the existing system.

23 Also we had the information that Doug Larson
24 talked about this morning and showed you Figure 1 of a paper
25 that he filed with you about works SIGWEE had done earlier

1 on. The actual amount of congestion on a congested path,
2 being a small number of hours of the year.

3 So with that information and background, we
4 agreed to take a look at these operational issues and formed
5 an operational work group to do a number of things
6 associated with, how can we utilize the existing system more
7 efficiently, and particularly this was of interest to the
8 stakeholders and they participated quite actively in this
9 work group.

10 As was mentioned earlier, we work with NREL.
11 They provided a good deal of support to look at three sample
12 transmission paths and try and identify the amount of unused
13 physical capacity on those transmission lines and match that
14 up with the availability of wind based on NREL wind data for
15 sites that we chose for our study.

16 As was also indicated earlier, we did run into
17 some data problems with that. That is probably a long-term
18 issue that we all need to work on. We used the actual
19 physical use of the system data that comes from WECC and
20 there was some holes in that data. And NREL's wind data, in
21 development, some places it's better than others.

22 But nevertheless, the group was satisfied with
23 the outcome of the studies that there was indeed a good
24 match between availability of wind in the target areas and
25 capacity on the systems that the amount of interruption that

1 are actually need to take place was relatively small, and
2 that was discussed in -- I guess the easiest thing is, Roger
3 Hamilton has filed comments in this proceeding for West Wind
4 Wires. The wind section of Chapter 5 of the RMATS report is
5 included in that filing and it discusses some of those
6 issues about this analysis and the match between the wind
7 data.

8 The wind is not always blowing when the
9 congestion is there. So the amount of interruption that
10 would take place for wind would be a good deal less than
11 that for constant output, say gas line or whatever.

12 And then in the discussions of those results the
13 group focused on the existing OATT tariff and the
14 flexibility does not exist in those tariffs to utilize this
15 capacity that's currently unutilized. Because of the
16 discussions we had earlier about needing to assure firm
17 service for 100% of the year.

18 The work group developed some tariff language to
19 look at a conditional firm product that has been discussed a
20 couple of times today and also a long-term non-firm product.
21 Non-firm is only available for one year or less and so it
22 doesn't serve the needs of wind developers.

23 That language that we developed in this working
24 group wasn't far enough along to actually get included in
25 the RMATR report but it's had some additional folks looking

1 at it and in the filing that Roger made to Western Wires, in
2 the end of it, there is specific language, amendment
3 language to the OATT tariff for both this conditional firm
4 product and a long-term priority non-firm product.

5 It will hopefully allow the flexibility for
6 utilities to file these tariffs and allow intermittent power
7 developers to take a look at that and see if they could take
8 those to the bank.

9 MR. HEGERLE: Jim can you summarize the service
10 terms, the changes that were made in the condition firm and
11 priority non-firm?

12 MR. BYRNE: Well I can perhaps rather leave that
13 for the discussion period after and we can get Roger to
14 participate as well but it takes a while to even explain it
15 briefly and I think the staff included sort of a bulletized
16 explanation of these tariff products as an appendix to the
17 white paper, and anyone can take a look at that.

18 The drafts that Roger filed in this proceeding
19 will serve as a current version of a work in progress but
20 nevertheless, they serve the purpose of getting specific
21 language on the table so people can see beyond our
22 bulletized list description of what these products might be.

23 Actually what would be needed to change the
24 tariff to realize some of those projects and principal
25 draftee Chris Nycee is in the audience, will direct all the

1 most technical comments to Chris.

2 So the recommendations that came out of the RMATS
3 process was to continue to look at this generic OATT draft
4 language and define this conditional firm and priority non-
5 firm service products.

6 I'll work with interested utilities to hopefully
7 get those filed with the FERC for approval and there may be
8 some other processes like rulemaking that might work for
9 that.

10 One of the things that we did identify in the
11 RMATS process was that it was important if we are going to
12 make recommendations to build new transmission, and we did,
13 and if we'd like to see that new transmission built, as was
14 mentioned in one of the previous panels, we've got to show
15 folks that we are efficiently using the existing system
16 before we can try and convince them to build new
17 transmission.

18 So this is an element hopefully improve the
19 utilization of that existing system. And finally, again,
20 RMATS was an ad hoc organization, had no authority to move
21 any of these ideas forward. The tariff issues that we
22 identified, we think are important and applicable beyond the
23 RMATS region. That is, they are applicable
24 wherever OATT tariff regimes still are in place. And the
25 conditional firm and priority non-firm tariffs may provide

1 additional capacity for intermittent resources wherever OATT
2 tariff conditions are utilized and we will hope that FERC
3 will take action on these new tariff projects, which may be
4 beneficial to the reasons where that regime exist. Thank
5 you.

6 MR. HEGERLE: Thank you Jim. Now we will have
7 Jim Caldwell from PPM Energy.

8 MR. CALDWELL: It's late in the day and there is
9 still a lot of smart people with the right attitude who have
10 to talk so I'll leave the commercial aside and see if I can
11 cut to the chase and give some specific recommendations.

12 None of these are fresh -- at least not very many
13 of them area fresh. I happen to be reading my current pulp
14 fiction air plane reading is the new Tom Clancy book and
15 he's got a line in there where he says, well if the bad guys
16 are shooting once, he's probably worth shoot twice or maybe
17 three times. So you've probably heard these once or twice
18 before so at the risk of the third bullet, we'll see.

19 The first thing that I'd like to say is, let's
20 just get rid of energy imbalance, that the punitive
21 imbalance penalties have no place in the OATT tariff for
22 intermittent resources and we just ought to say that and get
23 rid of it.

24 The quid pro quo for that has always been this
25 best effort forecasting and the critical features of getting

1 rid of it in t he context of the OATT tariff or what's
2 contained in either the Bonneville tariff or the PAC tariff,
3 the Pacific Corp tariff. Either one of those could serve as
4 the template.

5 What the critical features are is, first, near
6 real time scheduling updates. Although, I know Mark pointed
7 out that the pro form tariff does have that ability to
8 update your schedule 20 minutes before the operating hour,
9 most transmission providers count the imbalances off your
10 day ahead.

11 So it doesn't matter what you have the right to
12 do up front, it's still the imbalances are off the day
13 ahead. To my k knowledge only PAC and Bonneville allow the
14 imbalances to be calculated of the 20 minute ahead update.

15 The second thing is the tailored dead band, the
16 5% dead band and then the so-called mild penalties. In
17 other words, not the death penalty of the \$100 per megawatt
18 imbalance charge but the mild penalties which really do
19 serve as sort of the incentive to do good forecasting, to do
20 good scheduling and also do serve in some way, anyway to say
21 that this is some mechanism that gets us somehow close to
22 what the cost actually is.

23 So just adopt the Bonneville or the PAC language,
24 make that part of their pro forma tariff and let's forget
25 about it. In the RTO context, there is a lot of issues

1 about the California ISO style programs. We think the Cal
2 ISO program works fine. There is likely to be a hybrid that
3 comes out of the MYISO process. Clearly New York is going to
4 go through their own exercise. We can leave that for
5 another day. We'll all get there from here, but just change
6 that pro forma.

7 Second, Kevin Porter touched a little bit on
8 this, most other people didn't but it's on this capacity
9 accreditation issue. As the FERC get into issues like
10 resource adequacy, and we start getting into these things,
11 this is becoming an important issue.

12 I don't think there is no discussion that I've
13 heard that says, that the proper way to do this is not the
14 LLLP or EOLLE or ELCC as explained in the FERC white paper.
15 And yes it is data intensive and it does require good data
16 and it requires good model and all that, so people look for
17 shot cuts.

18 But at least the FERC ought to establish that as
19 some sort of a standard of benchmark. And if somebody comes
20 with something different, ought to have the obligation to
21 say that this somehow bears some semblance of what you'd get
22 if you do it the correct way with the right data.

23 And the tariff I suspect that you'll see first,
24 where this comes up, is the USPP tariff. What they did,
25 they started off with essentially an ELCC type calculation

1 and then they basically said, well gee that answer came up
2 about 20%. We know that can't be right because we know that
3 wind doesn't have any capacity value.

4 Therefore they divided by -- I can't remember
5 whether it was the square root of the page number that they
6 were on at the time or some other thing to come up with an
7 answer. Okay, that's the right answer, it's about 3%, and
8 that's what they'll file. So if you want to shoot
9 something, shoot that one.

10 (Laughter.)

11 The third thing I think is adopt the grid code.
12 I'm not saying the grid code or the grid code that we
13 propose, but a grid code. We need interconnection
14 standards, we need those technical interconnection
15 standards.

16 They haven't talked a lot about them today but
17 they do overlap. All of what Dave Hawkins was talking
18 about, about the need for scata, about the need for data,
19 about the need for, you know, that's in the grid code.
20 We've said that that ought to be a requirement,
21 interconnection requirement for new wind generators to sign
22 up.

23 We don't want people to get on the grid and then
24 turn around and say, well gee I can't supply that data
25 simply because it's too expensive to retrofit. That ought

1 to be a quid pro quo to start with. So adopt that, get it
2 done.

3 Then we get into the fourth area where I think
4 just about every person has talked about making more
5 efficient utilization to the existing grid as something we
6 can do in tariff changes. And so, let me try to get into
7 that without mention the RTO word. So let's just say we are
8 in the current environment and this is something that we can
9 probably do under the existing system, the existing tariffs.

10 And yes, RTOs will be fine when they get here, if
11 they get here. I got a lot of gray hair, I hope I see it,
12 but I'm not convinced that I will.

13 And so, we've talked -- I have four items that I
14 think we can do. First we've talked about conditional firm.
15 Jim just talked about it. I'm sure we'll hear about it some
16 more from other people.

17 Pacific Corp this morning talked about
18 principles, talked about definitions and I think that work
19 has essentially been done. There is this communication that
20 needs to happen.

21 But what has to happen, someone has to be
22 anointed to be the first one to try this. You know, the
23 first guy out of the box is always going to get shot somehow
24 for taking this step.

25 I think the FERC needs to say, the first guy out

1 of the box, the first person who actually propose this is
2 going to get some kid glove treatment, is going to get some
3 slack, some leeway in what they are doing and in the
4 interest of developing this in the long term, and that they
5 are not going to be held to dotting the Is and crossing the
6 Ts and making sure that it's right. Because we have to get
7 down to real cases.

8 We have to get to a real project that has a real
9 banker behind it. The banker has to say this works for him,
10 the developer has to say it works for him, the transmission
11 provider has to say it works for reliability and my
12 customers are all upset about this for cost shifting, but
13 we've got to get to a case.

14 If someone wants to step up, I think the FERC
15 should have an affirmative thing to say, we will protect you
16 or we will give you some sort of an safe harbor for what you
17 are trying to do here within the bounds of that.

18 If Bonneville is the person who wants to do that,
19 and I think they've expressed that interest, then let's do
20 it. Let's just get on with a specific project.

21 CHAIRMAN WOOD: So Jim you're suggesting not that
22 we reform the pro forma tariff and make it a part of
23 everybody, but just entertain volunteers?

24 MR. CALDWELL: Well I think on the conditional
25 firm, it will end up eventually being a tariff product. And

1 we can probably write in the pro forma tariff, based upon
2 the work that Jim was talking about. I mean we have two
3 tariff language examples that are full-blown tariff language
4 example.

5 But in the real world, just having that in the
6 tariff isn't going to get us to a real project because there
7 is still going to be a lot of issues that are case-by-case
8 that needs interpretation of what that tariff means.

9 So I think it's one thing to say we are going to
10 take the tariff and we can take the language that's there
11 and put it in the tariff. But the first person who proposes
12 a real implementation, a real compliance filing, if you
13 will, against that tariff, is going to face a whole lot of
14 arrows and so forth and he is going to have to have some
15 assurance that you are going to look on this as if nothing
16 else, as an experience, but as an attempt to make things
17 better.

18 And therefore you are not going to shoot the
19 messenger simply for trying something and maybe getting 90%
20 there and not getting 100% there.

21 CHAIRMAN WOOD: It was our panel I remember, but
22 it was our experience with the gas, the one that we referred
23 to in the staff paper, was that a bloody experience for
24 those utilities there?

25 MR. CALDWELL: You know, I wasn't around a lot of

1 the gas era but I will say something about that and I think
2 it is relevant here, that even in the gas side -- I mean we
3 talk now as lot about secondary markets and about
4 remarketing and so forth.

5 It was years after order 636 -- I think that's
6 the right number. I used to have those numbers memorized.
7 It's been too many years. But it was years after that,
8 until the secondary market actually developed. And yes it
9 was contemplated at the beginning, but it takes a whole lot
10 of people working on a whole lot of details to get that
11 liquidity.

12 And in this sort of my next topic anyway, so I'll
13 just get right into it. You know, Doug Larson talked about,
14 you know, having the FERC monitor the current use of Order
15 888. I think probably a more focused monitor ought to be on
16 these remarketing things.

17 How liquid are the remarketing efforts? How good
18 are the secondary markets in these transmission products? I
19 think you find they are pretty terrible. I'm not saying
20 that's anybody's fault, it takes a lot of time and there are
21 some provisions in the tariff which do prevent -- go to this
22 flexibility and no point want out, that makes it really,
23 really hard to remarket.

24 And a lot of the pro forma tariffs that are out
25 there, a lot of the old tariffs that are out there, have a

1 provision in that which is another punitive imbalance
2 penalty, if you will, and it has to do with exceeding your
3 reservation.

4 So if you have a firm reservation of 100
5 megawatts, okay, and in any one hour during that year you
6 actually transmit 101 megawatts, and it's a very, very tight
7 dead bend, what happens is you get whacked with a huge
8 ratcheted demand penalty that makes totally impossible to
9 come.

10 So what happens is, the user, the transmission
11 customer has to have enough cushion so he is not subject to
12 that penalty. So if he reserves 100, he can only really use
13 95, just for that, you know, one hour out of the year where
14 he might go up. If you are a wind guy, you can see what
15 that's going to do to you from that standpoint.

16 When I checked into the hotel last night, you
17 know I had a reservation, okay. If I want to extend that
18 reservation I don't get hit with a huge penalty for
19 exceeding my reservation, I get put on a non-firm basis and
20 I say well, gee, if space is available then you can get in.

21 Then instead of having the huge non-cost base,
22 punitive penalty for exceeding the reservation, if you just
23 said that within a certain dead bend we're flanging up with
24 this near real time scheduling opportunity that said you
25 have the right 20 minutes before the operating hour to

1 nominate something that was non-firm. And if it as
2 available then it would be converted to non-firm.

3 Then that would not only make it cheaper for wind
4 developers to use firm point-to-point that would not only
5 make it easier or would mean that schedules would be
6 utilized to their fullest extent, but what also make
7 remarketing of pieces of those schedule much more flexible
8 and much more easy to do.

9 So I think it's really looking at the results
10 that is the secondary markets, the remarketing efforts and
11 saying, that's where we need to go.

12 The fourth thing I think we can do, again, right
13 now, and this is something that Bonneville, the transmission
14 side, TBL side of Bonneville recently in a speech came out
15 for. And that is try to develop regional regenerator re-
16 dispatched protocols for the existing system

17 That a lot of the support of these innovative
18 products are a lot of the support for the long-term firm
19 from point-to-point transmission comes from the ability to
20 generate or to re-dispatch generation in the short term
21 based upon contingencies.

22 And there are no, there is no regional re-
23 dispatched protocol. There is no reason why we need an RTO
24 to have. Bonneville is out there, Pacific Corp I know would
25 support that sort of thing. We need to take some of these

1 steps now which are part of an RTO, but we can do without an
2 RTO.

3 Generator re-dispatched protocols, seems
4 agreement. You know, the gentleman, Mr. Otani from BLM was
5 talking about transmission corridors, that one group did it
6 this way and they didn't quite flange up.

7 Well we know the same thing happens in wholesale
8 markets. That all the balkanized controller is, they might
9 not all flange up, you know, five minutes before the hour
10 versus 10 minutes before the hour.

11 All of those little frictions in the scheduling
12 thing, you know, reduces the utilization of the current
13 system. There are grand schemes to do that. The Energy Day
14 initiatives in the Naesbe thing that says, okay, we're
15 trying to just get all of that little friction taken care of
16 between the gas and electricity markets.

17 We can do that on a very small scale on just the
18 tariffs here and make a big difference.

19 So I think in sum, that this deficiency or
20 utilization of the current system, that there are a lot of
21 little things that we can do with the current tariffs to
22 make it all better if we set it to and if we start off with
23 this idea that we are going to look at the results and
24 that's what we're going to do.

25 And this then becomes the bridge to the

1 transmission expansion to the transmission planning.
2 Because this is the way we are going to get enough
3 transmission, enough development so that we can wait for the
4 five, to seven, to ten years. So that we don't have this
5 field of dreams things which says that we have to do it.

6 And let me make one quick observation about that.
7 Jim mentioned that the fundamental disconnect between a
8 transmission line that takes five, seven, ten years to
9 design, plan, permit, and build, versus a wind farm that
10 takes 18 months. Actually only takes six months to actually
11 do the construction, 18 months for the delivery.

12 Just an observation -- that yes it is five to
13 seven to ten years for a transmission line, but if you look
14 at the cash flows over that five to seven to ten years, the
15 cash flows are all back loaded. The real risk of non-
16 performance, the real risk that John was afraid of in
17 talking about something being disallowed at the FERC. It's
18 all at the tail end when you build it.

19 At the front end when you're doing the planning,
20 the CPCNs the permitting, even the right away acquisition.
21 The dollars are relatively small and that risk ought to be
22 socialized and that ought to be part of it.

23 Because if you can socialize that front-end risk
24 and say that there is not risk, what you've really done is,
25 you've created an option. You've created an option for the

1 system to access those resources, if and when you want to do
2 it.

3 And the timing then becomes something that if you
4 can take five years off of the front end of that
5 transmission planning, now when you get down to the crunch
6 time and you're saying I have to have real projects lined
7 up, you know, that have real customers and so forth to pay
8 the real dollars before I spend the big bucks, now you're
9 talking in the same timeframe. You're talking in the same
10 one to two years with the developers.

11 So socialize that front end risk, it's not a lot
12 of dollars and then I think a lot of these other
13 discussions, I think, about participant funding and so forth
14 will be a lot easier. Thanks.

15 MR. HEGERLE: Thank you Jim. Beth Soholt from
16 Wind On The Wires.

17 MS. SOHOLT: Good afternoon. Thank you for the
18 opportunity to participation on the panel today and I also
19 want to thank the Commission for making wind power and
20 transmission issues a real priority.

21 Wind On The Wires have been involved for the past
22 three and a half years on wind power and transmission
23 issues, particularly in the technical and regulatory arenas
24 and at MYISO.

25 We are fortunate that that we actually have an

1 RTO that is hopefully, in a few months is going to have a
2 day ahead in real time market that's up and running. The
3 Wind On the Wires footprint does cover the seven upper
4 Midwest states, including the wind rich states of North and
5 South Dakota.

6 One of the early things that Wind On The Wires
7 did to try to be proactive in transmission planning for wind
8 power was to put together the Midwest wind development plan
9 in conjunction with the American Wind Energy Association.

10 This was used in the MYISO transmission expansion
11 planning process in 2003. They used the inputs from the
12 plan to run a high wind scenario and they are now taking
13 some of the economically beneficial transmission lines out
14 that plan and doing additional study on them and moving
15 those forward.

16 So it was a very comprehensive, forward looking
17 way to get transmission planning going for wind.

18 What I want to do today is shift gears a little
19 bit and take you, and talk about a few real life on the
20 ground examples of what's going on in the Midwest.

21 We are here to talk a lot about the issues in the
22 west but I think that some of the things that have happened
23 in the Midwest can be models for things that can be done in
24 the west.

25 And so, I'm going to focus on three areas today.

1 First is a wind and transmission study that is underway in
2 the Western Area Power Administration Upper Great Plains
3 region and the study include a task to analyze non-firm
4 transmission relative to new wind generation.

5 The second thing I'm going to talk about is a
6 recently completed Xcel Energy Minnesota Department of
7 Commerce wind integration study and the results from that.

8 And the third I'm going to touch just a little
9 bit on is the need to accommodate for state energy
10 preferences, particularly for renewable energy.

11 So first the wind transmission study that's
12 underway by Western in the Upper Great Plains region is for
13 placement of 500 megawatts of new wind generation in North
14 and South Dakota.

15 The first task in the study is to analyze non-
16 firm transmission relative to new wind generation. Western
17 is going to study three key corridors and evaluate and
18 compare what is currently administratively committed versus
19 actual use across those three corridors, using actual
20 historical data.

21 This task will help quantify for those three key
22 corridors, the risk of curtailment for new wind generators
23 that new wind generators would face should Western develop
24 and offer additional firm transmission product.

25 So here is a real life example of actually being

1 able to quantify the risk that a developer might see under
2 that type of product. This is an important step in
3 understanding the flexibility that may arise in those three
4 key corridors.

5 The entire wind and transmission study will be
6 completed in the next year and it fits nicely with the
7 consideration of the new transmission product that has been
8 talked about here extensively.

9 The second thing I want to touch on is the Xcel
10 Energy Minnesota Department of Commerce Wind Integration
11 Study. This is a recently completed study, September 2004.
12 This study took a rigorous technical work at a 15% wind
13 penetration on Xcel Energy system. 1,500 megawatt of wind
14 generation on Xcel system with a projected 10,000 megawatts
15 of peak customer load in the year 2010.

16 The study looked at the impacts of the
17 variability for wind power on system operations in the
18 Midwest. The study applied sophisticated science-based
19 atmospheric modeling to accurately characterize the
20 variability of Midwest wind generation.

21 The study was concerned with four time scales in
22 monitoring the operation of the power system. Regulation,
23 load following, scheduling, and unit commitment.

24 To look at the reliability impacts of the 1,500
25 megawatts of wind power on the Xcel system, a concept that

1 has been talked about here today already, the effective load
2 carrying capability was used. ELCC, as has been described
3 today, is a measure of the capacity value of any generator.

4 This method of measuring reliability has been
5 applied to traditional power plants for many years but it's
6 a fairly new concept when it is applied to wind.

7 So the bottom line is, what did the study
8 conclude? Well it concluded three pretty important things.
9 It concluded that 1,500 megawatts on a 10,000 megawatt
10 system peak could be reliably integrated into the Xcel
11 system. It concluded that 1,500 megawatts of wind
12 contributes 400 megawatts of ELCC, 400 megawatts of
13 reliability or 27% of the peak capacity. It's a pretty
14 important number.

15 Second, the study concluded that the cost of
16 integrating 1,500 megawatts of wind generation into the Xcel
17 control area in 2010 is no higher than Kevin Porter eluded
18 to the cost, \$4.60 per megawatt hour of wind generation.

19 The total cost includes about 23 per megawatt
20 hour. That's the opportunity cost associated with an
21 increase that Xcel has to have of 7.8 megawatts of reserve
22 capacity to satisfy the regulation requirement.

23 And then the other cost that was significant is
24 the \$4.37 per megawatt hour of wind generation and that is
25 attributable to the unit commitment and scheduling cost in

1 that timeframe. So it's \$4.60 per megawatt hour.

2 The third thing that was important to note about
3 this study is the study concluded that the \$4.60 is a
4 conservative or worse case scenario because many things,
5 like the wholesale energy market starting up could provide a
6 less costly alternative to the system than using internal
7 resources.

8 In other words, Xcel could purchase services in
9 the marketplace rather than using their internal resources
10 to compensate for the variability of wind.

11 And these costs are based on current state of the
12 art forecasting and scheduling and unit commitment
13 techniques. Those are going to improve as we get more
14 experienced with wind integration and higher penetration
15 levels.

16 So those are three pretty important factors that
17 came out of that study.

18 The third area I just want to turn to briefly are
19 several things that are critically important to accommodate
20 state preference for renewable energy.

21 And these are things that are basically
22 applicable to the MYISO area but they are things like the
23 MYISO regional expansion criterion benefits task force work
24 that's going on right now. That needs to really recognize
25 that state policies are driving transmission expansion in

1 states that have renewable requirements.

2 Not only reliability, economics need to be taken
3 into consideration but there needs to be a policy bucket in
4 that task force as well.

5 The second thing is the ability to do group
6 studies under Order 2003(a) and I'm very pleased that the
7 Commission reconsidered their decision recently and did go
8 ahead and allow the ability to do those group studies.

9 The third thing that we really need to work on
10 that hasn't been addressed much is the allocation of new
11 transmission capacity going forward. And it's we especially
12 need to look at it across the seam between market and n on-
13 market participants.

14 Since we work in the wind rich states of North
15 and South Dakota, we're very aware and are constantly hoping
16 that we can come to some resolution on those seams issue so
17 it's going to be very important on a going forward basis to
18 look at how to allocate the new transmission capacity so
19 that we can get over those seams hurdles.

20 So in summary I have three recommendations for
21 the Commission. It always has to be three, you know. I
22 would recommend that FERC closely follow the results of the
23 WAPA wind transmission study, particularly the task on
24 analyzing the task on non-firm transmission potential.

25 It's really going to be an important task and

1 those results are going to tell us a lot about what the
2 potential is for that kind of product.

3 Second, continue to ensure that the policies and
4 processes that are put in place accommodate state
5 preferences for renewables, key, key, key issue to be able
6 to have the state and federal agencies working together on
7 accommodating those preferences.

8 And the third will be to identify best practices
9 to quantify wind capacity value, and that has been talked
10 about a little bit here today, but we really need to get to
11 some best practices that can be utilized across the board in
12 quantifying wind capacity value. Thank you.

13 MR. HEGERLE: Thank you Beth. Next is Dan
14 Klemple from Basin Electric.

15 MR. KLEMPLE: Get done playing musical
16 microphones here. Thank you Chairman Wood and Commissioner
17 Brownell and Commissioner Kelly. Commissioner Kelly
18 congratulations on a well deserved confirmation.

19 Basin Electric is headquartered in Bismarck, NC.
20 We are a supplemental power supplier, wholesale power
21 supplier to rural electric cooperatives in nine states that
22 stretch north to south from Canada to Mexico; east to west
23 from Idaho to Iowa and so it's a big footprint and it's very
24 rural so there is not a lot of load in it

25 We have resources at the east interconnection and

1 in the western interconnection. We have installed about 87
2 megawatts of wind generation. Primarily two 40 megawatt
3 installations. One in North Dakota, one in South Dakota.
4 That's about 3% of our supply obligation in the east to our
5 membership over there.

6 This is at the direction of our members. They
7 see wind development in our region as economic development
8 in terms of jobs and in terms of tax base and it's a region
9 that is closely align with -- the gentleman earlier telling
10 us this is not one of the rich areas of the country, except
11 in wind.

12 (Laughter.)

13 Our members have committed well over \$150 million
14 of their money over the next 25 years in power purchase
15 agreements and payments in the winds. So they are serious
16 about doing this and when I tell you they are serious, they
17 get to decide where their money goes. So there is a very
18 serious commitment on their part when they think about where
19 that goes.

20 I'll just skip a little bit here what I wrote up.
21 I'll supply this to you in written comments. But we want to
22 get right to the heart of the matter, and that is the
23 potential that transmission customers have asked for to make
24 some changes to transmission service.

25 They are looking for, as I understand, a service

1 of transmission that will provide an interruption priority
2 just below firm transmission as it is today, but just above
3 non-firm transmission on mid ground.

4 That is something that depend on what the
5 specifics of proposals turn out to be, I think we will
6 support. I want to digress just a little bit because we are
7 talking about -- I saw the staff comments this morning and I
8 hadn't seen them before and the summary was that there
9 should be a 5A priority.

10 Right now there is level 6 priority which is a
11 non-designated network resource, network and there is a 5
12 priority which is a re-designation of firm point-to-point
13 transmission path and then there would be a 5 , which would
14 be a middle ground of curtailable firm service.

15 However, your network resource customers today
16 have a highest priority because they are paying for the
17 system no matter what. They are paying for the system so
18 they get the highest priority. But that's highest priority
19 firm from designated resources to designated load.

20 If it's a non-designated resource that they are
21 taking their service from, maybe we should rethink it a
22 little bit, because the firm point-to-point customer has
23 also made a commitment to pay for the transmission service
24 that he is contracted for essentially.

25 If he wants to re-designate the point of

1 delivery, or maybe the point of supply, shouldn't he have
2 the same priority as the network resource customer who is
3 getting it from a different source than their designated
4 source? And move 5 up to 6 and just replace 5 with this new
5 service? Just for something to think about a little bit.
6 I'm not sure 5 is the right place to put things.

7 MR. HEGERLE: Dan, just to be clear, that was a
8 summation of proposals out there. It wasn't necessarily a
9 staff recommendation at this point.

10 MR. KLEMPLE: Okay, thank you. It's off the top
11 of my head because I didn't see it before this morning.

12 I can continue on here. There are some basic
13 principles that we think need to be followed up though for
14 any new service. And the first one is it needs to be non-
15 discriminatory. I don't think we can pick a certain segment
16 of supply and say, if you have that supply source, whatever
17 it is, you get to use this service and if you don't, then
18 too bad. It cannot risk the reliability of the transmission
19 grid.

20 Thirdly the price for superior service should
21 correlate with the value of that service. Fourth, network
22 and point-to-point service must not be degraded and I have
23 seen some suggestions that a curtailable service should have
24 equal curtailment priorities along with other firm service
25 if it's been curtailed up to a certain amount during a month

1 already. I don't think that that case exist in firms
2 fairly.

3 And the beneficiaries of the new service has not
4 been subsidized by the existing transmission customers that
5 would be a service to them.

6 I want to mention just a little bit of our
7 experience. We've had these two wind farms on line now for
8 just under a year and based on that time, we found that
9 forecasting -- and we got into this a little bit this
10 morning, earlier today -- that forecasting generation for
11 wind projects still needs a lot of development.

12 The accuracy of next hour forecasting is poor and
13 significant improvement must occur before wind generation
14 can provide a large portion, at least of our power supply.
15 And we are primarily a coal-fired base load plant. We can't
16 hold the coal, it's in the late night fields of North
17 Dakota. If we have to haul it, it's uneconomic.

18 We find that even with an expected diversity of
19 140 mile separation between the two wind farms, our
20 experience is that about one-third of the time, the next
21 hour generation forecast error is still 50% or greater.

22 As wind energy production share grows, scheduling
23 errors of this magnitude can impact grid reality. A great
24 reliability, and somebody mentioned this morning, it is
25 system specific. Some of these things are just going to be

1 different in different areas of the country.

2 Also, a number of studies indicate that the cost
3 impact of intermittent generation is expected to increase as
4 productions here increases. Perhaps just as important as
5 tariff development, is the fact that each system is unique.
6 I repeat myself on that.

7 It is important that any tariff changes should
8 not penalize existing customers to that intermittent
9 resources. that's it. We believe the extensive debates on
10 tariffs and ongoing numerous and voluminous studies
11 constitute little more than rearranging the deck chairs on
12 the Titanic. We really need more wires in the air.

13 The national is critically short on transmission
14 infrastructure. The blunt reality of recent history is that
15 the system is being operated at ever increasing stress
16 levels and more than band aids will be needed to maintain
17 reliability and to allow the potential of wind energy to be
18 harvested.

19 Our continuing march to greater loading of the
20 transmission system without improving the nation's electric
21 transmission infrastructure is a recipe for disaster.

22 We will literally sow the wind and reap the
23 whirlwind. That's not popular. I think it came out of the
24 Old Testament.

25 (Laughter.)

1 Estimates relating to the economic impact that
2 last year's northeast blackout suggests the cost of that
3 outage exceeded \$10 billion.

4 To provide perspective on that number, \$10
5 billion could construct 20,000 miles of high voltage
6 transmission lines. That's enough to criss-cross the nation
7 more than six times. MR. HEGERLE: Okay, thank you very
8 much Dan.

9 MR. KLEMPLE: I'm going to have to jump to my
10 next page here. I want to shuffle these around and put it
11 at the bottom instead of the top. I want to give you one
12 thing in conclusion here.

13 We've got to have adequate transmission
14 infrastructure. It's the common denominator that enables
15 the integration of new resources, existing resources,
16 transportation for electric energy supply and
17 interconnection reliability.

18 The new open access world demands a change in
19 transmission pricing policy. A single system-wide average
20 rate and that's been promoted earlier today for all usage of
21 the high voltage transmission grid should be implemented
22 through the common interconnection.

23 Such pricing policy would encourage development
24 of new transmission infrastructure consistent with low cost
25 recovery. Thank you.

1 MR. HEGERLE: Thank you Dan and my apologies for
2 the large number of panelists we have today. I appreciate
3 your patients as we work our way through and if you could
4 keep your comments focused and succinct the rest of the way,
5 that will be very helpful. Thank you.

6 We next have Greg Miller from Public Service
7 Company of New Mexico.

8 MR. MILLER: Thank you Mr. Chairman,
9 Commissioners, for the opportunity to represent P&M here
10 today. I know you want to cut to the chase but I did get up
11 at 4:00 a.m. this morning to come up here to Denver and I
12 just want to give just a little nugget of advertisement for
13 P&M in this my five minutes.

14 New Mexico is a state that's rich in solar and
15 wind energy potential. As New Mexico's largest utility and
16 with a system that bisects one of these major wind potential
17 areas, we find ourselves right in the middle of the action
18 with a strong interest in the topics being discussed here
19 today.

20 P&M is committed to being a good environmental
21 steward and our New Mexico wind energy center, a 204
22 megawatt wind farm is a prime example of that commitment.

23 Through our participation in Governor
24 Richardson's Clean Energy State initiatives and various
25 regional planning and commercial practices forums, P&M is

1 working to be a part of the solution to further development
2 of these renewable resources.

3 With the completion of the New Mexico Wind Energy
4 Center in the summer of 200e,P&M is now one of the largest
5 wind farms in the country operating on our system.

6 The New Mexico Wind Energy Center represents a
7 successful real world example of the integration of a large
8 wind farm on a small system.

9 P&M and FPLE collaborated to construct,
10 interconnect, and bring the wind farm into operation in
11 about five months. that's fast. That's so fast in fact
12 that not all of the associated network upgrades were quite
13 completed when the wind farm went into operation, although
14 they have since been completed.

15 The New Mexico Wind Energy Center employs the
16 most advance technology available. For the first time in
17 this country, a low voltage ride-through criterion was
18 established and implemented so that the wind turbines would
19 not trip off line due to the fault on the New Mexico
20 transmission grid.

21 This was accomplished through a collaboration
22 through P&M, FPLE and GE Wind. P&M is also working with
23 NREL and others to develop better wind plant models based on
24 the New Mexico Wind Energy Center first to be used in system
25 studies.

1 In all, P&M's experiences have been positive,
2 although not entirely without challenges and I'm going to
3 name just a couple of those for you.

4 P&M has over 600 megawatts of wind farm
5 generation in its interconnection queue presently. All of
6 this generation is planned to be located in the same general
7 area as the New Mexico Wind energy Center and also to be
8 interconnected to the same transmission line.

9 We will face several technical and economic
10 challenges fully developing these facilities. P&M's load
11 peaks in the summer and in this area, the maximum wind
12 availability is at night and in the spring and fall.

13 Several of the issues that will need to be
14 resolved before we will be able to fully develop these
15 resources, include the level of network upgrades that will
16 be required, the lack of energy production diversity, the
17 large line losses, and also the hazard created by this
18 magnitude of generation on the single transmission line.

19 The New Mexico Wind Energy Center represents 10
20 to 20 percent of the supply for the P&M control area at any
21 given time. This high level of intermittent supply presents
22 control performance challenges.

23 P&M has seen its CPS2 measurements drop from pre
24 wind farm levels in the mid 90% range or recently closer to
25 the minimum standard, 90%. This control challenge could be

1 better understand when once considers the P&M has regulating
2 resources that are capable of ramping speeds in the 7-10
3 megawatt range, whereas the wind power fluctuations that we
4 have seen at the wind farm has been as high as 75 megawatts
5 in one minute.

6 Common regionalized flexible scheduling practices
7 are needed for accommodation of changes in the wind farm
8 output. Also where performance control issues would
9 otherwise limit the amount of intermittent resources, the
10 use of pitch control technology to moderate the ramp rates
11 of the wind turbulence levels more easily followed by
12 conventional generation sources should be considered.

13 P&M is near the limit of its ability to sink wind
14 energy to load in its control area. We do not, however,
15 believe that precludes further wind energy development on
16 the P&M system.

17 Additional intermittent resources that are
18 developed will likely need to be dynamically scheduled to
19 the customers destination and control area.

20 P&M offers a hourly firm transmission service
21 product. We believe this can provide delivery flexibility
22 for our wind resource. P&M has designated the New Mexico
23 Wind Energy Center as a network resource for its tariff and
24 this meets our need since P&M takes all of the energy
25 produced.

1 However, apart from these types of services and
2 circumstances, the present load transmission products do not
3 fit well with the needs of intermittent resources.

4 P&M supports the development of new transmission
5 products such as conditional firm and priority non-firm. We
6 think it is a great idea. It holds promise to permit higher
7 utilization of the transmission grid and seems to fit well
8 with the developer's needs.

9 However, no consensus definition presently exists
10 for these products. As we develop the attributes for these,
11 we need to make sure that we don't negatively impact
12 existing customers and also that queuing and network upgrade
13 responsibilities are fairer.

14 Not every plan is going to be suitable for
15 provision of this type of service. Conditional firm will
16 most likely have the most value on plans whose power flows
17 are largely driven by load cycles. Load growth may limit
18 the effective term of this type of service.

19 For those reasons, P&M believes this type of
20 product should be considered as a transitional mechanism for
21 a wind developer until such time as a permanent solution of
22 firm transmission can be made available. And with that I
23 will close and look forward to participate in the dialogue.

24 MR. HEGERLE: Thank you Greg. Next up is John
25 Meyer from Reliant Energy.

1 compatible with all the needs of the system, particularly a
2 thing such a wind. Primarily, because it was designed for
3 peak load delivery. We found out wind is more of an energy
4 play, though I would agree with has capacity value and I
5 applaud the groups like PJM that's developed a way to kind
6 of characterize that I think, at least in my estimation in a
7 logical manner.

8 Also, I think the pro forma has always assumed
9 that the output is controllable as far as how it addresses
10 imbalance and I think we all know that isn't the case
11 either.

12 So I think what needs to be done is some changes
13 to the policy of how you charge for transmission such that
14 you can include all users properly such as wind and need of
15 recognizing actual cost of the ancillary service
16 requirements, particularly on this intermittent resources.

17 An earlier panel speaker said, and I would agree
18 with him, that resale or reassignment is not the right
19 solution. It kind of help scenarios but I don't think it's
20 going to solve the major issues before us.

21 In dealing with those, I think obviously, the
22 two, what do we do in the excess charge for transmission and
23 then what do we do with the imbalance. Those seems to be
24 the areas of focus.

25 I believe there should be time differentiated

1 firm transmission service much less than daily or monthly
2 type service and the hourly is certainly, I think, a good
3 way to handle it. I'm not sure everybody wants to go to
4 hourly service. I think that requires lots of analyses if
5 you try to put your old system on an hourly service. It is
6 probably beyond your capability or certainly it stretches
7 it.

8 So maybe you can divide it up into blocks like on
9 peak, off peak, 8-hour blocks, 4-hour blocks. I'm not sure
10 what the proper amount is, but I think it deserves some
11 study.

12 And then you could fall back to hourly, such that
13 you could buy the amount of transmission capacity you need
14 in the proper timeframe.

15 I would make a comment that the pricing, you've
16 got to think a little bit how to allocate their pricing
17 because most of the values, like generation capacity is at
18 peak. Off peak it's not valued very high.

19 You've got to make sure you set up the
20 allocation, having been a former transmission owner at one
21 time so that you do get to recover all your costs and such
22 is the name of the game. But you do need to recognize that
23 difference.

24 On the imbalance services, I think there are
25 several solutions we can look at and I think as mentioned

1 earlier, I think the best one, though certainly not always
2 operationally as easy to deal with as dynamic scheduling,
3 the set requires real time information to be transmitted to
4 the proper control areas involved, which may also include
5 all the ones in the middle.

6 In Texas we used to do it with only the sink I
7 and the source. Of course, everybody in the middle could
8 get the data if they needed it, but they didn't directly get
9 the data. And I know every where else usually don't do it
10 that way.

11 Another way that's been pointed out that I think
12 is a pretty good way, though I think there is some issues
13 you have to deal with, is using an avoided cost energy
14 pricing mechanism. So that if you're out of imbalance and
15 the control area solves a problem and charges you what it
16 cost them to do it basically at that time.

17 Now the problem with that is, it could be pretty
18 high at times and it could be pretty cheap at times It's
19 because it's got to depend really on what they have to do at
20 that point in time.

21 A more unique way I thought about is leaned a
22 little more toward the gas market where you give them -- you
23 look at the imbalance over a longer period of time and maybe
24 keep an imbalance account. The issue there is two-fold.

25 One obviously -- we used to do this in the old

1 utility world, whereas you totally pay back in kind -- but
2 you make the assumption there that in some hours the person
3 with the imbalance will over generate too. In other words,
4 you both fill up --

5 And also that timeframe probably has to be a
6 little shorter than in the gas business because you don't
7 have the line storage impact. You don't have a lot of
8 things so maybe it's just for a few hours. It could be peak
9 hours. But that's something you might want to look at.
10 That one may cost some subsidization. I don't see any way
11 around it. Somebody is probably getting a covering cost
12 they didn't intent to part of the time.

13 The only other comment, I think -- well I have
14 two other comments really. One is on conditional firm.
15 I've heard a lot about that today and I think it may have
16 some merit but again, I think it should be open to
17 everybody. It shouldn't be exclusive to one group of users.
18 I think the changes that need to be made needs to cover all
19 users, available to everyone and needs to be priced right to
20 accomplish that.

21 The only concern I really have with conditional
22 firm is it sounds like a good idea but right now, I'm a
23 little worried about some of the interruption priorities
24 that we have across the country and whether they are
25 actually used right.

1 We've made a lot of progress over the last five
2 years in that but we're still, I'm not sure confident that
3 we can add a whole lot of new priorities and get them all
4 accomplished in the major emergency that's happening.

5 As far as the impacts, I'm not going to dwell too
6 much on that because I think a lot of people have indicated
7 the issues. I would point out, in Texas, we have a postage
8 stamp rate and we don't have participant funding. It's
9 funded by the utility and paid for by our load. So we can't
10 have a perfect network condition.

11 The trouble is, we also don't have notable.
12 Right now we have a zonal model and we're getting a lot of
13 congestion coming out of renewable areas or wind farms
14 because there is no price signals or signal that's coming
15 into there that you need to stop building there, it's full.
16 And one way to do that is a -- pricing mechanism, obviously.
17 The price keeps going down, even below zero.

18 The second way to do it obviously is some sort of
19 participant funding and both of those get price signal but
20 I'm really like it better without participant funding. I'm
21 just pointing it out as an issue which you have to be
22 careful of and it's been pointed out several times.
23 Transmission construction will never totally catch up with
24 short term installation of generation capacity.

25 Even on combined cycles, I think we got in

1 trouble at different times. They have a little longer term
2 than simple cycles. They have longer term than wind but
3 they're still shorter than transmission.

4 And I would encourage the Commission also to
5 continue to push for transmission expansion because nothing
6 will really replace a very robust transmission grid.

7 Thanks.

8 MR. HEGERLE: Thank you. Next up is Robert
9 Kennedy from Western Power Administration.

10 MR. KENNEDY: Thanks Mark. What was that saying
11 about a dog to bite. Okay sorry. We actually don't have
12 one of those either. I know you're going to find that hard
13 to believe but Western is a -- not the Commission's
14 definition of an independent transmission provider, but we
15 don't actually own any of our own generation. We market and
16 transmit generation on behalf of other federal entities and
17 outside of our preference and project use customers, we kind
18 of give some people some heartburn.

19 We fully support the Commission's open access
20 policy and I'll get into that in a little bit, but I just
21 wanted to use that wonderful saying of John's.

22 Thank you for inviting us to participate in this
23 conference. We very much appreciate it and we hope we can
24 provide some substantive input during this event and later
25 on in the proceeding.

1 AS a federal power market administration within
2 the Department of Energy, Western supports the Commission's
3 exploration of possible policy changes that might better
4 accommodate the participation of renewable resources in
5 wholesale markets. Yes, I took that straight out of your
6 notes.

7 I'm going to truncate these a little bit in
8 difference to my former colleagues of the Commission. I was
9 going to go on and on and tell you about how Western has a
10 very extensive renewables purchasing program.

11 We're here not only as a transmission provider
12 who provides open access transmission, but also as a
13 renewables energy and renewables energy certificates
14 purchase overall.

15 We purchase renewables on behalf of several
16 agency. We have upcoming purchases, one in particular on
17 behalf of the DOE that we are talking in gigawatt hours. So
18 we support the intent of trying to provide a better way for
19 the renewables industry to work within the current structure
20 and hopefully a one that we can come up with here over the
21 next few weeks.

22 In addition to our extensive renewables program,
23 Western is an industry leader in the development and
24 implementation of innovative rate designs intent to both
25 accommodate and account for the limitations of intermittent

1 renewable generation.

2 For instance, since July 1, 2002, Western's Rocky
3 Mountain Region has had an energy -- rate in place, approved
4 by the Commission that effectively waive the penalty
5 bandwidth for intermittent resources. And you heard that
6 right, we do not have a penalty for intermittent resources.

7 Our rate is what I consider the most lenient
8 energy imbalance rate in the industry. It's close to 5%
9 bandwidth. We buy based on out-weighted hourly average
10 price at the market at that time to fulfill the energy
11 imbalance obligations. It's a financial settlement netted
12 at the end of the month and we did that because we recognize
13 that intermittent resources can not dispatch.

14 So what's the point in penalizing them for being
15 unable to meet their schedules. I admit it's kind of a
16 novel approach and some transmission providers might not
17 take kindly to it, but it's something we believe in and we
18 did that through listening to our stakeholders. We did an
19 extensive public process and we were told, you know, very
20 clearly, that we are a resource that has difficulty meeting
21 these demands in the industry under the pro forma tariff and
22 we adjusted for that.

23 In another instance, Western's Rocky Mountain
24 Region has been working over the past one and a half years
25 with renewables industry stakeholders, another interested

1 party, to develop a methodology that will accurately measure
2 control area impacts and properly assess control area costs
3 involved with the moment-to-moment regulation and frequency
4 response service associated with intermittent resources.

5 If I can digress here a bit, there are costs to
6 the control area as a result of having renewable generation
7 interconnected with it. We're not doing this fledging
8 sector any favor by not recognizing those costs ahead of
9 time. I think the worse possible thing we can do is pretend
10 that there aren't any costs and then some day down the road,
11 the voters say hey, something is going on here and we are
12 paying more than we were promised we would have to.

13 So let's sit down in the proceeding, or another
14 like it, and try to figure out what those costs are, how to
15 assess them, how to be flexible for renewable resources and
16 just get that out of the way and move on.

17 This is a very, very good public effort and
18 Western, as a Department of Energy agency is very involved
19 with it. We have people full time on our staff that support
20 the wind industry and we'd like to see it come to fruition.
21 But I don't think we're doing anybody a service by ignoring
22 the realities of this up and coming market.

23 That was a personal note, me speaking and not on
24 behalf of my agency.

25 At this point, I'd like to discuss some of the

1 questions posed by the Commission for this Panel. Western
2 believes that existing pro form services can readily be used
3 in many, if not most cases to satisfy the needs of
4 intermittent resources.

5 In this respect, Western's Rocky Mountain Region
6 allows its qualifying network transmission customers to
7 schedule their wind generation resources under the secondary
8 service provisions set forth in Section 28.4 of the pro
9 forma tariff.

10 These customers may best use the network capacity
11 to deliver energy to network loads from wind generation
12 facilities that have not been firmly designated as network
13 resources.

14 In accordance with the pro forma tariff, Western
15 transmits such energy on an as available basis with
16 deliveries from these non-designated resources granted a
17 higher priority than any non-firm point-to-point
18 transmission services.

19 Further, Western generally supports the
20 development of new transmission services that recognize and
21 accommodate the limitations of intermittent resources.

22 In particular, Western believes the concept of
23 long-term priority non-firm transmission service to be the
24 most workable from a practicable industry standpoint and we
25 plan to soon implement such service on a regional basis.

1 Western has three primary concerns, however, with
2 regard to the overall concept of the so-called conditional
3 firm transmission service proposal.

4 First, certain renewable industry stakeholders
5 have asked Western whether we would be willing to guarantee
6 a limited number of curtailment events or hours under such
7 proposal. But we are unable to accommodate this request due
8 to a number of operational and reliability concerns.

9 Similarly, although Western might be willing to
10 estimate the risk of curtailment at the time conditional
11 firm service is taken, we would not be able to guarantee
12 that estimate for any future period. And I'm not trying to
13 be obstructive there. I can speak to that later if you'd
14 like me to.

15 Second, Western is hesitant to endorse the idea
16 of disparate rate treatment for the aforementioned services.
17 In particular, and in accordance with longstanding rate
18 treatment for the aforementioned services.

19 In particular, and in accordance with long-
20 standing commission rate-making policy, Western presently
21 does not discount its non-firm point-to-point transmission
22 service rate below its firm rate. And neither of these new
23 services appear sufficiently different from traditional ones
24 to qualify them for special rate-making treatment.

25 Also, Western is concerned that such treatment

1 could adversely affect the amount of non-firm revenue
2 collected by transmission providers, therefore shifting the
3 cost for providing these new services to existing firm
4 transmission customers.

5 Third, Western believes the availability of new
6 transmission services should not be restricted to any one
7 class of market participant, whatever it might be.

8 Since its inception in 1977, Western has provided
9 non-discriminatory service over the available transmission
10 capacity system and we fully -- and I mean that -- we fully
11 support and practice the Commission's open access
12 transmission policy.

13 No matter well intentioned, restricting the
14 availability of new services to only intermittent resources
15 could undermine that reasoned policy. Western therefore
16 urges the Commission to make any new services equally
17 available to all transmission customers and not merely to
18 the select few.

19 In losing, Western supports the Commission's
20 intent in this proceeding and is itself an active
21 participant in the wholesale renewables market. Western has
22 designed and implemented innovative rate structures to
23 accommodate intermittent resources and to recognize the
24 impact of those resources upon the transmission system.

25 And we support the concept of new transmission

1 services provided that they are made available to all
2 transmission customers equally and do not result in cost
3 shift to existing lines. Thank you.

4 MR. HEGERLE: Thank you Bob. Next up is Janie
5 Selby from Bonneville Power Administration.

6 MS. SHELBY: Thank you. Thank you for the
7 opportunity to speak to you today. Bonneville covers a
8 broad geographic area, Oregon, Washington, Idaho, Western
9 Montana and portions of Utah and Nevada.

10 Primarily hydro based and we see wind as a very
11 viable alternative to meeting growth in the region in the
12 future. For the sake of time and where we are today, I'm
13 going to get some really practical realities and some action
14 items that we are taking and that we would like to see
15 broader involvement in.

16 A reality -- our system is near capacity. Many
17 paths have limited long term available transfer capability.
18 To give you a sense, today we have 35,000 megawatts in the
19 long-term request queue, over 100 request that we are
20 dealing. Two to three thousand megawatts are wind.

21 It's very different with such a constrained
22 system to have any assurance to being able to address the
23 wind resources with the request that are currently above the
24 wind generation request in the queue, we already know we
25 can't reach them with our current products.

1 We've integrated 325 megawatts of wind so far and
2 as a result of our queue issues and our need to find
3 alternatives, we, in September launched a new process for
4 examining new product development.

5 We launched it with our customers, developers,
6 and other interested parties in the region to explore ways
7 to solve the current problems that we are facing.

8 The products would be developed to be available
9 to all transmission customers and we recognize life will be
10 so much less complicated if there was adequate transmission
11 capability, but in the meantime, we feel very committed to
12 trying to solve some of the region's problems that exist
13 today.

14 Although we've been very up front with our
15 customers that even through development of a product such as
16 a conditional firm, given the situation of the queue and the
17 request we have, there is no certainty that intermittent
18 resources would be addressed in the short-term. So we have
19 that challenge facing us.

20 But we are continuing to work with the customers
21 and our other interested parties in developing a conditional
22 firm product. We've made a commitment to engage very
23 actively with the customers through a public process and we
24 plan to put out our initial proposal within the next couple
25 of weeks for their review.

1 Also, facing us this year is the production tax
2 credit timing. The timing of the approval of the production
3 tax credit and the need to have energization by December 31
4 puts staff resources under a lot of strain to address those
5 timelines

6 We believe multi-year policies would be more
7 efficient in deal with our process. But we don't want to go
8 it alone in trying to solve these problems so we are
9 currently working to plan a two-day workshop in February
10 where we are inviting transmission providers, customers,
11 developers, regulators, and others, to help us specifically
12 explore solutions around the conditional firm production.

13 And as Mare Meyer pointed out earlier, having
14 common definition of the product is essential. So we want
15 to work, we want to roll up our sleeves and take the actions
16 immediately to try to come up with interim solutions to
17 support that product development.

18 CHAIRMAN WOOD: Janie when is that again?

19 MS. SHELBY: It's in February. We haven't picked
20 a specific date but we will get that out to everyone. And
21 specifically we not only want, we need FERC's involvement in
22 that and we need help in exploring the challenges around
23 managing the transmission queue as it currently exists.

24 MR. HEGERLE: Okay, thank you Janie. I
25 appreciate you getting to the heart of what your concerns

1 are and if we could do that the rest of the way that would
2 be very helpful.

3 Some top three things or something that really
4 are important that we can work on today. Next up is Jim
5 Blatchford of California ISO.

6 MR. BLATCHFORD: First I would like to thank the
7 Commission staff for inviting the ISO to be here to share
8 one of our programs. The PIRP program as you've heard
9 already.

10 As I looked over the questions for today and as
11 you, Chairman Wood reemphasized this morning, this
12 conference is focused on removing barriers. I'd like to
13 quickly share with you how the stakeholders in California
14 came together, modified our tariff to remove a barrier for
15 intermittence.

16 The California ISO has implemented amendment 42
17 of our tariff, which we call the participating intermittence
18 resource program, as you heard earlier, or PIRP.

19 This program helps to provide stability to
20 intermittent resources especially wind generators in the
21 California market. The basics of the program are those
22 generators wanting to participate in the program, provide
23 the ISO with 60 days of meteorological and production data.

24 This data can either be provided from historical
25 data or in real time. Once the state has provided a real

1 time -- is stable, the wind generators are deemed certified
2 to be in the program and a megawatt forecast is developed
3 for the participants.

4 The forecast is provided by a wind forecasting
5 service via the California ISO secure Internet network. We
6 supply a day ahead forecast and a rolling seven hour ahead
7 forecast for the participants to plan for the upcoming
8 operating hours.

9 Then two hours and forty-five minutes before the
10 operating hour, we provide the final forecast that the
11 participant would use to bid into our hour ahead market.

12 The participant has the option of opting in or
13 out of the program on an hourly basis. If the participants
14 submits a balance schedule equal to the forecast, the
15 participant is considered in the program for that operating
16 hour.

17 The forecasting service is paid for by the
18 participants whether they opt in or out of the program for
19 the operating hour. Participants that schedule in
20 accordance with the hourly forecast will not receive
21 imbalance energy charges for deviations across a 10-minute
22 settlement interval.

23 Instead, the deviations from our participant are
24 netted across the calendar month and settled at a monthly
25 weighted average price. With the unbalance state of the art

1 forecast, the expected net deviation should be close to
2 zero.

3 Any deviation replacement reserve charges or
4 above cap cost will not be applied to the participant. And
5 now with the implementation of unobstructed deviation
6 penalties, under Phase 1(b) of our market redesign,
7 participants that are in the program for the hour are
8 exempted from those deviation penalties. They are also
9 exempted from the transmission loss charges.

10 To date, we have over 300 megawatts participating
11 in the program. Estimate show that we could have over 500
12 megawatts of wind energy coming online for 2005. Are all
13 going to be in the PIRP program? I'm not sure but based on
14 the feedback I've received from our clients, I would imagine
15 a large majority of the megawatts would join.

16 The feedbacks I've received from the clients is,
17 how this program has offered a rational and reasonable
18 market structure for participants. It has also helped to
19 expose the underlying value of wind generation and in doing
20 so, the program has helped to reduce the risk financiers
21 perceive to come with the wind generation.

22 Initial client studies comparing a production
23 month in PIRP to that of not participating in the program
24 found that the economic exposure was greatly reduced while
25 in the program.

1 I've had numerous conversations with the IOUs and
2 developers who are recognizing these advantages and want to
3 be part of the program. The advantages to the ISO is that
4 we are getting a better view of the wind generation that is
5 online and we can more accurately predict and procure
6 reserves.

7 The ISO is also building up good relationships by
8 working with these participants.

9 And obviously, the advantage to California is
10 that the program is helping to meet the RPS. Going forward,
11 we would like to have more telemeters visibility into other
12 intermittent generation, whether or not they are
13 participating in the program.

14 We need to look at how we can improve our
15 telemetry error reporting between the participants the wind
16 forecast and the ISO. We are continuing to monitor the
17 accuracy of our forecast and are looking at ways to always
18 improve that accuracy. And we need to address issues that
19 will arise as we head into our new market design.

20 The PIRP program is not a panicier (sp) for the
21 for the wind industry but we feel is providing groundwork
22 for future models. Again I think the Commission for this
23 time.

24 MR. HEGERLE: Thank you Jim. Next up is Jim
25 Kerecman from PJM.

1 MR. KERECCMAN: Yes, I've been sort of asked also
2 to sort of fly through my comments here to make up some
3 time. So again, thanks for having me here. I'm Joe
4 Kereccman with PJM. I'm the manager for alternative
5 generation and my role at PJM is I'm responsible for matters
6 related to both distributor generation and renewables.

7 This area cover a broad range of issues relative
8 to operations, planning, markets, which means I know a lot
9 about a little bit and I really need a lot of the functional
10 experts of PJM.

11 For those of you unfamiliar with PJM, we are a
12 Midwest or Mid-Atlantic to Midwest RTO. We oversee the
13 transmission grid and write competitive markets in area
14 covering all or parts of 12 states in DC.

15 Our market serve 44 million people with peak load
16 of about 108,000 megawatts with about 142 megawatts of
17 installed generating capacity covering about 49,000 miles of
18 transmission lines.

19 PJM is committed to providing fair and equitable
20 access to the transmission system and to our energy markets
21 from all supply side of demand and resources. As a matter
22 of course, we do not show preference on one resource over
23 another, however, that said, we see resource diversity as an
24 important characteristic in a robust wholesale market.

25 We believe that reliability can be enhanced and

1 markets can be more competitive through diversity. We
2 strongly believe in a level playing field but not a tilted
3 playing field.

4 We currently have a little over 300 megawatts of
5 wind operating in PJM today and about 3,200 megawatts of
6 wind projects on development in our interconnection queue
7 process.

8 Currently, PMJ is one state with an RPS
9 requirement, that being New Jersey, but we have two
10 additional states, Maryland and Pennsylvania, which recently
11 enacted legislation that will go in effect in the 2006
12 timeframe.

13 These programs all recognize renewables generated
14 and delivered into all parts of PJM as qualified in their
15 programs.

16 We have several PJM states in the District
17 actually that have RPS legislation or policy under review.
18 Most will go in effect in the 2006/2007 timeframe, if
19 adopted.

20 PJM has been working with the stakeholders states
21 on the development of a regional generation attributes
22 tracking system. We are hopeful to provide the system in
23 our market next year. The system will help PMJ state and
24 stakeholder satisfying various state policies regarding both
25 RPS and environmental disclosure.

1 For wind resources, this means a system that will
2 create trackable recs, separate from energy as a means to
3 monazite the renewable value in both the state RPS programs
4 and a voluntary renewable markets.

5 As Kevin mentioned earlier, Kevin Porter, PJM did
6 enact a methodology for wind resources to participate in the
7 capacity markets last year and went into effect mid 2003.
8 It gives wind 20% of its name plate as sellable capacity.
9 It's based on historic class average output for several wind
10 facilities we had operating for the hours ending 3:00 to
11 6:00 p.m., June 1 through the end of August.

12 As each resource comes into the market, it starts
13 at a 20% class average and then we blend in the rational
14 operating yearly plant specific yearly operating performance
15 for the same time period until ultimately we come up with a
16 rolling three-year historical average that will be specific
17 to each generating facility.

18 Within PJM, load is responsible for network
19 transmission services charges on a license plate basis,
20 based upon the LCP event. Generators selling to PJM do not
21 have to worry about obtaining transmission service. Point-
22 to-point is generally not required except as it relates to
23 exports to get to the PJM border.

24 Earlier this month or last month, we received an
25 order from FERC regarding seams management with MYISO and

1 effective today, the transmission is underway whereby export
2 between PJM and MYISO markets will no longer need to secure
3 such point-to-point services.

4 We run both a day ahead and real time L&P energy
5 market. In general, wind has been historically a price-
6 taker in our real time energy market getting paid real time
7 L&P. This does create a cost in our market by increasing
8 operating reserves as we have to re-dispatch to make room
9 for the wind.

10 In turn, wind is charged operating deficiency
11 charges. These generally range, historically in the area of
12 \$2 per megawatt hour to \$3 per megawatt hour. However, it's
13 certainly a far cry from the deviation penalties I heard
14 about here today of \$100 per megawatt hour.

15 As we move forward, I believe the forecasting
16 will become a needed tool, having 5,000 to 10,000 megawatts
17 of wind showing up in the real time market may be difficult
18 to handle, even for a market as large as PJM.

19 The issue that needs to be considered is who does
20 the forecasting, the generator, the RTO, and then who takes
21 the risk around the tool's accuracy. We will start to
22 explore these options in the near future, probably early
23 next year.

24 Again, thank you for the time and look forward to
25 your questions.

1 MR. HEGERLE: Joe thank you and we welcome back
2 Charles Smith from NexGen and UWIG. Thank you.

3 MR. SMITH: Thank you again for the opportunity
4 to participate in the conference. I would like to provide
5 an abbreviated status report on the evolution of competitive
6 electricity markets across the country and how wind is being
7 treated in them.

8 This report is based on a panel session on wind
9 participation in eastern electricity markets at the UWIG
10 meeting held in Albany in October of '04. Representatives
11 of FERC and five RTOs, including the MYISO, the NYISO, ISO
12 New England, PJM, and the Ontario IMO participated.

13 Speakers described how wind participates in their
14 markets and responded to six questions posed to the
15 panelists.

16 We've summarized the results of the panel session
17 for presentation at this technical conference and expanded
18 it to include the remaining RTOs. FERCOTT, SPP and the Cal
19 ISO and added a comparison with the Order 888 provisions.

20 Six questions were posed. First, how is wind
21 scheduled in energy markets? Second, how are wind energy
22 imbalances settled? Third, how are wind plants ancillary
23 service needs and costs recognized? Forth, what role does
24 wind forecasting play? Fifth, how is capacity value for
25 wind plants calculated? Sixth, how is capacity value

1 recognized in capacity obligations in capacity markets?

2 Moving right along. A comparison of the RTOs and
3 major features related to wind reveals the following: wind
4 often has the choice of participating in the forward markets
5 or bilateral contracts. Imbalance markets settle schedule
6 deviations without penalty. Wind ancillary service
7 requirements are generally handled through the loading
8 serving entities and reflected in bilateral contract prices.

9 The Cal ISO is developing a model wind
10 forecasting program for system operators which is being
11 closely watched across the country by all of the RTOs.

12 Capacity value calculation procedures using
13 different approaches are being developed across the RTOs as
14 an evolving process. Capacity markets and reserved margin
15 requirements are beginning to recognize the capacity value
16 of wind plants.

17 Overall, the RTOs are proceeding cautiously,
18 learning by doing, and staying openly to change. It is
19 important to recognize the significant burden that has
20 lifted for wind plants operating under an RTO tariff as
21 compared to operating under an Order 888 tariff as currently
22 configured.

23 Competitive electricity markets allow wind energy
24 to be bid in on a day ahead or hour ahead basis. Balancing
25 markets allow wind imbalances to be settled without penalty.

1 Large single market areas allow transmission rate pancaking
2 to be eliminated.

3 Treatment as a network resource resolves many
4 issues of transmission reservation and access fees. The
5 open-end transparent transmission planning processes provide
6 greater opportunity for wind developers to participate and
7 to achieve better results.

8 The detail comparison of the various RTO and
9 Order 888 market features will be provided as a filing in
10 the docket. Thank you.

11 MR. HEGERLE: Thank you and thank you all for
12 your patience to the Commissions. Do you want to start with
13 questions or should we go ahead? Okay.

14 I mentioned to the panelists ahead of time that I
15 expect there to be a little differing viewpoints and
16 obviously that's quite true. What we had hoped to
17 accomplish here is to demonstrate a couple of things. One
18 of which is that we have organized markets, you addressed a
19 lot of the concerns of wind, not all, but a lot of them.
20 Where you don't there are concerns that maybe we can address
21 through tariff changes.

22 Obviously, conditional firm service in its
23 undefined form was mentioned by several people. One thing
24 that was a concern that was raised right away was, whether
25 or not this service would apply to everybody or would it

1 just be for wind. And I just wanted to run down the road on
2 that one question a little more to see, is this a service
3 that belongs available to everyone or to just to wind?

4 If we could just start down here with Jim and
5 just walk do with a yes, no and if you need an explanation,
6 a very short explanation.

7 MR. BYRNE: Yes.

8 MR. CALDWELL: Yes.

9 MR. KENNEDY: Applies to everybody, yes.

10 MR. HEGERLE: All right we got consensus on
11 something. That's start. How about that.

12 (Applause.)

13 Okay, we also heard a lot of concern --
14 operational concerns. I know that PS New Mexico mentioned
15 some and Dan Klempel from Basin also look like he may have
16 left. Response from wind advocates to some of those
17 operational concerns? I'm sure Beth, I know you probably
18 had something on your mind as you heard them speak?

19 MS. SOHOLT: Let me think about it.

20 MR. HEGERLE: Anybody else's response? What do
21 we need to do to resolve some of the operational concerns?
22 Jim?

23 MR. CALDWELL: One thing I guess I could point
24 out is that two or three people today talked about solving
25 those with dynamic scheduling. And what that tells you is

1 that the issue is not physics because obviously the dynamic
2 schedule -- the Clause don't recognize dynamic scheduling.

3 And it's not physical infrastructure. There is
4 clearly enough transmission to do things and there is
5 clearly enough generation to balance. But anytime you say
6 that these operational issues can be solved by dynamic
7 scheduling, what that means is it's a function of the
8 tariffs and their ownership structure. And I think that
9 tells you something about things.

10 If you look, for example, at Texas, okay, there
11 is nobody here from -- but they talk about having 12,00
12 megawatts of wind, I think it is, in the West Texas area in
13 a 40,000 megawatt system. That's what, I don't know, two
14 and a half, three percent, something along those lines.

15 But, in 1999, that was a control area out in West
16 Texas and that is about 80% penetration in that control
17 area. So somehow, magically we went from 80% penetration to
18 3% penetration. Same physical system, no changes anywhere,
19 just simply change the tariff and change the ownership
20 structure and change who ran it.

21 And so, the easiest way to fix winds integration
22 problems and integration cost is to work on the tariffs and
23 the ownership structure and efficiencies that is built into
24 a balkanized system.

25 Having said that, I don't think there is any

1 question, and I think some people said that it doesn't do us
2 any good to deny the reality of the cost. It is true, there
3 are costs, no one is up here denying the reality of the cost
4 that are associated with wind integration.

5 But, that doesn't mean that I don't think that
6 there is anything in those costs that causes one to pause
7 about stopping or about changing their minds. The numbers
8 don't come out to be that high.

9 If you look around the world, wind integration
10 cost, the way to solve them is have smart people with the
11 right attitude and a stiff grip. And that's really what we
12 need.

13 MR. HEGERLE: Fix the tariff and fix the
14 ownership structure. What exactly would you like us to do
15 with the ownership structure?

16 MR. CALDWELL: Well I think that's RTOs.
17 Ownership structure is probably not the right word, it's
18 operational.

19 MR. HEGERLE: Independence.

20 MR. CALDWELL: Well no, not so much independence,
21 just the idea that it is operated as a total system instead
22 of the balkanized thing. And ownership structure enters
23 into that. I guess it's more operational control over a
24 broad area, over a regional area that is probably a safer
25 way to put it.

1 But that carries a whole lot of other baggage as
2 we know, and especially in this part of the country. And
3 we're not going to have, you know, RTO West. And so, saying
4 that that's the way to solve this issue of wind integration
5 is a non-starter.

6 And I think the 80/20 rule works too, and that is
7 you can probably get 80% of the good for 20% of the effort.
8 And I think there are a lot of things that you've heard
9 about today in changing the OATT and in changing the
10 practices, the regional practices in the west.

11 Things like generator re-dispatch protocols, you
12 know. Things like working on the seams, things like having
13 these conditional firm products. Then we can get a long way
14 there toward solving a lot of these problems. And that
15 that's what we need to work on.

16 MR. HEGERLE: Thank you. Charles.

17 MR. SMITH: I think Jim hit on a couple of very
18 important points. The one of control area size is
19 especially critical. When we talk about wind penetration,
20 we often talk about it in terms of name plate of wind
21 capacity divided by the load in a control area that's being
22 served.

23 And when you get a control area that's very small
24 and you take the given amount of wind, it looks like a very
25 high penetration and you've got a balancing problem as P&M

1 Greg Miller pointed out.

2 But if you redraw the boundaries and if you look
3 at a difference size control area where you've got a lot
4 more resources to draw upon, and you're not looking at --
5 West Texas for example, you're not looking at an 80%,
6 instead you're looking at a 2% when you redraw the boundary
7 around Texas, and all of a sudden that problem goes away.

8 So that's an important issue to look at. But as
9 far as the actual impacts themselves are concern, they are
10 real. They're not being swept under the rug and a lot of
11 time and effort.

12 Beth mentioned one of the studies that has been
13 done. A lot of time and effort is going into trying to
14 understand and quantify the cost of integration and these
15 costs have been explored and a number of studies done by a
16 number of organizations over the past few years and the cost
17 show up to be in the area of \$2, to \$5, to \$6 megawatt hour
18 for penetration ranging from 5% up to 20% or 25%.

19 These costs are the costs associated with the
20 regulating capacity, the load following and the unit
21 commitment are changes that need to be made to accommodate
22 the wind.

23 So far, people are looking at these costs and
24 they're saying, these are not show stoppers. We can
25 calculate them, we understand them, as long as we've got the

1 capacity available we can accommodate them.

2 I mentioned this morning some of the experience
3 coming from Europe. I think Denmark is probably a very
4 illustrative case to take a look at. In Denmark, in the
5 western part, last year they produced 20% of the energy for
6 the load from wind.

7 On some days, there was over 100% of combined
8 must run units and wind online. What happens when there is
9 over 100%? They're leaning on their ties. They're
10 exporting to Norway, they're exporting to Germany.

11 The Danes are committed to increasing the amount
12 of wind that they have in their system now and they've got a
13 significant effort underway by the transmission system
14 operator to look at how that's going to be done.

15 They are operating in the 40% penetration range
16 right now, probably pushing 50% and they're going to go
17 higher. How are they going to do it? They recognize that
18 there is going to be a need for some additional regulating
19 or load following capacity and they are prepared to add new
20 plants to the system as they retire old plants that have
21 more of this regulating capability in them.

22 They are also looking at modifications that need
23 to be made with price responsive load and with approved
24 communications and control capabilities to access this load
25 to provide the real time prices.

1 So that aspect of market evolution I think is
2 important to accommodating it. But even up to the range of
3 30%, we haven't seen show-stoppers and I think there is a
4 lot that can be done. As Jim said, with creative people
5 working in good faith, there is a lot that can be done to
6 incorporate much higher levels of wind generation on the
7 system.

8 MR. HEGERLE: Thank you. Joe.

9 MR. KEREKMAN: No, I was just going to add to it.
10 Obviously I'm a little biased coming from a large market but
11 I think size definitely does play a role here. I mean with
12 us right now being just over 300 megawatts, in a 108,000
13 megawatt peak, it doesn't really causes a whole lot of
14 heartburn with winds just showing up in the real time
15 market.

16 As that continues to grow, that could change but
17 my guys are telling me, it could be a couple thousand
18 megawatts until it gives us any real need to change, if you
19 will, that methodology.

20 But clearly, the fact that wind is not bidding
21 into the day ahead market generally, and just defaulting to
22 the real time market, they are taking a price risk. They
23 are taking a price risk that the real time market is going
24 to be a higher price or relative to the day ahead market.

25 So whether you bid in the real time or day ahead

1 market, they are taking that price risk. So clearly, the
2 scheduling tool I think is something that really needs to be
3 utilized here at some point.

4 There is a tremendous inefficiency. Obviously,
5 these operating deficiencies are minimal, but still they are
6 inefficiency in the market. So if you can take out that
7 inefficiency, I think it will be more cost competitive.

8 MR. HEGERLE: Thank you. Bob.

9 MR. KENNEDY: Two quick points Mark. I agree
10 with both of these gentlemen that there is no show-stoppers
11 here. I mean let's just keep going. Let's have a robust
12 rulemaking on the policy and the right issues. Get past all
13 this, get these markets going.

14 The second is, we have quite a bit of experience
15 with dynamically metering wind out of our control area. The
16 majority of wind in our control area is dynamiced into the
17 PSCO, Xcel's affiliate PSCO and that works really well. It
18 works provided you have transmission and that's the point
19 that we're trying to speak. We're running out of
20 transmission. I mean not just in the Rocky Mountain region
21 area, but pretty much for all over.

22 Chairman Wood made a comment about certain
23 eastern area third world country and I think, to be honest
24 with you, that's indicative of a lot of the areas around the
25 United States. We need to build transmission. We need to

1 have incentives to have transmission built.

2 I just read an article in Electric Transmission
3 Weekly with former Commission Chairman Jim Hecker, where he
4 stated that it was becoming more and more difficult to fund
5 financing for merchant transmission. That concerns me quite
6 a big.

7 We have people coming in all the time asking us
8 and talking to us about building transmission, asking if
9 they can partner with us, but they're having trouble getting
10 financing. So we need to address that fundamental issue of
11 infrastructure adequacy in addition to working on these
12 types of issues.

13 MR. HEGERLE: And WAPA is building?

14 MR. KENNEDY: What's that?

15 MR. HEGERLE: Is WAPA building?

16 MR. KENNEDY: Yeah we have a ten-year plan for
17 building across this path 36 that you hear so much about.
18 We don't have any appropriated funds. Congress has pretty
19 much dried that up but we have a ten-year plan and we are
20 rolling that into our rights and yeah, we have an active
21 construction program plus path 15, you know, which we always
22 bring up.

23 MR. HEGERLE: Beth.

24 MS. SOHOLT: Just a couple thoughts. The Xcel
25 Energy Minnesota Department of Commerce study I talked about

1 is very system specific and so what Basin really needs to do
2 -- if they were looking ahead, I'm guessing there is going
3 to be many hundreds more megawatts in the Dakotas.

4 It would be nice if they would do a system study
5 with a higher penetration level than they have now to see
6 what those real costs are and to see where the problems
7 might be. I mean one thing that Dan identified in his
8 comments is that the accuracy of the next hour forecasting
9 is poor and needs to get better.

10 Maybe they need to do some work on, you know,
11 somebody who can help them with forecasting. I don't know
12 what they're doing now but that would be the first question
13 I would ask Basin, is, what kind of forecasting are you
14 doing or are you doing any?

15 So I think that they can do some study that would
16 give them a handle on some possibilities and the cost.

17 MR. HEGERLE: I asked the panelists if they had
18 questions of each other and wanted to at least leave that
19 opportunity before we move on and if there is any questions
20 from the audience as well. Hearing now, I think what we are
21 going to do is move to -- all right Kevin will you step up
22 to the mike.

23 MR. PORTER: My question is for Mr. Kennedy from
24 WAPA, and maybe I didn't write this down in my notes right
25 but you said one of your concerns of the conditional firm

1 part has been much discussed today is that it may -- I hope
2 I'm not putting words in your mouth -- but it may knock out
3 some non-firm servers and therefore somehow firm customers
4 would have to pick up some of the cost.

5 And I didn't quite get that because I thought
6 well, you would get revenue from the conditional firm
7 product and therefore you should at least equal out somehow.
8 So I wanted to ask you to flush that out a little bit.

9 MR. KENNEDY: I will. You didn't quite get it.
10 The Commission's policy is you may voluntary discount your
11 non-firm transmission rate but it's not mandatory.

12 In essence, the decision to discount your non-
13 firm rate is an economic decision that you make to maximize
14 your transmission revenue and revenue from your transmission
15 revenue is credited into your firm's rate.

16 I see a lot of people saying, well, we're going
17 to have this composite service, which is essentially
18 composite to existing services that can easily be taken out.
19 It might hinder the financing, but we can make the energy
20 flow.

21 Essentially we have this composite of two
22 services and because it is interruptible, we should have a
23 lesser rate than the firm. Well that would mean that the
24 Commission would essentially have to adjust its rate policy
25 and also require mandatory firm discount and non-firm

1 revenue.

2 I have a problem with that because we're having -
3 - as I mentioned, we're having enough trouble building
4 transmission as it is if you restrict or God forbid quash
5 transmission revenue, you're going to have an even harder
6 problem.

7 So that's basically the point to which I speak
8 and I didn't make myself clear, but that's what I meant.

9 MR. HEGERLE: Okay, any other questions or
10 comments? Okay the last thing we want to do today is turn
11 to Matt Deal and sort of do a wrap-up of what we've heard
12 today and some action items and all that we have. Matt.

13 MR. DEAL: Okay so we had originally plan for
14 like an hour, but ran a little long, people are getting
15 tired. We're going to kind of run through this list and
16 forgive me if I'm a little repetitive. I have three lists
17 in front of me.

18 Basically, a lot of the times in these meetings
19 you have a lot of talk, a lot of talk and then everyone
20 walks out and goes, okay, so what. So what's next? What
21 are we going to do?

22 So here is some of the things, that staff,
23 through their notes, has listed. Some people had stepped
24 up. In the interest of time, we were going to bypass that.
25 If we can still do it if you'd like.

1 SPEAKER: Go ahead.

2 MR. DEAL: Okay.

3 SPEAKER: You're in charge.

4 MR. DEAL: Throughout the course of the day,
5 certainly people said, you know, someone just needs to step
6 up, do this, do that. Hopefully this list reflects this.
7 if we've missed something, jump up to the mikes and let us
8 know, we'll copy it down, put more people on the hook,
9 especially the people that have already left. It's easy to
10 put them on the hook when they're not here anymore.

11 (Laughter.)

12 One of the first things we came up with was
13 having BLM, the Department of Ag and DOE work together on
14 more of a programmatic assessment of transmission corridors,
15 evaluation of making that work. They have the first part
16 down. They have their draft programmatic EIS for
17 generation. Now we need to look at the other side to make a
18 complete picture

19 You need A and B, otherwise you can't get there.
20 It's a good step, let's get them both going all the way down
21 the line so that we can actually get generation built and
22 get it to load.

23 Utilize existing transmission, greater efforts,
24 partial firm service, scheduling flexibility, something that
25 came up was, we need a common definition of goals of what

1 these services are, what they will do, who needs them, who
2 wants them, and Janie suggested, I believe, a forum in
3 February to possibly get together, start flushing that out.

4 All these different parties have these different
5 products that are virtually the same. Let's get some of the
6 details worked out, get everyone talking, get on the same
7 page so everyone knows rather than jumping through the
8 hurdles several times, let's do it once.

9 We heard a lot of 888 reform. Get rid of
10 imbalances, reduce imbalances, alter imbalances. It's
11 something for FERC to look at with supplement from comments
12 received here today and in the future we can look at what
13 can be done to the 888 tariff, what can't be and where to go
14 from here. What needed to be done, comments from you are
15 always welcome. File them in this docket. We'll talk about
16 that again at the end.

17 MR. GRAMLICH: Matthew, can I add, maybe a
18 process for people to comment on in the docket is in what
19 form should the Commission pursue that. Would that be a
20 voluntary 205 filing by transmission providers or section
21 206 action or rulemaking or what.

22 MR. DEAL: Yes, exactly. You had Pacific Corp
23 come up and say we do this for our imbalance. We have all
24 these different entities that came up today and said we have
25 these different rules.

1 Okay so step up, put them on paper, let us see
2 them a little bit easier, a little bit better, a little bit
3 clearer and also these entities that have these alternate
4 products, step up for a voluntary filing in front of FERC
5 possibly and work from there.

6 The Western Interstate Energy Board in
7 conjunction with a few other people suggested that FERC look
8 at ways to monitor and assess the ways 888 are currently
9 working in the system, the implementation, the scheduling,
10 and the actual usage of the system.

11 Look at ways to research that and that would
12 further inform ways to go forward to accomplish these goals
13 that were mentioned today. In addition to that, monitor
14 secondary transmission products markets. See if there is
15 any way to further develop that effort to assist.

16 Need to look more at regional transmission
17 planning, structure, cost support, cost recovery. I believe
18 Jim Byrne talked about that a little bit, also some others.

19 Ways to get that up and going as opposed to each
20 region taking care of themselves. Try and get, I suppose
21 each TO planning their own system, work on a more region
22 basis because wind technically has to cross through multiple
23 regions, multiple entities and along with that grid
24 pancaking those issues and ways to solve that problem.

25 Rather than just say, this needs to be taken care

1 of, let's get firm -- not to play on words -- firm solutions
2 down on paper that we can act on or that we can look at and
3 move forward rather than everyone just giving suggestions
4 that something needs to be done.

5 Let's get some firm solutions down and actual
6 suggestions, okay.

7 Mentioned the elimination of grid pancaking.
8 Queuing is an issue and that needs to be looked at to see if
9 there is any tweaks that can be done. Transmission queue,
10 interconnection queue is being looked at through the
11 interconnection as well as the grid code for Appendix G.
12 Those all help get wind back into the system. It will
13 address the timing issue.

14 Comments on those ways to improve that is
15 clustering. An option is going the open season route a
16 better option rather than first come first serve. Is there
17 a better solution that could worked out.

18 How to price transmission upgrades, transmission
19 expansion. What's the solution, if there is a better one.
20 What's the impact? Who is helped who is harmed? What are
21 the goals there?

22 Looking at wind integration cost estimates.
23 Couple people mentioned there needs to be rules of thumb.
24 They are costly, they are to a certain extent region-by-
25 region, utility-by-utility. But if we can develop some type

1 of rules of thumb, like these are the 10 things that we need
2 to look at across the board, these are the 10 things that
3 have turned out to be very important and whether or not wind
4 will work on the system. Those general guidelines will
5 help.

6 The consultants in the room and the entities in
7 the room that have done a lot of these studies, your input
8 will be greatly appreciated and you guys should develop a
9 conversation along those lines would help streamline that
10 process.

11 Real time data and monitoring data, FPL, as well
12 as some others mentioned that. It's part of OES grid code
13 and the Commission will probably look at that in the process
14 of that interconnection -- going to be coming out hopefully.
15 We're working on it.

16 Some encouragement to the Department of Energy to
17 increase funding for storage technologies.

18 CHAIRMAN WOOD: Let me just add to that one, just
19 because people do like certainty. It is scheduled for the
20 January 19th open meeting agenda as a NOPR and I want to add
21 Matt's and the staff's appreciation for everybody's help on
22 that. It's been a long time coming and we've got to wrap it
23 up. So let's just kind of squirrel a little time aside in
24 February to get good comments on that code and what we do
25 with it and let's get that final before the spring is out.

1 MR. DEAL: The encouragement of DOE for increased
2 funding and storage technology as well as looking at
3 increasing the ways and funding for getting the right
4 weather data, is how it's going to come out.

5 And also ways to streamline that instead of over
6 here we have to do it this way, over here we have to do it
7 this way, possibly looking at a regionwide or a nationwide
8 policy on how to increase the ability to determine whether
9 or not it's a viable site or not.

10 Definitely FERC staff is going to look towards
11 being more inclusive in all of, and encouraging all parties
12 to comment, participate, come to the table especially in the
13 regions, the travel areas that it looks like wind will be
14 great for a number of reasons and we encourage everyone to
15 look at those areas as opportunities to develop on a number
16 of basis.

17 Looking at better ways to gather data and examine
18 data and one of the big obstacles RMATS had was a lot of the
19 data just wasn't very good, just wasn't useable. Looking at
20 ways to improve the ability to use actual versus scheduled
21 data so that it's useable and make the inclusions and move
22 forward from it, rather than collect a bunch of data and
23 then turn around and not be able to use any of it because of
24 the different standards of the inability to make sense of
25 it. Just data standards are a good way to further this.

1 FERC look at establishing a benchmark, effective
2 load carrying capability or a standard for determining
3 capacity credits for wind and how they can contribute to
4 markets in other ways other than to secure energy basis.

5 I mentioned adopt a grid code for energy
6 interconnection. January we'll have our answers. Address
7 the allocation of new transmission, transmission capacity
8 cost across seams. Working also to find better ways to
9 finance transmission.

10 It kept coming back today, we need transmission,
11 we need transmission. We either have to more effectively
12 use the transmission we have or we have to build new
13 transmission. If we don't know how to pay for it, we can't
14 build it. We have to find a way to pay for it. Who is
15 going to pay for it rather than everyone pointing their
16 finger.

17 If we can come to a collaborative effort and a
18 collaborative solution, we will get some wire in the ground
19 10 years from now but still get wired in the ground.

20 Also look at how we can accommodate the state
21 preference for renewables, how we can get transmission built
22 to allow them to get their renewable portfolio standards
23 full utilized and build on them, as well as hopefully new
24 portfolio standards.

25 Over the course of the next two years maybe we

1 can get more states that want to participate on that level
2 and formalize legislative action to get renewables on their
3 system.

4 How can transmission policies and such
5 accommodate those to make that happen. Some other things
6 for staff. Staff is going to look at WAPA's wind
7 transmission study and the capacity credit determination
8 that will hopefully come out of that.

9 And the still is also going to look at the
10 existing provisions that are in there. The ways that
11 Pacific Corp and RPA do their imbalance tariffs to look at
12 ideas to jump start analysis rather than start from scratch
13 if there is something out there that can inform us.

14 Also comment on it. Does it have experience with
15 it. Inform the Commission staff on this so that we are not
16 starting from scratch, that we have a basis and that we can
17 move forward faster, depending on what is determined to be
18 needed.

19 As we said earlier, we're going to ask for
20 everyone to file comments. If presenters could file
21 formally their comments, it would help out. If any doesn't
22 know how to typically file, if you need help, please feel
23 free to contact staff and we will help you out to really
24 point and click type process. It will help us get the
25 information at our site here because we can really write so

1 fast. Lot of information.

2 Sometimes we are a little dense and we didn't
3 quite get it all but if you file your comments we will
4 definitely read them, incorporate them, see what we can do
5 with them and move forward from there.

6 MS. SIMLER: Thanks Matt. One of the things I'd
7 kind of like to toss out is in response to an invitation
8 that Jane made for FERC staff to participate, if I may in
9 PPA's process. I think that it's fair to say that we would
10 like to work with you on that and I understand that's in
11 February and perhaps if we have time and the resources at
12 the same time, maybe we can sit down with some folks and
13 start looking at these curtailable firm and the other
14 products that Roger Hamilton and Jim Byrne and the folks
15 have come up with.

16 In addition to the laundry list that Matt went
17 through about things we heard today, sort of some action
18 items we have to take up. If you are planning on filing
19 comments or if you're not and you just want to gram some of
20 us afterwards, we're interested in hearing what the best
21 form would be for dealing with some of these issues and in
22 particular, the transmission pricing.

23 We heard a lot about how do you, you know, kind
24 of picking up on Bob and John's comments about, if you go
25 for these new services, you've got to make sure the pricing

1 makes sense and doesn't result in cross subsidization and
2 have equal treatment.

3 Maybe at the same time, we can also get a little
4 group together, a publicly noticed group to talk about the
5 rate pancake and things like that.

6 So maybe if we start with Jane's process and FERC
7 staff takes a little bit of time and try to get a plan
8 together for how we're going to move forward and you all
9 give us the information that Matt requested.

10 Our attorney says that as part of our notice that
11 we can put out about the comments, that we can kind of put
12 our laundry list in there about things that we want you to
13 comment on. Rob.

14 MR. GRAMLICH: We have one audience question and
15 I wanted to add one thing to the list. I know that Beth
16 mentioned that having system impact studies actually measure
17 the impact on the system operation of wind integration is
18 important, and we've heard some transmission providers say
19 that, well, you know, once they've reviewed some of these
20 studies, they turned out that they didn't think the cost
21 were as high as they might have been.

22 So I think supporting this isn't really something
23 FERC does but in the spirit of putting a list down of all
24 the things that need to be done, I think more system impact
25 studies would provide a great benefit. I know UWIG has done

1 a lot in that respect and NREL. Brian Parsons is here and I
2 think continuation and support for those studies will be a
3 big help.

4 But I also wanted to mention UWIG since I asked
5 for that comparison that Charlie Smith mentioned about the
6 RTOs and ISOs. I just want to thank you for that and also a
7 continuation of that process I think will be very helpful to
8 identify best practices and compare practices across
9 transmission providers. And so turn it over to the
10 question.

11 MR. WHITE: I'm Ron White, I consult here in
12 Denver. The one thing that I didn't hear Matt Deal mention,
13 I could have missed it, is the question that James Caldwell
14 raised about taking the risk out of this for people who are
15 trying to do innovative things.

16 If you are trying to really get some innovations
17 on these various issues that were discussed today, you
18 really are going to have to find a way to protect those
19 people who are going to step forward and be the first to do
20 these things.

21 My experience, based on the experience of DOE and
22 implementing time and date studies and the other kinds of
23 things that went PIRPA, I managed a program at DOE at that
24 time.

25 You just have to find a way for people who are

1 willing to take some risks themselves to protect them.

2 Thank you.

3 CHAIRMAN WOOD: Why don't we do that. Because I
4 mean, if we're going to see some of these, I want to
5 understand. Do you expect that you'll have these folks who
6 probably aren't in the room coming after these proposals
7 with any kind of vigor? And that's the kind of protection
8 you're talking about, right? Protecting from getting
9 sandbagged by opponents of your proposal?

10 MR. WHITE: That's right. I thought Mr. Caldwell
11 did a good job of describing the need.

12 CHAIRMAN WOOD: Well, I think, you know, we've
13 got an obligation to look at something under the Statute
14 that gives people a chance to shoot at it, but I think if
15 the ideas have merit then they ought to carry the day but I
16 don't know that FERC announce to give you guarantee that we
17 are going to insulate you from a bad idea.

18 It sounds good to this crowd, but it may not
19 sound good to the big crowd.

20 (Laughter.)

21 And we've got to look at things. But certainly -
22 - that's why I thought if we could do something on the
23 generic basis and say, we want curtailable firm, we want
24 Jane's process to kind of use the collaborative process
25 you've already got going in a pretty aggressive timeframe to

1 talk about what would this service look like, at least as
2 the VPA. Chances are if you can work it out there, it's
3 going to be pretty applicable elsewhere.

4 We can put that as a public item and a reform to
5 the OATT to everybody. And then get comments from other
6 parts of the country and they say, well, we're different
7 from VAP and here is why. Well okay that's fine, we'll look
8 at that. But at least that will get the ball rolling.

9 But it would give the imprimatur that this is the
10 default, what we want this and then the details get filled
11 in, but you know, it's usually hard to get the concept sold.
12 Once the concept is sold, filling in the details, while
13 tedious, usually doesn't stop the show.

14 MR. ROMAOWITZ: Hi, Hal Romanowitz, Oak Creek
15 Energy and what I want to do is focus on one issue on trying
16 to integrate energy storage with the wind in that many of
17 the other questions already talked about, like Mr. Caldwell
18 and so on are obviously first steps. And there are other
19 things being talked about with Cal ISO and so on.

20 But the one really key thing that's a high value
21 item that at least I don't see any way to capture the value
22 yet, is that energy storage coordinated with wind energy or
23 intermittent resources has a negative transmission value.

24 In other words, it creates transmission capacity.
25 You add 100 megawatts of storage onto a transmission system

1 that has significant intermittent resources and you've
2 created an additional 100 megawatts or more of transmission
3 capacity on that grid and that is a significant value, maybe
4 in the order of 300/400/450 a kilowatt.

5 That's not capturable by any of the ways, at
6 least that I can see so far, and we've been struggling for
7 quite a while trying to integrate or trying to get a storage
8 project to work and this is one of the issues that there is
9 a value that you just can't capture and it is a very
10 significant thing.

11 CHAIRMAN WOOD: You wouldn't recover that through
12 capacity payments for the renewable resource because it
13 firms it from 27% to 70% or whatever?

14 MR. ROMAOWITZ: Yeah, but you see the problem is,
15 there is at least, we haven't figured out any way to capture
16 that because the capacity value is really in the energy
17 product, really, it's an energy capacity product where the
18 transmission service or transmission rates are totally
19 different element.

20 You need to find a way to flip the transmission
21 costs into the kilowatt hour product or the capacity product
22 one way or the other and it doesn't seem to be doable, at
23 least at this point, that I've been able to figure out.
24 Maybe somebody else can but we've been doing quite a bit of
25 talking about it and we haven't quite figured out anything

1 yet. And it's a very high value potentially that does
2 impact the ability to get storage onto the system.

3 CHAIRMAN WOOD: Did transmission owners not have
4 an incentive to put that in as a transmission investment,
5 although it's kind of on the line between both transmission
6 and generation?

7 MR. ROMAOWITZ: Yeah, the process is so
8 convoluted and typically transmission people don't talk to
9 the purchasing people. In fact, I think you guys are the
10 ones that mandate that they don't talk.

11 (Laughter.)

12 So it does create quite an issue and there are
13 other things like the difference in characteristic of the
14 product where a storage product is a larger bulk element.
15 It's planable where the intermittent resource is quite
16 variable and the two need to be virtualized as opposed to
17 integrated. Those are other issues but the real key one
18 that needs a solution is to find out how to capture that
19 transmission value into the product price.

20 We're going to be thinking about it and probably
21 submit some comments into the process later but it is one
22 that needs focus.

23 MR. GOUGH: Mr. Chairman and Commissioners, after
24 having taken you to task in my earlier comments, I did want
25 to thank you and your staff. We met during the break and

1 they extended some invitations to meet with them and present
2 some of the tribal concerns in a more detail fashion and we
3 look forward to doing that.

4 I wanted to leave you with something from the
5 perspective of the tribes that live along the Missouri River
6 that have seen the dams being built, have had their lands
7 flooded and have WAPA transmission lines going over their
8 heads.

9 When the country is looking at how to rework
10 transmission system to bring renewables into the game, folks
11 there remember that they were getting 100% renewable energy
12 from the federal grid which was built by the Bureau of
13 Reclamation, built to deliver renewable hydro power to the
14 region.

15 We were 100% renewable when that went in. Today
16 in the Northern Plains, due to drought, due to fixed
17 capacity on the dams and growing demand in the region, those
18 same wires now carry 20% hydro power, 20% renewables, 80%
19 coal. We are looking at a fair and balanced kind of
20 operation where, let's see if we can have 50/50. 20% hydro,
21 30% wind, 50% coal.

22 We have an opportunity to experiment with the
23 federally owned and operated agreement on some of these
24 operations in the windiest regions of the country. A great
25 opportunity. So we would just encourage you to consider

1 what we can do to restore the national renewable energy
2 grid. Thank you.

3 MR. SIMMS: Robert Simms with Sea West Wind
4 Power. I just wanted to make a comment about the financial
5 reality from the perspective of a wind energy developer as
6 far as transmission cost.

7 There is one source of revenue for a wind energy
8 project of course, and that is the power purchase agreement.
9 And from those payments, we have to allocate monies for
10 operations and maintenance and we also have to service the
11 debt for the project and provide a return for the equity
12 investor.

13 As transmission arrangements become more
14 complicated, the bankers don't like risk. So if we get into
15 a situation where transmission arrangements require service
16 payments which are variable, the consultants for the banks
17 are going to take a worse case view of all those potential
18 downside payments and add a factor to that, and going to
19 require that the monies in the model for the project cover
20 all of those potential downside risks.

21 The only thing we can do then, as a result, is
22 increase the power purchase price to cover those costs. So
23 my point is that in the end, the load pays, the customer
24 pays. So the more complicated those arrangements are, it
25 gives the banks the ability to demand a higher return, give

1 them a higher return on the investment and raises the cost
2 of energy.

3 So the simpler the transmission arrangements
4 could be, the lower cost to society for the projects.

5 CHAIRMAN WOOD: Are they simple somewhere? I
6 mean, is there a model that we would look at? Is there any
7 way to get around paying of ancillary services?

8 MR. SIMMS: Well certainly when we look at
9 different locations, California or Texas, where we are not
10 subject to those ancillary and imbalance costs, the bankers
11 take a lower risk perspective on that aspect of the project
12 and will accept a lower rate of return and don't have to
13 have for the worse case.

14 CHAIRMAN WOOD: You gave me the answer I was
15 looking for.

16 MR. CALDWELL: Change the Order 888 Pro Forma
17 tariff. Why is that voluntary? Why isn't that something we
18 can do right now, just to get rid of that imbalance? Forget
19 all the rest of the stuff.

20 CHAIRMAN WOOD: I think that was on our to-do
21 list.

22 MR. CALDWELL: I sort of heard that we were
23 waiting for a 205 or 206 filing on that. Is that
24 something --

25 CHAIRMAN WOOD: Well the Commission initiates

1 under 206, that's what we did to get the deal done in the
2 first place. That sounds like the easiest fix there. You
3 just said that the imbalance penalty structure is not longer
4 just and reasonable, we're going to replace it with
5 something that is.

6 MS. SIMLER: Jim we were listening to things that
7 we kind of try to have outreach and work with all the market
8 participants on. As chairman wood said, there may be
9 something that maybe we will just have to think about and
10 take on on our own.

11 MR. CALDWELL: No, I totally understand. I think
12 there is a lot of these things and especially when we get
13 into the utilization of the existing system more
14 efficiently. That's going to take some toing and froing and
15 a lot of talking and a lot of conferences and so forth.

16 I still think that it is going to also take some
17 sort of a safe harbor for the guy who does step out and take
18 the risk because he looks at it, that the transmission
19 provider has to look at it and what's in it for him, and the
20 best he can do is tithe, then he is not going to do it and
21 we can work through that.

22 But I think the imbalance issue is one that is,
23 first of all it is the largest single dollar amount that we
24 are talking about in many of these territories. It will
25 make the biggest difference in the shortest period of time

1 and it is something that we can do now with a simple tariff
2 change and I don't think rises to the level of some of those
3 other things that are going to take a little bit more
4 voluntary this and that and talking.

5 MR. STARCK: Hi, I'm Les Stark with Southern
6 California Edison. Matt you are going through your tick
7 list and there is a couple items that John Fielder had
8 mentioned that I didn't hear you mention.

9 One was that we were recommending that FERC ought
10 to consider revising its abandoned plant policies. That
11 might have been under your transmission pricing but I wasn't
12 sure you ought to include that.

13 CHAIRMAN WOOD: That idea should be on three. I
14 think a vestige of the old world and I'm glad he pointed it
15 out.

16 MR. STARCK: And the second one that John
17 mentioned was that FERC ought to consider a third kind of
18 transmission upgrade.

19 Currently we categorize them as either a genti or
20 network resource and what John had suggested was aimed at a
21 renewable resource trunkline and that would be for example a
22 500 kv line that goes up to a particular substation within a
23 renewables area and that FERC would maybe consider that
24 being included as part of overall transmission rights.

25 Not considering an a genti and paid for by

1 generators, but it would be something that you could roll
2 into the overall transmission rights.

3 CHAIRMAN WOOD: Let me follow up on that because
4 I was thinking about because I was thinking about it after
5 he talked. There usually are things, our rules have already
6 been set up because it's the utility that is discriminating
7 against the generator. And this is an example where you
8 actually want to make something, a network charge that would
9 otherwise be a direct bill to the generator.

10 You know our rules are really meant to hold back
11 the tide from swamping the new entrant and what you are
12 trying to do is facilitate that.

13 Certainly the Commission is looking, I mean
14 philosophically, I wouldn't be surprised if we had problems
15 with that. I do worry that denominating such a version of
16 genties for renewable purposes only -- well it is a
17 discrimination. The bottom line is it is it is undue
18 discrimination because those resources can't walk around
19 like a gas or coal plant can.

20 MR. STARCK: Well that was the point that John
21 was trying to make.

22 CHAIRMAN WOOD: He did.

23 MR. STARCK: You can usually bring the fuel to a
24 particular power plant but with renewables, you've got to go
25 to where the fuel is or you've got to go to renewable

1 resource. And if it's in a remote location and a state has
2 designated it as a renewable resource that ought to be gone
3 after and it's significant but is in megawatts, we're
4 talking like a 4,000 megawatt potential resource. We've got
5 to go after it.

6 CHAIRMAN WOOD: Is it just a question of how the
7 FERC has defined the line between the genti and the network
8 upgrade such that this line you think would have a very
9 expensive genti because of the definition?

10 MR. STARCK: Well typically you've gone off and
11 defined a genti and said, here is a genti, the generator
12 ought to pay for it and in our sense is you're doing that to
13 send the right price signal for location.

14 That makes good sense. But when it comes to
15 renewable resource, which is in a specific area, that you've
16 got to go after, it doesn't make any sense to continue with
17 that policy. So we're just trying to say that with these
18 type of resources, you ought to walk away from that old
19 policy and apply something different to the renewable.

20 MS. KELLY: Well does that policy get triggered
21 no matter who proposes the line? Doesn't that policy
22 usually get triggered when there is an interconnection
23 request?

24 MR. STARCK: That is correct.

25 MS. KELLY: But this is not a situation where

1 there is an interconnection request.

2 MR. STARCK: Well that's correct and that's the
3 problem we've got. If we're going to put a 500 kv line up
4 at Tahatchby, we can't sit around and wait for all the
5 generators to come in and line up and sign up contracts that
6 will equal to 500 kv line.

7 CHAIRMAN WOOD: We would rater not have that.

8 MR. STARCK: We want to build it first and then
9 allow the generators to come in and then we'll sign
10 contracts. Now we're saying also that if a generator
11 locates within this resource the lines from h is resource,
12 from his generation to this substation that the trunkline
13 feeds, that probably ought to be considered a genti, okay.

14 But the main trunkline that goes from one
15 substation within the network to the middle of the resource,
16 we ought to consider that part of the network and roll that
17 in.

18 MS. KELLY: So you really want the generator to
19 pay for part of it? You don't want to roll it in. I mean,
20 you could just look at it as an expansion of your
21 transmission system, I thank that's what Pat was saying, and
22 then it gets rolled into pricing.

23 MR. STARCK: Right.

24 MS. KELLY: Is that what you want?

25 MR. STARCK: That's exactly right.

1 MS. KELLY: Or do you later want the generator to
2 have to pay a portion of it?

3 MR. STARCK: The only thing -- I didn't want to
4 confuse you on what the generator would pay. Imagine a line
5 that goes from the substation that's attached to the ISO
6 network. We take a 500 kv line from that substation to a
7 new substation within Tahatchby. That would be paid for by
8 overall rate payers. We'd roll that into rates. Now, any
9 generator that wants to get to that substation at Tahatchby,
10 the lines from that generator to that particular substation
11 ought to probably be considered a genti paid for by the
12 generator.

13 MS. KELLY: But why is that first line not just a
14 normal expansion of your network upgrade?

15 MR. STARCK: That's what we are advocating.
16 We're concerned that in prior precedents that FERC would
17 have considered that to be a genti because that is a
18 particular straw that's going from a substation right up to
19 an area of a resource.

20 MS. SIMLER: You're saying that from that point
21 it may have been considered the beyond point?

22 MR. STARCK: Yes.

23 MS. SIMLER: What now what you're basically, you
24 just want to back up that point to the substation in
25 Tahatchby.

1 MR. STARCK: Precisely. Now if you include that
2 in your tick list, we'll be happy.

3 CHAIRMAN WOOD: Now you're all going to file a
4 declaratory order of some sort?

5 MR. STARCK: We're going to file a CPC with a PUC
6 in December and I think our current plan is to file our
7 petition for declaratory order with you all probably in
8 January or February. I think John mentioned December.

9 CHAIRMAN WOOD: Do it soon. Get it teed up and
10 moving while we're thinking about it.

11 MR. STARCK: You've got it. We will do that.

12 CHAIRMAN WOOD: Then we can hear what the other
13 people have to say that may not agree with you then we can
14 make a cut.

15 MR. STARCK: Thank you very much.

16 MR. PORTER: Kevin Porter from Exeter Associates.
17 The only one thing I would suggest that is missing from
18 Matt's list was what Jim Caldwell pointed out was that, if
19 you repeal the energy imbalance penalties, for
20 intermittence, then the quid pro quo should be some sort of
21 state of the art wind forecasting and I guess the definition
22 of state of the art wind forecasting may be in the category
23 of ask the industry to sort of bring you what that should
24 be.

25 And then of course that opens up for the RTO

1 world, the questions that Joe was bringing up. We should do
2 that and the RTO and the generator and all that. But I just
3 wanted to bring that up. Thank you.

4 MS. KELLY: I have a question before you leave.
5 State of the art wind forecasting, does the cost -- is that
6 a fixed cost regardless of the size of the wind farm?

7 MR. PORTER: I'm not a wind forecaster so I'd
8 like to defer that to Jim.

9 MR. BLATCHFORD: In California it's a fixed cost.
10 It's 10 a megawatt hour.

11 MS. KELLY: Well --

12 MR. BLATCHFORD: Yes pretty much.

13 MS. KELLY: So it's going to cost --

14 MR. CALDWELL: Most of the cost is in -- there is
15 obviously some variable cost and variable telemetry for the
16 next but the big cost is the network system to collect all
17 the data and the people to t run it and the people to take
18 care of it.

19 When we looked at -- I guess Dave has left, has
20 he, yes. When we looked at the cost of setting the system
21 up, as I recall, it was somewhere in the area of 80% fixed
22 and 20% sort of semi-variable with whoever came in.

23 So for all practical purposes, there is a huge
24 economic scale both in terms of the cost and also the
25 accuracy of the forecast in trying to do it on a regional

1 basis rather than a project-by-project basis.

2 MS. KELLY: That was my question. Can you do it
3 on a regional basis? If you have X dollars. If it cost X
4 dollars to put this on a wind farm in New Mexico, does it
5 cost X or X plus Y dollars to put it on a smaller wind farm
6 in Arizona?

7 MR. CALDWELL: I would say to a first order it
8 would cost X regardless of the size. So that a 20 megawatt
9 wind farm, the scata system is going to cost not that much
10 different from a 200 megawatt. Now there are obviously some
11 variable costs but it's almost always a fixed cost.

12 MS. KELLY: And if you had a wind farm in New
13 Mexico and a wind farm in Arizona, each of them 200
14 megawatt, could you use one investment? Each one is going
15 to have a scata system, but is it one forecasting model?
16 What kind of an economic scale can you get on a regional
17 basis?

18 MR. CALDWELL: I guess, you know, that's one of
19 those philosophical questions and I think one of the things
20 though that I think we need to be careful about is that one
21 of the things in wind forecasting is, there is a lot going
22 on and there is a lot of competition among wind forecasters.

23 I looked around the room earlier and I saw two of
24 them here. I don't see them now. Maybe they are not
25 willing to stand up and talk about it., but there is at

1 least three commercial companies who do that. Who are very
2 good and very state of the art and they fight like tooth and
3 nail.

4 And one of the things that we have to be careful
5 of is to preserve that competition amongst those guys at
6 this point. So we can take this idea of centralized
7 forecasting too far because if you create a monopoly there,
8 then the incentives to make those forecasts better go down.
9 And there is a balance that we need to take.

10 So if you get an area the size of MYISO, for
11 example, where you've got 20 states, it's hard for me to
12 believe that one guy is going to have the local expertise,
13 is going to have the database, is going to have the thing to
14 do that. It probably is two or three folks.

15 But we've got to --- we need to listen to those
16 people and maybe that's one of the things we could do is
17 have something where those guys come in and talk about
18 forecasting and talk about how they can do it and what they
19 can do and where they can do it.

20 As best said, when Dan talked about the hour
21 ahead forecast being off by 50%, he needs to get a new
22 forecaster.

23 (Laughter.)

24 And I don't mean that in any way other than what
25 he is basically say is he is not doing much more than

1 guessing and that can -- there is a lot better than that out
2 there.

3 MS. KELLY: And what kind of service is it, and
4 maybe I missed the discussion of that. Is it a generation
5 service? My real question is, is it a regulated service or
6 not?

7 MR. CALDWELL: In California it is a regulated
8 tariff service in the sense that it's part of the tariff
9 that says the generator pays 10 a megawatt hour to fund
10 that system. So in that sense it is and it probably will be
11 in other places.

12 If you look at Bonneville and Pacific Corp, who
13 got it the other way by saying, if you don't forecast,
14 you're going to get whacked with penalties and therefore
15 incentivize the people who do it, it's not a tariff service
16 and there is competition among that. And both of those
17 work.

18 MS. KELLY: and when it's not a tariff service
19 then it's flow through in the cost of wind energy?

20 MR. CALDWELL: Yes because it becomes the cost of
21 the generator to do that.

22 MS. KELLY: So it's significant particular as far
23 as the competitive market goes and where you put the cost.

24 MR. CALDWELL: Well I mean we're sitting here
25 talking about a \$50 market or something like that and if

1 you're talking about 2 , or 3 , or 4 a megawatt hour, in
2 order to mitigate down integration cost that without it may
3 be \$5 and with it may be \$2, it's a pretty nice return on
4 the investment and we need to be careful to preserve those
5 incentives for that return on investment and the research./

6 One of the things, the other thing I think that
7 Dave said that is important is, there is still a role for
8 the federal government to set up the meteorological data
9 because all of those guys use the NASA, NOAH meteorological
10 data which was set up for different purposes. And if one of
11 the purposes of that federal system is to improve wind
12 forecasting, then they would put map towers and they would
13 put data points in different places. And then the
14 forecasting would get better.

15 And that's another thing -- I see one of the wind
16 forecasters standing up. Here he is. I'll shut up. He
17 knows something and he is actually going o say something.

18 MS. KELLY: We should put that on our list of
19 things to think about.

20 MR. AHLSTROM: I'm Mark Ahlstrom from Wind
21 Logics. We are one of those guys, I guess. I just wanted
22 to point out there are lots of different reasons for doing
23 forecasting.

24 We're talking about using it for transmission in
25 some cases where a lot of it is like the next hour type

1 forecasting value. In the case of Xcel, we're under a RD
2 project to do a systemwide forecasting for their operators.
3 But the focus there is probably on day ahead because that's
4 the real cost that we found in the ancillary services study.

5 And similarly, even in a market where you are
6 doing hour ahead forecasting for transmission, you still
7 have the issue of merchant generators there who may need day
8 ahead or some combination thereof.

9 So not all forecasting is equal. There is
10 probably a need for doing different types of forecasting
11 even on the same system for different uses. Because you
12 really want to tune the forecast to the actual user and
13 value you're trying to hit, which will be different for
14 different players on the system.

15 MS. SIMLER: I think that's it. Thank you again
16 everyone for participating, coming, and giving us your
17 attention for the entire day. Thank you.

18 CHAIRMAN WOOD: And our meeting is adjourned.

19 (Whereupon, the technical conference adjourned at
20 6:09 p.m.)

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