



IDAHO POWER COMPANY
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BARTON L. KLINE
Senior Attorney
PUBLIC UTILITIES COMMISSION

January 31, 2006

Jean D. Jewell, Secretary
Idaho Public Utilities Commission
472 West Washington Street
P. O. Box 83720
Boise, Idaho 83720-0074

Re: Case No. IPC-E-05-22
Phase II Workshop Final Report

Dear Ms. Jewell:

Please find enclosed for filing an original and seven (7) copies of the Phase II Workshop Final Report regarding the above-entitled case.

I would appreciate it if you would return a stamped copy of this transmittal letter for our files in the enclosed self-addressed stamped envelope.

Very truly yours,

Barton L. Kline

BLK:jb
Enclosures

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PUBLIC UTILITIES COMMISSION

Attorneys for Idaho Power Company

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE PETITION OF)
IDAHO POWER COMPANY FOR AN)
ORDER TEMPORARILY SUSPENDING) CASE NO. IPC-E-05-22
IDAHO POWER'S PURPA OBLIGATION)
TO ENTER INTO CONTRACTS TO) PHASE II WORKSHOP – FINAL
PURCHASE ENERGY GENERATED BY) REPORT
WIND-POWERED SMALL POWER)
PRODUCTION FACILITIES.)
_____)

BACKGROUND

On August 4, 2005, the Idaho Public Utilities Commission ("Commission") entered Interlocutory Order No. 29839 in which the Commission made initial determinations on several issues relating to entitlement to published avoided cost rates for wind-powered small power production facilities. In Order No. 29839, the Commission deferred a final determination on other issues raised in the case pending the completion of a workshop process in which the parties would address needed

studies, identify issues and discovery parameters. The Commission's Order provided in relevant part:

Idaho Power, in conjunction with the two utilities and in consultation with other parties to this case, is directed to file a proposed schedule for initial workshop to identify issues, required studies, and discovery parameters, to be filed as a proposal for further procedure and related time line. An initial report proposing same shall be filed with the Commission within thirty days. Subsequent status reports should be filed every sixty days thereafter. (Order No. 29839 at p. 10.)

In conformance with this Order, Idaho Power submits the following report.

PARTICIPANTS

The following people have attended one or more workshops, receive meeting materials and summaries, and are considered active workshop participants:

Name and Affiliation	Name and Affiliation
Mark Ahlstrom, WindLogics	LeRoy Jarolimek, Wind Advantage
Randy Allphin, Idaho Power	Clint Kalich, Avista
Bart Kline, Idaho Power	Mike Youngblood, Idaho Power
Bill Batt, Batt & Fisher	Bob Lafferty, Avista
Dave Bergh, Elmore County Agribusiness	Bob Lively, PacifiCorp
Karl Bokenkamp, Idaho Power	Randy Lobb, IPUC
Dean Brockbank, PacifiCorp	David Meyer, Avista
James Carkulis, Exergy	Jim Miller, Idaho Power
Don Doskeland, Windland	Joe Miller, McDevitt & Miller
Armand Eckert, Magic Wind	Ken Miller, NW Energy Coalition
Bill Eddie, Advocates for the West	Monica Moen, Idaho Power
Gerald Fleischman, IDWR-Energy Division	Tom Noll, Idaho Power
Troy Gagliano, Renewable Northwest Project	Lisa Nordstrom, PacifiCorp
Ric Gale, Idaho Power	Rich Rayhill, Ridgeline Energy
James Gall, Avista	Peter Richardson, Exergy
Mary Godwin, Advocates for the West	Gary Seifert, Idaho National Laboratory

Bruce Griswold, PacifiCorp
Jared Grover, Cassia Wind
John Hanson
John Hammond, Jr., Batt & Fisher
Mike Heckler, Windland
M.J. Humphries, B.R.E., Inc.
Glenn Ikemoto, Energy Vision

John Steiner, Idaho Wind
Rick Sterling, IPUC
Richard Storro, Avista
Blair Strong, Paine Hamblen
John Wirt
Scott Woodbury, IPUC
Brian Jackson, Renaissance Engineering
& Design

PROCESS

Four workshops and a settlement meeting have been held in Phase II of this proceeding. The initial workshop was held on August 29, 2005 and included representatives from the three electric utilities, the Commission Staff and various other parties interested in the development of wind-generating resources. By letter dated September 6, 2005, in compliance with Commission Order No. 29839, Idaho Power advised the Commission of the August 29, 2005 workshop and the status of the proceedings.

Between August 29, 2005 and October 10, 2005, the parties participated in two additional workshops, the first on September 20, 2005, and the second on October 10, 2005. By letter dated November 7, 2005 and in compliance with Commission Order No. 29839, Idaho Power advised the Commission of these two workshops and described the status of the proceedings, including the issues list developed by the parties.

On November 18, 2005, the parties participated in a fourth workshop. At this workshop, the parties participated in providing information on local and regional wind energy production forecasting, in clarifying funding for and the parameters of Idaho

Power's Integration Study, in determining the protocol for upcoming settlement discussions and in sharing and clarifying initial settlement proposals.

On January 12, 2006, the parties participated in a meeting to discuss four settlement proposals submitted by RNP and the Northwest Energy Coalition, PacifiCorp, Windland and Idaho Power Company. The parties received these settlement proposals prior to the January 12th meeting. In conformance with IPUC Rule 272, the parties to the January 12, 2006 workshop agreed that all discussions and negotiations concerning the settlement proposals would be confidential. The group emphasized that it was incumbent upon each party to maintain the confidential nature of the workshop negotiations among each party's consultants, experts and advisors.

PROGRESS

Since the inception of the workshops on August 29, 2005, participants have achieved the following:

1. Established and accepted a set of operational principles that guide the workshops.
2. Met with the consultant Idaho Power has retained to conduct the wind integration analysis contemplated by Order No. 29839. At several of the meetings, participants have discussed the parameters of the analysis and offered suggestions as to the design and objectives of the study.
3. Identified the issues to be addressed.
4. Provided information on wind production forecasting for purposes of framing potential settlement proposals.
5. Explored several potential settlement options.

OUTCOME OF THE JANUARY 12, 2006 SETTLEMENT MEETING

The parties to this case were unsuccessful in reaching a consensus concerning an interim settlement agreement.

TIMELINE

The participants are not scheduled to meet again prior to completion of Idaho Power's Integration Study in June 2006. Idaho Power has agreed to provide periodic informal and e-mail status reports to a smaller group of interested persons concerning the ongoing status of the preparation of the Integration Study.

Copies of the minutes of the November 18, 2005 workshop have been reviewed and approved by the participants and are attached to this report. A summary of the January 12, 2006 settlement meeting prepared by North Country Associates is also attached. This Final Report to the Commission has been submitted to all of the parties to this proceeding.

DATED at Boise, Idaho, this 31st day of January, 2006.



BARTON L. KLINE
Attorney for Idaho Power Company

WIND/QF SETTLEMENT MEETING PHASE 2 OF CASE No. IPC-E-05-22

JANUARY 12, 2006, 9:00 A.M. TO 1:00 P.M.
AUDITORIUM EAST, IDAHO POWER CORPORATE HEADQUARTERS, BOISE, ID

Facilitation Susan Hayman, North Country Resources, Inc.
Documentation Natalie Chavez, Chavez Writing & Editing, Inc.

MEETING OBJECTIVE

To clarify, discuss, and make decisions regarding settlement proposals on issues related to Case No. IPC-E-05-22.

MEETING OUTCOMES

Susan Hayman, North Country Resources, welcomed participants and provided copies of four settlement proposals. She reviewed the agenda and requested clarification on the confidentiality of the meeting. Per the Idaho Public Utility Commission, settlement discussions were privileged and confidential. Parties to the case agreed to be responsible for ensuring that any consultants or experts they brought to the meeting maintained the confidentiality of the proceedings. Parties were unable to reach settlement on the case.

PARTICIPANTS

Name and Affiliation	Name and Affiliation
Randy Allphin, Idaho Power	Bart Kline, Idaho Power
Karl Bokenkamp, Idaho Power	Bob Lafferty, Avista ^a
Dean Brockbank, PacificCorp	Randy Lobb, IPUC
James Carkulis, Exergy	Joe Miller, McDevitt & Miller
Armand Eckert, Magic Wind	Ken Miller, NW Energy Coalition
Bill Eddie, Advocates for the West	Monica Moen, Idaho Power
Gerald Fleischman, private citizen	Lisa Nordstrom, PacifiCorp
Ric Gale, Idaho Power	Peter Richardson, Exergy
Bruce Griswold, PacifiCorp	Celeste Schwendiman, Idaho Power
Jared Grover, Cassia Wind	Gary Siefert, Idaho National Laboratory
Mike Heckler, Windland	John Steiner, Idaho Wind
M.J. Humphries, B.R.E., Inc.	Rick Sterling, IPUC
Glenn Ikemoto, Energy Vision	Scott Woodbury, IPUC
Brian Jackson, Renaissance Engineering & Design	Mike Youngblood, Idaho Power
LeRoy Jarolimek, Wind Advantage	

^a Participated via conference call

WIND/QF SETTLEMENT MEETING
 (Case No. IPC-E-05-22)
 January 12, 2006
 9:00am-12:30pm

Auditorium East
Idaho Power Corporate Headquarters
Boise, Idaho

Objective: To clarify, discuss and make decisions regarding settlement proposals on issues related to Case No. IPC-E-05-22.

Agenda

Time	Topic	Process
8:30am	<i>Coffee/Tea available in meeting room</i>	
9:00am	Welcome, Meeting Overview – <i>Susan Hayman</i>	Information
9:15am	Settlement Proposals <ul style="list-style-type: none"> • RNP and NVEC – <i>Bill Eddie</i> <ul style="list-style-type: none"> ○ Key elements of proposal, including which Workshop Issues the proposal addresses ○ Clarifying Q&A ○ Discussion • Idaho Power Company – <i>Bart Kline</i> <ul style="list-style-type: none"> ○ Key elements of proposal, including which Workshop Issues the proposal addresses ○ Clarifying Q&A ○ Discussion • PacifiCorp – <i>Lisa Nordstrom</i> <ul style="list-style-type: none"> ○ Key elements of proposal, including which Workshop Issues the proposal addresses ○ Clarifying Q&A ○ Discussion 	Information, discussion
10:30am	Break / Caucus opportunity	
11:00am	Resolution of Settlement Proposals	Discussion, decision
12:00pm	Next Steps	Information
12:30pm	Wrap-up / Adjourn	

WIND/QF WORKSHOPS ISSUE LIST¹

Case No. IPC-E-05-22

1. Integration Costs

- 1.1. What are the utility's incremental costs, if any, for ancillary services needed to integrate intermittent wind resources?
- 1.2. Should wind QF purchase prices be discounted for the cost of ancillary services? If so, by how much?
- 1.3. If wind QF purchase prices are discounted for the cost of ancillary services, will the 90/110% band be eliminated?
- 1.4. What are the ancillary service **benefits**, if any, of geographically diverse wind projects that should factor into the ancillary services **cost** calculation?

2. Avoided Costs

- 2.1. Is it discriminatory and/or illegal to set avoided cost rates for wind resources using a methodology different from that used for other resources? [Removed]
- 2.2. Since RFP acquisition of power is outside of PURPA, should impacts of RFP acquisitions even be considered when setting avoided cost rates?
- 2.3. If an interim avoided cost rate for PURPA projects is established until completion of the integration study(s), would PURPA contracts under the interim rate be potentially subject to a revised avoided cost rate in the future?

3. Published Rates Availability

Could the availability of published rates be limited in the interim² to ensure that some portion of total wind resource acquisitions come from RFPs? If so, how?

4. Project Configuration

Should the Commission take action to prevent developers of large QF projects from configuring those projects into multiple smaller projects to qualify for the published rates? Is it discriminatory or illegal to do so? If not, what action should be taken?

5. Firm

What is the definition of firm for purposes of entitlement to published rates?
[Tabled until integration study is complete]

¹ Revised at Workshop #3, October 14, 2005

² Interim = Between now and when the integration study results are in and the Commission issues an order.

WIND ENERGY WORKSHOP #4, PHASE 2 OF CASE NO. IPC-E-05-22

NOVEMBER 18, 2005, 9:30 A.M. TO 4:00 P.M.

AUDITORIUM WEST, IDAHO POWER CORPORATE HEADQUARTERS, BOISE, ID

Facilitation Susan Hayman, North Country Resources, Inc.
Documentation Natalie Chavez, Chavez Writing & Editing, Inc.

WORKSHOP OBJECTIVES

- 1) Clarify the parameters of the integration study by responding to a participant question list (including who will pay for the study and the accessibility of study results, plus others raised by participants in advance of the meeting)
- 2) Provide information on wind energy production forecasting for participant consideration when framing potential settlement proposals
- 3) Determine the protocol for settlement proposal discussions
- 4) Share and clarify settlement proposals

WORKSHOP DECISIONS AND OUTCOMES

- Wording of the fourth bullet on page 3 of the October 14 workshop minutes will remain as is.
- Participants agreed at Workshop #2 on the purpose and products of the workshop series, but discussion at this workshop showed some disagreement on whether the third purpose ("To look for opportunities to identify an interim solution for factoring integration costs into PURPA avoided cost calculations until such time as an adequate integration cost study[s] can be completed and a final decision rendered") included settlement discussions.
- The segment of the next meeting about study parameters will be open to all participants, but the segment for settlement discussions will be open to parties to the case only.

ACTION ITEMS

Action Item	Responsible Party	Deadline
• Communicate (via e-mail initially) with workshop participants as study parameters are decided or narrowed. Organize a meeting of the smaller, interested group, if needed.	Karl Bokenkamp	ASAP
• Contact Karl Bokenkamp with comments regarding integration study parameters.	All	ASAP
• Prepare a status report on study parameters for the next meeting.	Karl Bokenkamp	Next meeting
• Notify Susan Hayman to schedule the settlement discussion (preferably in early January)	Bart Kline	When ready
• Submit requests for intervener status (contacting Scott Woodbury for help, if needed)	Participants who do not yet have intervener status	ASAP

WELCOME, INTRODUCTIONS, AND OVERVIEW

Susan Hayman, North Country Resources, welcomed participants (Appendix 1). She then had people introduce themselves for guests from 3TIER Environmental Forecast Group based in Seattle. She also reviewed the agenda (Appendix 2) and principles of meeting conduct. Hayman encouraged people to be as succinct as possible in their discussions at this workshop, given the technical nature of the subject and size of the group.

Hayman asked about the accuracy of the fourth bullet on page 3 of the October 14 workshop minutes ("Comparing to a case where wind generation does not have variability or uncertainty attributes [e.g., block-loaded third-party generator]"). This issue had resulted in a flurry of e-mails between meetings, and she wanted to ensure that verbiage in the minutes accurately reflected what was said during the workshop, regardless of whether people agreed with the task. Bart Kline, Idaho Power, believed that the verbiage accurately represented what was said at the meeting. Furthermore, the minutes were already filed as part of a report to the IPUC. That report mentioned it as a point of contention. He also thought that the issue could be discussed during the time dedicated to the integration study.

Hayman commented that, between meetings, she had sensed some confusion or differing perceptions on the workshop purpose and products to which the group had agreed at Workshop #2. She reviewed that information, asking for discussion. At that time, there was no dissension from the group regarding the purpose and products of the workshop series.

WIND ENERGY PRODUCTION FORECASTING

Before the presentation from 3TIER Environmental Forecast Group, Hayman reviewed questions about forecasting that had been included on the agenda, as well as several that she received via e-mail (see Appendix 5 for these questions). She requested that people record additional questions on green cards on the table and ask them after the presentation. Bill Eddie, Advocates for the West, then introduced Pascal Storck and Rich Krauze. He had heard 3TIER representatives speak at a recent conference in Seattle, was struck by their information about forecasting, and thought that their work related to several issues that this group has discussed.

Storck used a PowerPoint presentation (see Appendix 3) to discuss 3TIER, other projects on which the company has worked, and benefits and limitations of forecasting wind power. Wind power by nature has highly variable output, with no output about 10% of the time and output of $\leq 20\%$ of capacity half the time. Forecasting does help deal with variability and explain a good amount of it so that wind can be integrated into a utility's portfolio.

Forecasting involves several different time frames: short range (hours), medium range (days), long range (weeks and months), and assessment (years). The accuracy of short-range forecasting is much higher, but that accuracy declines with longer time frames. Storck talked about using neural networks for hour-ahead forecasting, numerical weather simulation for day-ahead forecasts, and statistical methods for week- and month-ahead forecasting. He also reviewed oscillations that influence weather at different temporal and spatial scales.

Storck then focused his presentation on each of the time frames, the methods and data required at each time frame, and the relative level of accuracy at each (for forecasts based on climatology, persistence, and the advanced forecast system of 3TIER). Climatology looks at historical patterns of weather, while persistence uses data from the National Weather Service. Short-range forecasts depend heavily on good local data feeds for a project, using SCADA or some other system, while medium-range forecasts depend on the best regional and global predictors of changes in the wind. When clients position meteorological towers with anemometers, 3TIER can increase its ability to forecast for upwind projects. In the early stages of a project, 3TIER can collect data and figure out the best locations for these towers. Long-range forecasting requires modeling that incorporates the Pacific Decadal Oscillation and El Niño Southern Oscillation. Storck showed numerous graphs depicting relative accuracies of the various methods, as well as graphs developed to provide clients the kinds of information they require for scheduling/trading. He emphasized that the best value for forecasting lies at the day- and week-ahead time frames.

One participant asked about data sharing and confidentiality issues among projects. Storck said that 3TIER has developed some complex confidentiality agreements with clients and parameters guiding which data can be used where. When asked about the value of geographic dispersion, Storck thought that results of the integration study would probably provide the best answers. The issue of whether forecasting is sufficiently accurate to entertain elimination of the 90/110% band was raised. Because Storck wasn't very familiar with the 90/110% band, he was unable to address the issue.

Hayman reminded participants that the issue of changing or eliminating the 90/110% band had been removed from the issues list. She then revisited the questions that she had reviewed earlier and had Storck address any that hadn't already been answered through the presentation. During his responses, the following information was provided:

- Local vs. regional variability of wind—Results of the integration study are likely to help address this issue.
- Forecasting services available to utilities/developers—only a few credible forecasting companies exist in the United States. The Bonneville Power Administration, Avista, PacifiCorp, and several non-utilities in the Northwest are currently using forecast services.
- Use of forecasting by small wind projects—Storck commented that wind projects tend to cluster, so 3TIER has set up a modeling framework for the region.
- Costs—If costs can be shared, the price per developer/utility drops. If one developer owns all the wind projects, 3TIER offers a discount because of economies of scale. If all the power generated is going to Idaho Power, then it may make sense to have the utility pay for the forecasting, but if power is also dispersed to other utilities, then it may make sense to have the developer pay.
- Ability of forecasting to reduce need/cost for ancillary services—To the extent that forecasting can shave off some of the deviations, fewer ancillary services can be dispatched. Also, because days with lots of ramping result in the greatest need for regulation reserve, forecasting can be especially helpful in predicting those days with no wind or consistent wind when less regulation reserve is needed for the system to carry on. The cost for forecasting starts at about \$2,000 per month per project.
- Transference to other projects—Forecasts are highly specific to a certain site, but the system is transferable worldwide. If several projects are clustered, the system can be set up for that cluster, an approach that significantly reduces cost. A cluster might cover a fairly large area (e.g., 100 km × 100 km).

INTEGRATION STUDY

Hayman called participants' attention to flip charts with questions pertaining to the integration study (see Appendix 5). Some of these questions were carried over from the October 14 workshop; others came via e-mail in the interim. Questions 8 and 9 were bin items at the last workshop. She directed these questions to Karl Bokenkamp, Idaho Power, and Bob Zavadil, EnerNex. Zavadil participated via telephone. She also recorded on flip charts any options that were suggested during the discussion (Appendix 5). Questions and responses are provided in numerical order below.

1) Does the base case assume that wind is block loaded?

Yes, for another client, EnerNex had used a flat block of wind for the base case (incorporated as a purchase would be). They propose to do the same here, based on the questions to be answered. Then case 2 is the actual wind energy produced but it is shaped by the weather. Both cases incorporate the same amount of wind, but in case 2, the variability is included (and therefore the costs of that variability). Some kind of forecast is also included in the second case. Some participants believed that the base case should incorporate hourly block loading rather than daily block loading. Hayman suggested that people interested in the details contact Bokenkamp.

2) Over what time frame do you propose to model wind?

EnerNex had planned to use daily blocks rather than a month-long flat block. Participants pointed out that this design does not provide an estimate of the value of the forecasting service. Bokenkamp responded

that determining the value of forecasting has not been a question to be answered through the integration study up to this point. Mike Heckler, Windland, reminded the group that, according to Mark Ahlstrom, WindLogics, the model would use wind data for every 10 minutes over two years. Which two years hasn't been determined yet, but they should be years with actual meteorological data available.

3) *Over what geographic area will WindLogics be developing the historical wind speed data?*

Zavadil said that the area would cover all of Idaho Power's service territory and likely the margin around the edges for the intermediate grid. Within that area, they would identify areas that have some potential for wind development, depending on wind characterization, as well as areas that have been suggested for wind projects. He added that they aren't going to come up with a grid and start the computers without a review, especially from Idaho Power.

4) *How many, and where, will wind turbines be located in the model that converts WindLogics wind-speed data into estimated wind generation amounts?*

Heckler reiterated that there would be no one integration cost; results would depend on the assumed level of penetration. He wondered what assumption would be used for the model. Zavadil responded that the base case scenario was 300 MW. Many participants didn't believe that this assumption was adequate. Bokenkamp clarified that the intent is to consider multiple iterations with differing levels of penetration. The group began talking about hourly vs. daily block loading again. One option that was suggested was to look at different time frames to see trends, calculate the sensitivity, and see where the actual wind production was best described. Zavadil commented that load was uncertain as well. He has heard that the Aurora model used by Idaho Power is relatively efficient and gives hourly shape information. Ultimately, the wind model would be designed based on the questions to be answered. Hayman reminded people to provide input to Bokenkamp.

5) *How will the value of a wind forecasting service be estimated?*

This issue was not contemplated for the original study. Zavadil commented that in a New York study, scenarios were included for wind "just showing up" and for some forecast. Results indicated considerable benefit, even without having a perfect forecast.

6) *Does the natural variability of monthly output predicted by WindLogics wind speed data exceed the current QF requirement to predict monthly output within a $\pm 10\%$ band?*

Zavadil knows that WindLogics expected to forecast next-day wind rather than hour-by-hour wind for the next day. He wondered if people wanted a net of 30 next-day forecasts. Several participants commented that they were concerned about a quarter-ahead forecast since the 90/110% band applies monthly. Heckler clarified that developers want to understand whether the IPUC is asking for a term that can't be verified through physics. Under the current band, if projects fall outside the 90/110% band, they are penalized on price. He believed the issue should be addressed in the study. Gary Seifert, Idaho National Laboratory, added that, on an annualized basis, wind might be $\pm 10\%$, but monthly it could be off by 40% with no warning. Fleischman suggested comparing integration costs with the 90/110 rules and minimum availability guarantee (MAG) rule to determine whether integration costs change with those rules. IPUC staff asked how this question was related to integration costs. To them, it seemed a contractual issue related not to integration costs but to reliability protection.

7) *How will the integration study results be used in the current IPC IRP process, and can the results be used to define an "IRP" price term in any interim solution.*

Bokenkamp said that Idaho Power staff haven't developed a set plan at this point. Results would be used in the *Integrated Resource Plan* if they were available in time. He thought that the IRP would include integrated costs associated with different levels of wind and penetration. The last IRP had a scenario with 1,000 MW of wind. Results should help Idaho Power refine costs associated with integrating wind project.

8) *What information from the integration study will be available to workshop participants?*

Hayman suggested that the group talk further about who "owns the study." Participants agreed that the study belonged to Idaho Power. Kline said that, although the IPUC charged Idaho Power with hiring a

consultant, he wanted to ensure that participants could provide input to the study. The company would have to account for how it responded to that input. However, ownership of the study didn't mean that results would be unavailable. Kline foresaw filing the report in its entirety if the company believed that the report was accurate and defensible. Others could criticize the report if they wanted. Zavadil commented that WindLogic's computers have a time slot available this fall. He'd like to get started right away setting study parameters and collecting archival data from Idaho Power. He anticipated that parts of the analysis would be available after the first of the year. Part of the study would involve working with Idaho Power analysts to set up the Aurora market simulation. He wasn't sure but thought results would probably be coming out around February or March. Bokenkamp added that the study was expected to be completed in June.

Hayman suggested that people interested in the details of the integration study coordinate with Bokenkamp. Several people volunteered to do so (Heckler, Fleischman, Ikemoto, James Carkulis, Jarod Grover, Bruce Griswold, and Brian Jackson). Bokenkamp said that he hadn't envisioned holding separate meetings. He would e-mail information out to the larger group and anyone interested can contact him with input. If the situation warranted a meeting, he would schedule one. He will also report on final study parameters at the next workshop. Hayman offered facilitation support, if needed.

9) What is the cost for "adding" to the study (i.e., workshop participants' suggestions)? How will this be covered?

(See the response for question 8 above.)

PROTOCOL FOR SETTLEMENT PROPOSAL DISCUSSIONS

Hayman said that several people have talked to her about concerns for settlement discussions, especially regarding confidentiality. Kline added that protocols already exist for cases before the IPUC. Negotiations are considered privileged, and information cannot be used or discussed outside the meetings. The IPUC can take action against parties violating the confidentiality of proceedings. But this workshop series has been open to participants who are not parties to the case. He wondered what protocols could be implemented to encourage active participations but ensure confidentiality. Several issues were raised in the ensuing discussion:

- Although the deadline for intervention has passed, Scott Woodbury, attorney for the IPUC, believed that the Commission would entertain late application for intervener status if there were settlement proposals before the group.
- Some sort of nondisclosure agreement might be developed to cover participants who are not parties to the case.
- Gerald Fleischman, Idaho Department of Water Resources, didn't think that his agency would apply for intervener status or sign a nondisclosure agreement. Nor did he think that his interests could be fully represented by others who are party to the case.
- IPUC staff are not certain that all issues are appropriate for settlement. Woodbury added that a discussion of which issues are appropriate for settlement could occur in a workshop prior to any settlement discussions. Randy Lobb, IPUC, said Commission staff believe that the IRP method provides an interim means for obtaining a contract, although not at the published rate. The Commission order had not specified that an interim published rate was to come out of the workshop series. Other workshop participants disagreed, pointing to the third purpose agreed to by participants at Workshop #2 ("To look for opportunities to identify an interim solution for factoring integration costs into PURPA avoided cost calculations until such time as an adequate integration cost study[s] can be completed and a final decision rendered). Lobb agreed that the first and second purpose developed at Workshop #2 had been specified to in the order, but the third one was added by this group. Participants can talk about it, but it isn't an IPUC requirement. Woodbury commented that, if Commission staff are going to participate in settlement discussions, they have to first apprise the Commission of their intent and get input from the Commissioners.
- Developers are concerned about the time frame. They are looking at a "cliff" on December 31, 2007, and wanting to get their projects on the ground. Lobb cautioned against expanding the scope of the

workshop since the settlement process could last longer than the integration study if the Commission opened up a settlement proposal for public comment. Glenn Ikemoto, Energy Vision, pointed out that negotiating an IRP-based price might take just as long.

Hayman asked about meeting on December 2, as planned, to talk about the proposal that Eddie had provided before the October 14 workshop (see Appendix 4). Kline commented that Idaho Power is working on some aspects of interim settlement (addressing concerns about disaggregation as well as other issues) but would not be ready by December 2. He believed that the company's work would be completed sometime in December, so a settlement discussion could occur in early January. In the meantime, any participants who are not already parties to the case may apply for intervener status or provide their concerns and interests to someone who already has intervener status. Once Hayman hears from Idaho Power that staff are ready with their proposal, she will coordinate with participants on the time and date of the next meeting. The settlement discussion will be open to parties to the case only. Woodbury said that, if participants arrive at a consensus position, that position could be included in the report to the IPUC with recommendations.

Eddie asked that participants consider how the process ends. It would be unproductive to continue workshops for the next eight months. Yet litigation would also be unproductive. He hoped that people could work out some arrangement that would "tide people over" until the study was complete and conclusions drawn from the results.

NEXT STEPS

Hayman reiterated that the date of the settlement discussion has not yet been set. Once she hears from Kline, she will work with parties to the case to plan that meeting, probably in early January. There will be at least two proposals to consider, one presented by Idaho Power and the other presented by the Renewable Northwest Project and Northwest Energy Coalition (through Eddie). Participants pointed out that Bokenkamp had agreed to share details of the integration study at the next workshop. Hayman agreed to start the meeting with these details so that anyone interested could participate in that segment of the meeting.

WRAP-UP AND EVALUATION

Before adjourning, Hayman asked for evaluative comments on today's workshop. Although many participants shared positive aspects of the meeting (such as progress made and the interesting forecasting presentation), the following input and constructive suggestions were provided:

- The afternoon was sluggish. Morning and afternoon agenda items could have been switched.
- There appears to be significant disconnect between parties' expectations.
- Further integration study discussions should be conducted with a smaller group of workshop participants who understand nuances of the issues.
- The integration study is unlikely to solve all problems.
- Many of the problems identified in this group have been resolved elsewhere in the United States. But this group is "reinventing the wheel," which is taking too long.
- Everyone knows that the integration cost will likely be somewhere between \$2.50 and \$5.00 per MWh of wind energy delivered. But this group is spending considerable time trying to nail that number down and ignoring other parts of the contract. Idaho will lose out because windmills will go elsewhere.
- WindLogics has a window in November/December for use of its computer. Hopefully, Idaho Power will have the integration study details worked out to make use of that window. "Delay is the enemy of wind in Idaho."

APPENDIX 1—PARTICIPANTS

(Shading indicates people who did not participate in person or by phone.)

Name and Affiliation	Name and Affiliation
Mark Ahlstrom, WindLogics	Clint Kalich, Avista
Randy Allphin, Idaho Power	Bart Kline, Idaho Power
Jeb Allred, Idaho Power	Rich Krauze, 3TIER Environmental Forecast Group
Bill Batt, Batt and Fisher	Bob Lafferty, Avista
Dave Bergh, Elmore County Agribusiness	Bob Lively, PacifiCorp
Karl Bokenkamp, Idaho Power	Randy Lobb, IPUC
Dean Brockbank, PacificCorp	David Meyer, Avista
James Carkulis, Exergy	Jim Miller, Idaho Power
Roald Doskeland, Windland	Joe Miller, McDevitt & Miller
Armand Ecker, Magic Wind	Ken Miller, NW Energy Coalition
Bill Eddie, Advocates for the West	Monica Moen, Idaho Power
Gerald Fleischman, IDWR—Energy Division	Tom Noll, Idaho Power
Troy Gagliano, Renewable Northwest Project	Lisa Nordstrom, PacifiCorp
Ric Gale, Idaho Power	Rich Rayhill, Ridgeline Energy
James Gall, Avista	Peter Richardson, Exergy
Mary Godwin, Advocates for the West	Gary Seifert, Idaho National Laboratory ^a
Bruce Griswold, PacifiCorp	John Steiner, Idaho Wind
Jared Grover, Cassia Wind	Rick Sterling, IPUC
Rick Haener, Idaho Power	Pascal Storck, 3TIER Environmental Forecast Group
John Hanson	Richard Storro, Avista
John Hammond, Jr., Batt and Fisher	Blair Strong, Paine Hamblen ^a
Mike Heckler, Windland	John Wirt
M.J. Humphries, B.R.E., Inc.	Scott Woodbury, IPUC
Glenn Ikemoto, Energy Vision	Mike Youngblood, Idaho Power
Brian Jackson, Renaissance Engineering & Design	Bob Zavadil, EnerNex ^a
LeRoy Jarolimek, Wind Advantage	

^a Participated via conference call

APPENDIX 2—AGENDA

WIND/QF WORKSHOP #4 (Case No. IPC-E-05-22)
November 18, 2005
9:30am-4:00pm

Auditorium West
Idaho Power Corporate Headquarters
Boise, Idaho

Objectives:

- 1) Clarify the parameters of the Integration Study by responding to a participant question list (including who will pay for the study and the accessibility of study results, plus others raised by participants in advance of the meeting)
- 2) Provide information on wind energy production forecasting for participant consideration when framing potential settlement proposals
- 3) Determine the protocol for settlement proposal discussions
- 4) Share and clarify settlement proposals

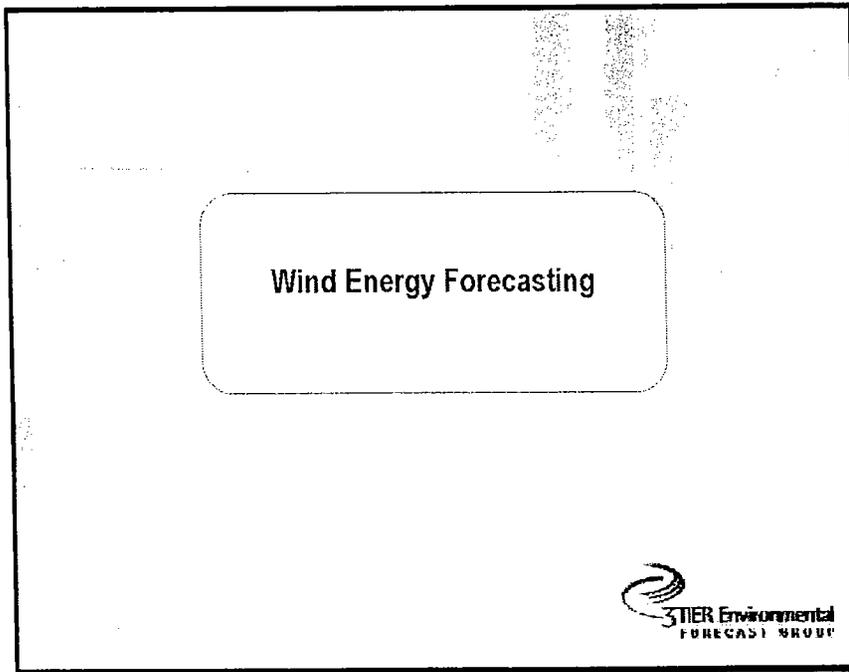
Agenda *(breaks taken as needed)*

Time	Topic	Process
9:00am	<i>Coffee/Tea available in meeting room</i>	
9:30am	Welcome, Introductions and Meeting Overview – Susan Hayman	Information
9:45am	Wind Energy Production Forecasting – 3 Tier Environmental Consultants <ul style="list-style-type: none"> • What are the forecasters learning about the local versus regional variability of wind? • What forecasting services are available to utilities and developers? • How are other utilities and developers using forecasting to integrate wind into their system • What are the lessons learned? 	Information, discussion
11:45am	Lunch (on your own)	
1:00pm	Integration Study <ul style="list-style-type: none"> • Clarify study parameters – Idaho Power • Study funding – Idaho Power • Access to study information/results 	Information, discussion
2:30pm	Protocol for Settlement Proposal Discussions	Information, discussion, Parties decision

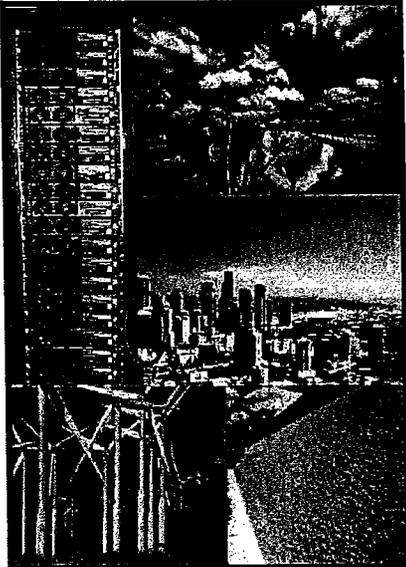
Agenda (cont'd)

3:00pm	Settlement Proposals <ul style="list-style-type: none">• Share proposals• Clarifying questions about the proposals	Information
3:30pm	Next Steps <ul style="list-style-type: none">• Workshop schedule• Agenda items for next workshop	Information, discussion, group decision
3:45pm	Wrap-Up and Evaluation – Susan Hayman	Discussion
4:00pm	Adjourn	

APPENDIX 3—WIND ENERGY FORECASTING PRESENTATION



3TIER Group



- Incorporated June 2001
- Headquartered in Seattle, Washington
- Founded and run by scientists to put the best of academic research into practice
- Focused on the renewable energy sector
 - 2400 MW wind energy forecasting
 - 2000 MW hydropower forecasting
- 11 employees, nearly all with advanced degrees in atmospheric sciences, hydrology or engineering
 - 5 Ph.D.
 - 4 M.S.
- 2 super computing clusters

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3TIER Environmental FORECAST GROUP

This block contains a slide titled "3TIER Group". On the left side, there is a black and white photograph showing a city skyline with several wind turbines in the foreground. To the right of the image is a bulleted list of facts about the company. At the bottom left of the slide, there is a small text warning: "Confidential Material - Do not circulate or reproduce". At the bottom right, there is a logo for "3TIER Environmental FORECAST GROUP".

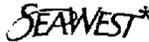
Partial Client List



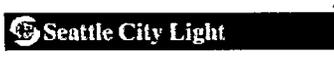
InvEnergy

Renewable Energy Systems

Eurus Energy America *



Airtricity

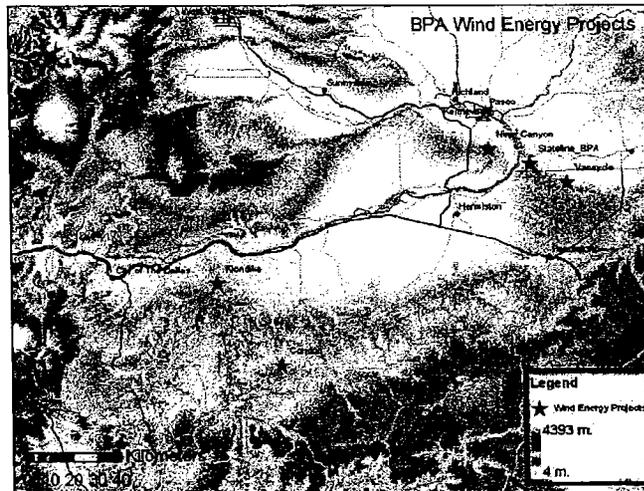


*= repeat clients

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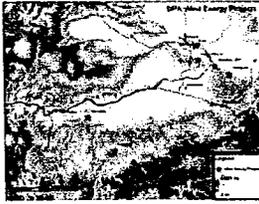


A month in the life of five wind energy projects

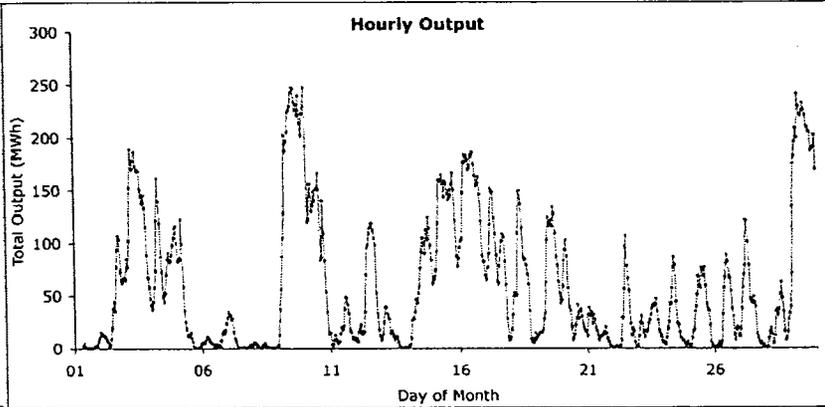


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Highly Variable Output
No output 10% of time
Output \leq 20% of capacity half the time
Dependable Capacity???



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Operational forecasting to provide
dependable capacity

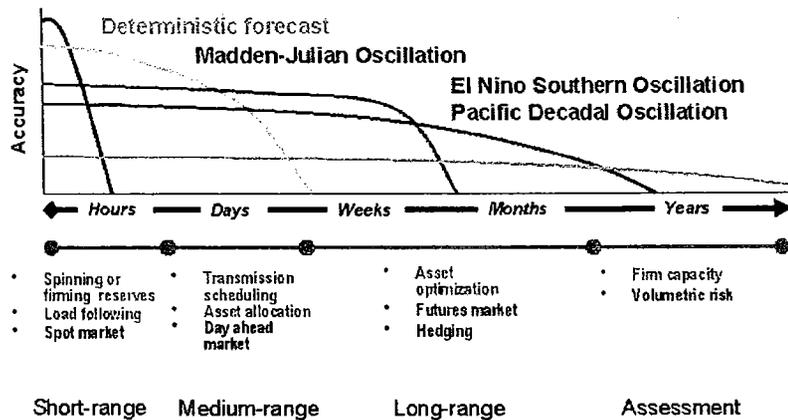
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Forecast Horizons

Overview of methods, reasons, and definitions

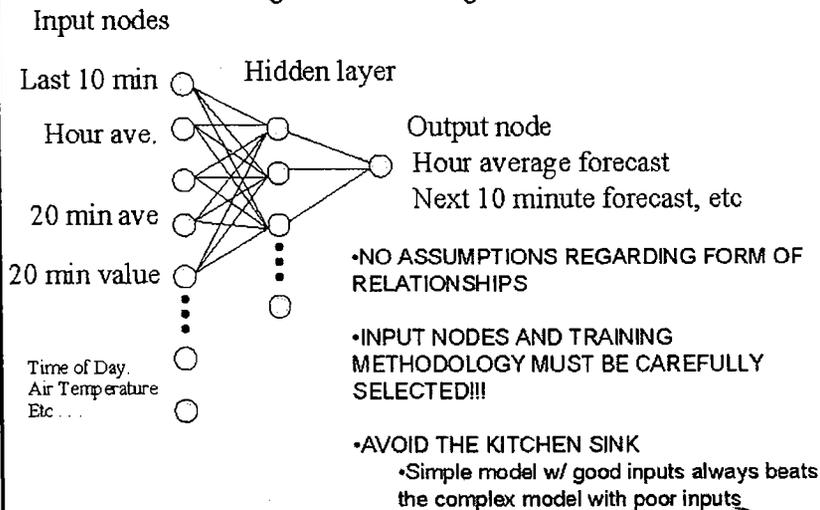
Observations



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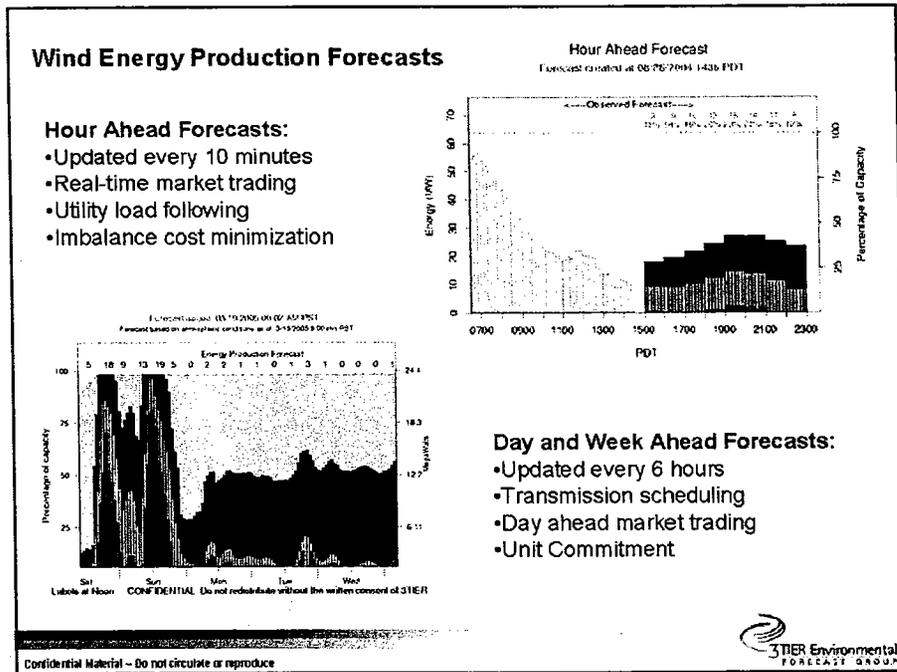
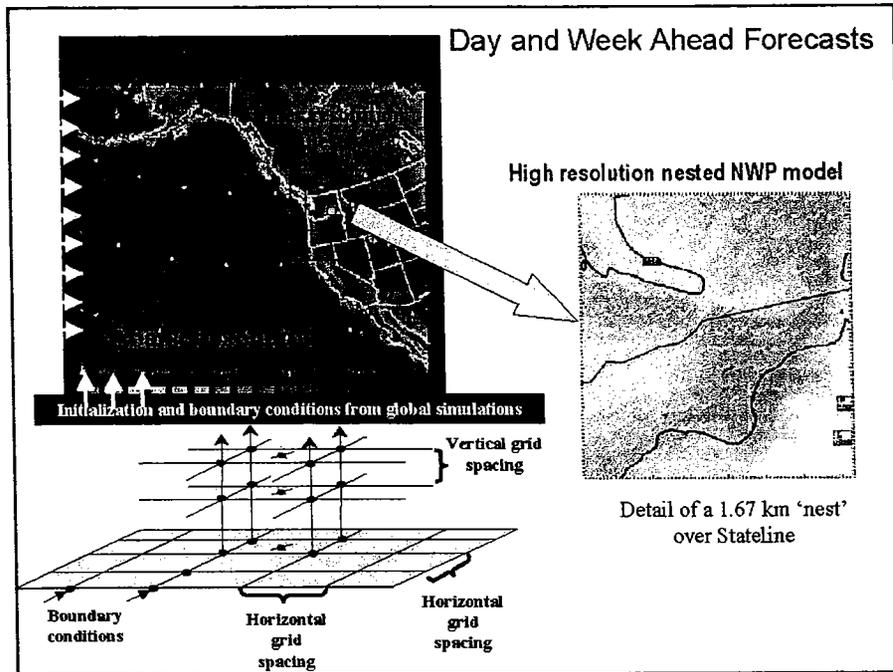


Short-Range Forecasting - Neural Networks



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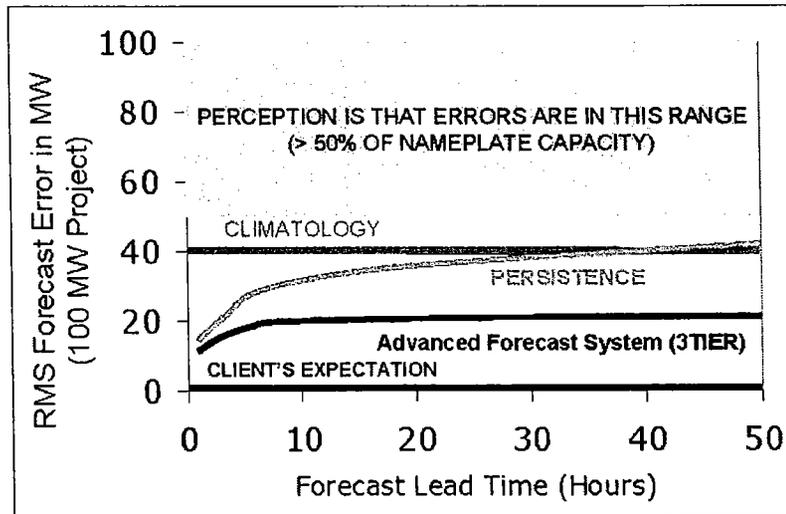


How accurate is the current state of the art in forecasting?

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PERCEPTIONS VERSUS REALITY: WHAT ARE TYPICAL FORECAST ERRORS



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Hour Ahead Time Frame:

Forecast accuracy depends on finding the best *local* predictors of changes in the wind

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Using off-site data



Neural
Network

DEVELOPMENT OF NEXT-GENERATION WIND FORECASTING TECHNOLOGIES

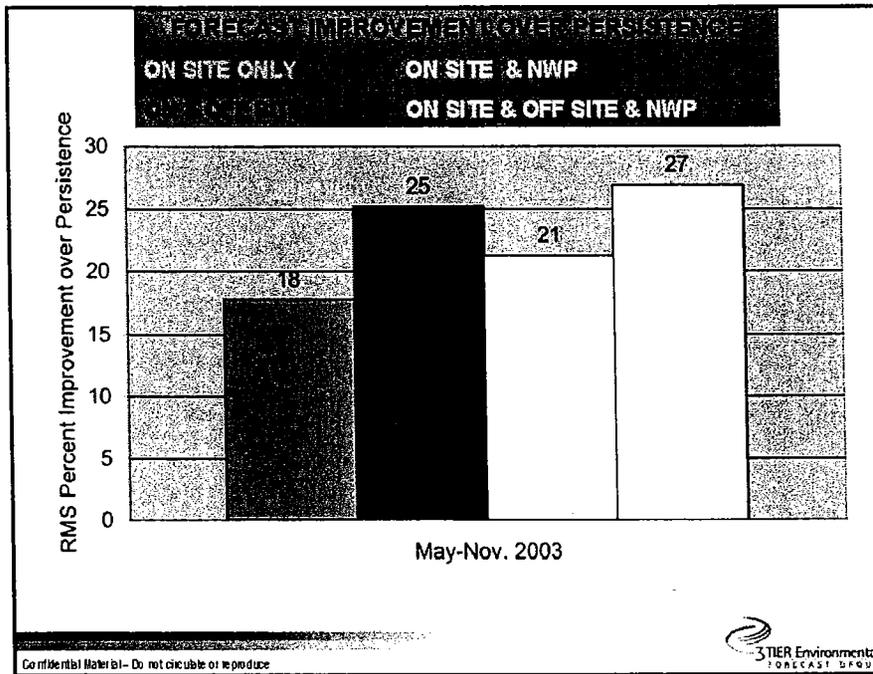
Sub-project Description: *Identify and develop statistical space-time methods and algorithms to improve short-term energy forecast accuracy at wind energy sites.*

University of Washington

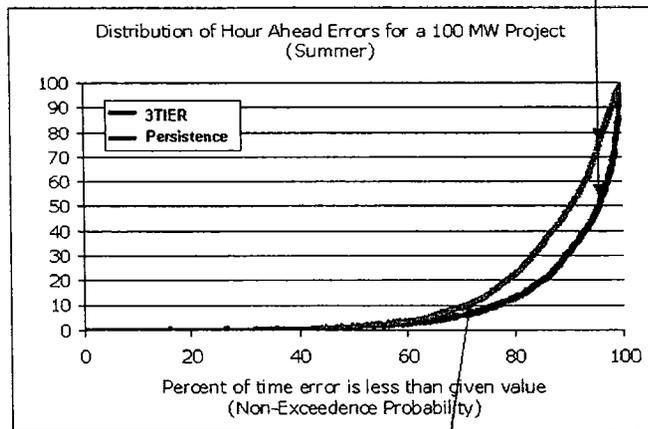


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Forecasting Reduces Occurrence of Large Unexpected Swings in Power:
 Persistence Forecasting: 95% confident that power swing less than 75 MW
 3TIER Forecasting: 95% confident that power swing less than 50 MW



Typical Hour Ahead Errors are small to begin with:
 A 20% improvement: 10MW -> 8MW

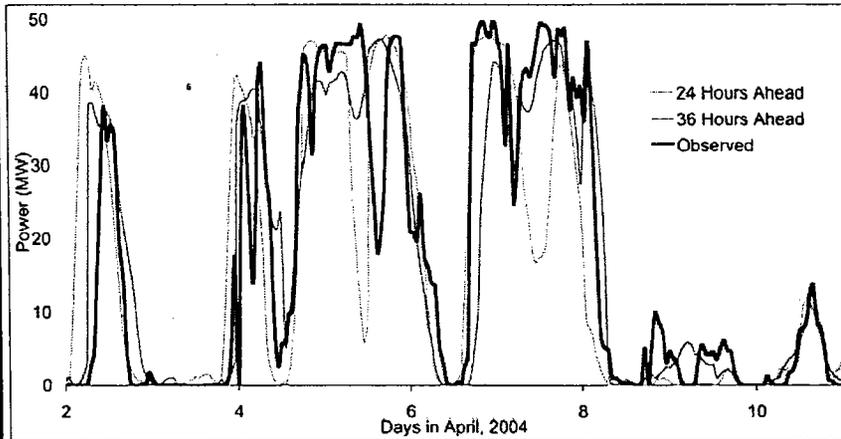
Day Ahead Time Frame:

Forecast accuracy depends on finding the best regional and global predictors of changes in the wind

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Example of actual wind energy production forecasts compared to observed production

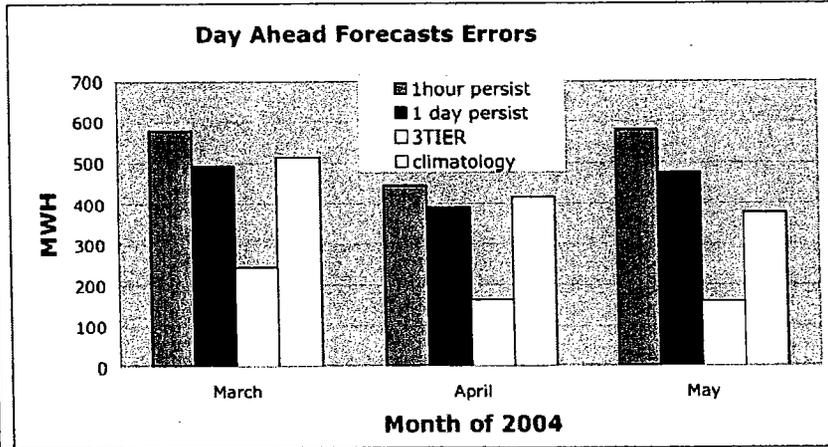


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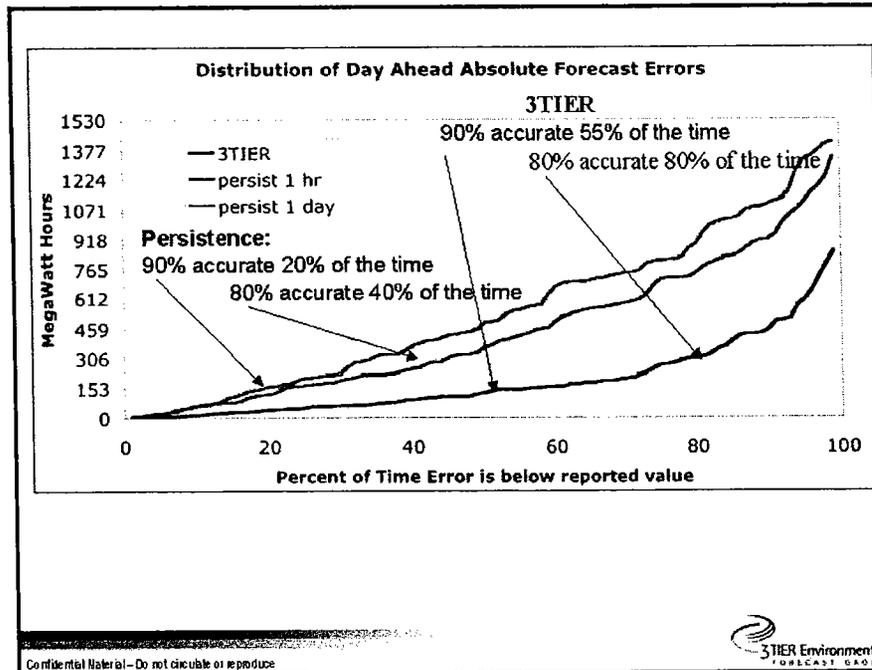
DAY AHEAD FORECAST ACCURACY

Forecast available by 5 AM Local Time
Total MWH for next day (midnight to midnight)



Maximum possible generation for any given day is 1530 MWH

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Can wind energy be scheduled a day ahead reliably?

Requires a robust forecast confidence interval

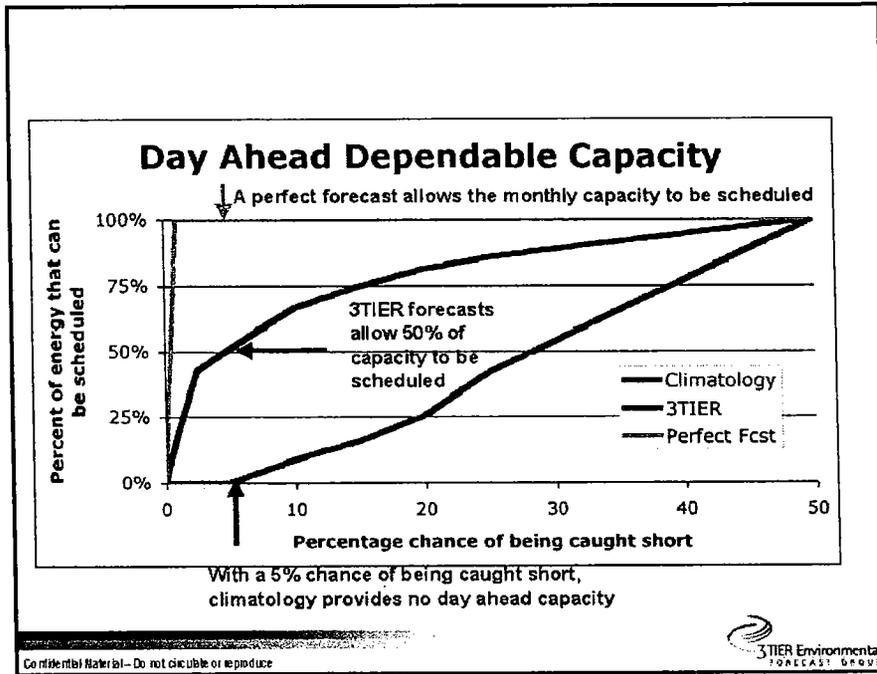
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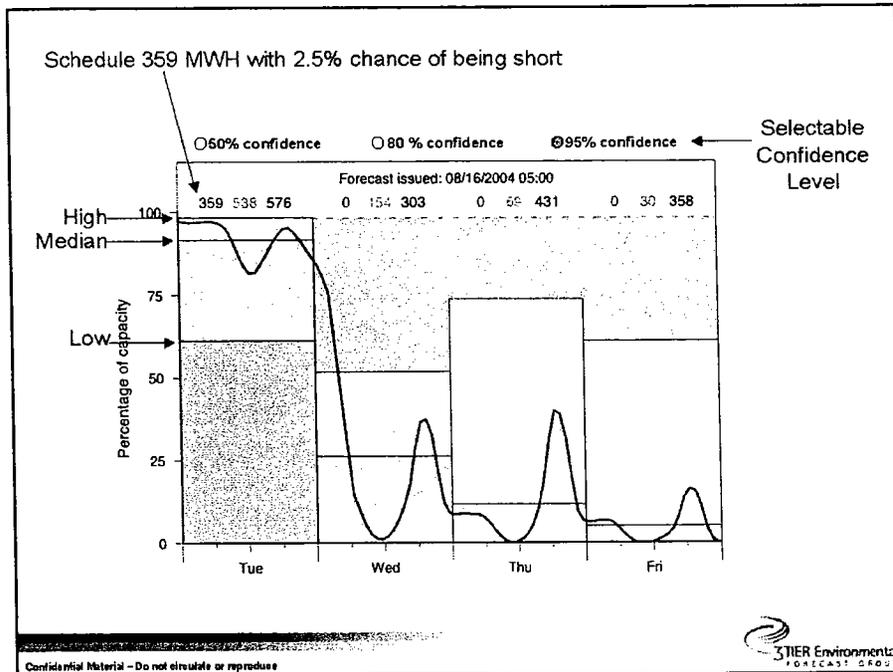


How 3TIER conveys forecast confidence

Examples from actual forecasts

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3TIER Environmental
FORECAST GROUP



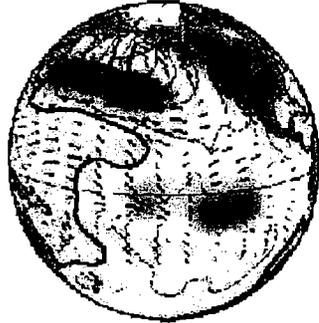
Month Ahead

Forecast accuracy depends on an accurate
characterization of the wind resource variability

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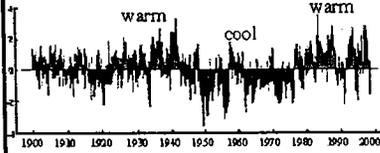
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Pacific Decadal Oscillation
Warm Phase

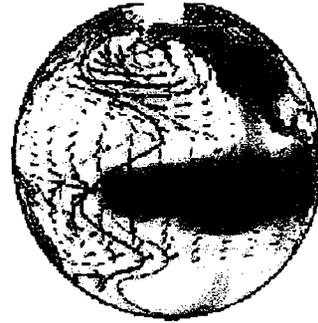


A Strong Gradient in Northern Pacific

A history of the PDO: 10-20 year events

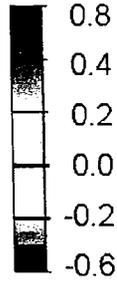
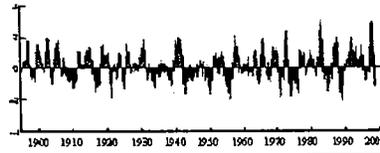


El Nino/Southern Oscillation
Warm Phase

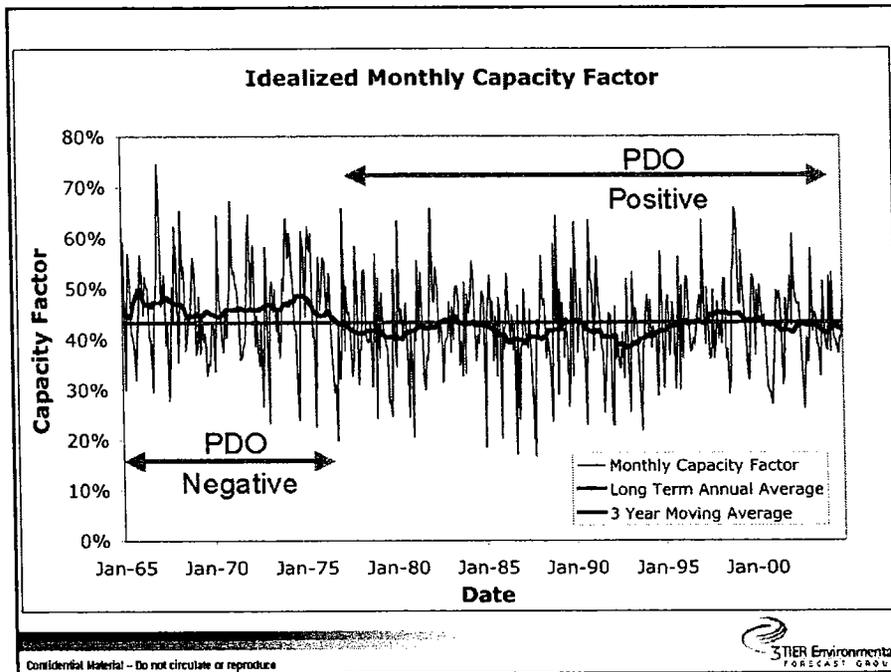


A Strong Warming in Equatorial Pacific

A history of ENSO: 1-2 year events



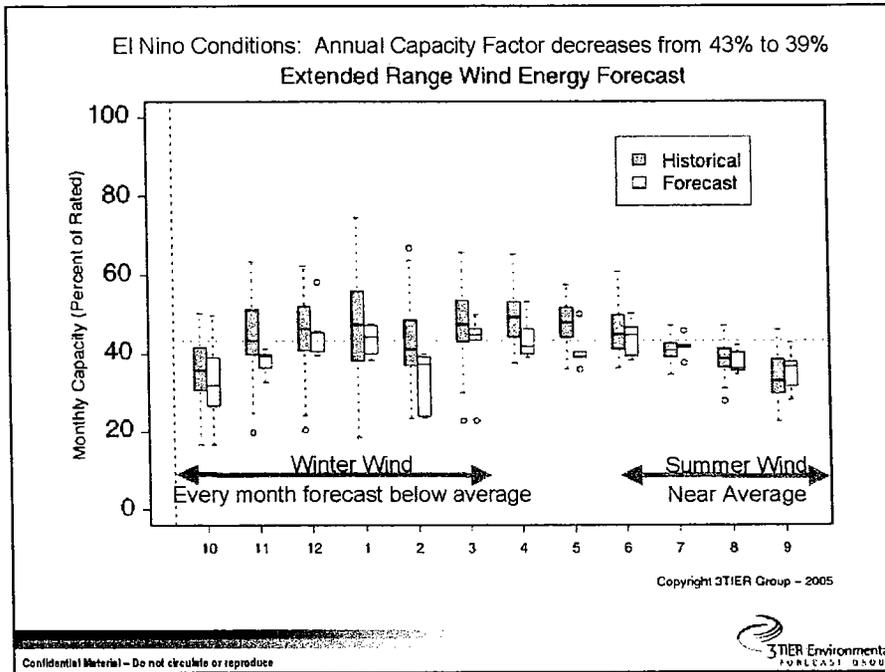
The Pacific Decadal Oscillation (PDO)
And Wind



The El Nino - Southern Oscillation And Wind

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Environmental
Forecast Group

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APPENDIX 4—INTERIM SETTLEMENT PROPOSAL

INTERIM SETTLEMENT PROPOSAL (presented by RNP and NVEC 11/18/05)

The purpose of this interim settlement agreement (“Agreement”) is to foster the growth of renewable energy generation resources in the State of Idaho, consistent with the Public Utilities Regulatory Policy Act (“PURPA”), and in a manner that is fair and reasonable for customers of electric utilities subject to the jurisdiction of the Idaho Public Utilities Commission (“IPUC”) and all interested parties; and to ensure ratepayers can benefit from the federal production tax credit for wind energy before it expires.

1. Idaho Power agrees to complete its currently pending Request for Proposals (“RFP”) for wind resources by January 31, 2006, by announcing the completion of a signed power purchase agreement (or other agreement for acquisition of wind resources), or by otherwise announcing the final outcome of the RFP. No specific result from the RFP is required by this paragraph. This paragraph shall not be construed to impact in any way the full authority of the IPUC with respect to its review of any power purchase agreement or other outcome of the RFP.
2. No later than June 30, 2006, Idaho Power agrees to complete a study of the costs and benefits of integrating wind generation resources within its service territory as part of the 2006 Integrated Resource Plan (“IRP”) development process. Idaho Power agrees to provide reasonable updates to and seek input from the parties of record in IPUC Case No. IPC-E-05-22 and the 2006 IRP Advisory Council on such study. It is the intent of the parties to this Agreement that the study, together with the results of similar studies undertaken by other utilities and other new information, may form the basis for new policies on the implementation of PURPA as it applies to wind resources; however, no party waives any right to challenge any policy change proposed in response to such study.
3. During this Agreement’s effectiveness, any PURPA qualifying facility utilizing wind as the motive source of power which does not hold a power purchase agreement (“PPA”) signed by a utility (“New Wind QF”) shall be eligible for the published avoided cost rates as described in IPUC Order No. 29632, subject to the following additional terms limitations:
 - a. All QFs seeking to receive a 20-year PPA per IPUC Order No. 29632 must have separate points of interconnection to a utility’s system. The purposes of this subparagraph are to ensure the IPUC’s 10 aMW eligibility limitation provided in Order No. 29632 cannot be circumvented; and to ensure the ratepayers can benefit from the potential cost savings offered by larger commercial renewable energy projects acquired through competitive processes.
 - b. PPAs for New Wind QFs shall not include the “90/110% band” described in Order No. 29632.

c. The published avoided cost rates paid to New Wind QFs shall be reduced by 5% as a reasonable interim estimate of the cost of integrating wind power to the electric grid at a system-wide wind integration level of 15%, based upon the results of available studies conducted by other utilities and entities. For example, the levelized published avoided cost rate in 2006 of \$60.99/MWh is reduced to \$57.94/MWh.

d. PPAs for New Wind QFs shall include a mechanical availability guarantee similar to that proposed by PacifiCorp and Schwendiman Wind LLC in IPUC Case No. PAC-E-05-09.

e. To ensure the acquisition of electric power from Wind QFs is fair and reasonable to ratepayers and in the public interest, Idaho Power shall not be required under this settlement to enter a PPA with a New Wind QF at the published avoided cost rates if such PPA would cause the total amount of intermittent wind power resources for which Idaho Power has entered enforceable contracts for purchase and/or construction, together with intermittent wind power resources that have been installed on Idaho Power's system to serve Idaho Power customers, to exceed 450 MW of installed capacity prior to the expiration of the terms of this Paragraph per subparagraph 3(h). In consultation with the parties of record in IPUC Case No. IPC-E-05-22, Idaho Power shall establish a wind power integration priority list for implementation of this interim cap. To maintain position on the wind power integration priority list, wind projects will be required to achieve appropriate development milestones and commercial operation by dates certain.

f. Unless otherwise provided in this Agreement, the terms and limitations on PPAs approved by the IPUC in Order No. 29632 shall remain effect.

g. Subject to regulatory approval, any Wind QF which holds a PPA signed by a utility may rescind such prior PPA and receive a new PPA under the terms of this Agreement; provided however that such Wind QF will be subject to subparagraph 3(a) of this Agreement.

h. The terms and requirements of subparagraphs 3 (a) through (g) shall expire upon the IPUC's issuance of a final and unappealable order in Case No. IPC-E-05-22, or on December 31, 2006, whichever is earlier.

i. A New Wind QF that becomes eligible for a PPA pursuant to the above provisions shall not be required to satisfy the "grandfathering" criteria set forth in IPUC Orders No. 29851 and 29872.

4. Idaho Power agrees to enter appropriate agreement(s) with a qualified firm to establish a centralized wind power forecast system ("Forecast System") for the Idaho Power service territory. The intent of the Forecast System is to provide Idaho Power with hour-ahead, day-ahead, or other forecasts of wind capacity and energy production from

all wind facilities larger than 5 MW in size (installed) to best optimize the integration of wind power into Idaho Power's electric transmission system. All New Wind QFs shall be required to provide any necessary information to the Forecast System provider (subject to appropriate confidentiality terms); and other wind projects may also opt-in to the Forecast System.

APPENDIX 5—FLIP CHART NOTES

Wind Energy Production Forecasting

- 1) What are forecasters learning about local vs. regional variability of wind?
- 2) What forecasting services are available to utilities/developers?
- 3) How are other utilities/developers using forecasting to integrate wind into their systems?
- 4) What are the lessons learned?

Wind Energy Production Forecasting

- 5) How can small wind projects procure/use forecasting?
- 6) Who pays? Cost?
- 7) Can it reduce need/cost for ancillary services? If so, how much?
- 8) How accurate? Capabilities?
- 9) How localized are forecasts? Transferable to other projects/places?

Study Questions

- 1) Does the base case assume that wind is block loaded?
- 2) Over what time frame do you propose to model wind?
- 3) Over what geographic area will WindLogics be developing the historical wind speed data?
- 4) How many, and where, will wind turbines be located in the model that converts WindLogics wind-speed data into estimated wind generation amounts?
- 5) How will the value of a wind forecasting service be estimated?

Study Questions

- 6) Does the natural variability of monthly output predicted by WindLogics wind speed data exceed the current QF requirement to predict monthly output within a $\pm 10\%$ band?
- 7) How will the integration study results be used in the current IPC IRP process, and can the results be used to define an "IRP" price term in any interim solution.
- 8) What information from the integration study will be available to workshop participants.
- 9) What is the cost for "adding" to the study (i.e., workshop participants' suggestions)
 - o How will this be covered

Questions Holding for Bob

- How is EnerNex determining how much wind will be block loaded on a particular day?
- In what time increments? (10-minute increments over 2 full years) → wind speed and direction

Protocols

- 1) Settlement negotiations are privileged—cannot be disclosed
- 2) Parties to case only involved in settlement discussions
 - parties and interveners
- 3) All workshop participants involved in settlement discussion
- 4) Ask Commission to allow for late interveners

Options

- 1) Hourly instead of daily
 - at least for one month
 - monthly, daily, weekly, hourly
- 2) Differences: base → actual
base → forecast
- 3) Haven't selected which years to use for 10-minute increments
- 4) Broaden beyond service area
- 5) Multiple penetration—iterations of model with different levels of penetration

Options

- 6) Does variability on monthly output exceed the current QF requirement to predict monthly output within $\pm 10\%$ band?
- 7) Compare integration costs under 90/110% and MAG

Study is to identify integration costs (same energy in both cases)

Case 1

Block loaded, daily

Base

Case 2

Forecasted, actual simulated

Action Items

- 1) Karl will communicate (e-mail, initially) with workshop participants as study parameters are decided/narrowed. Those with comments communicate with Karl. If a small group needs to meet face-to-face, Karl will arrange this. Susan is available for support as needed.
- 2) Idaho Power will provide status reports on study at subsequent workshops
- 3) Idaho Power will notify Susan when ready to schedule settlement discussion. Susan will schedule with parties.
- 4) Those not currently parties can submit request for intervener status. Check with Scott for information.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 31st day of January, 2006, I served a true and correct copy of PHASE II WORKSHOP – FINAL REPORT upon the following named parties by the method indicated below, and addressed to the following:

Scott Woodbury	<input checked="" type="checkbox"/>	Hand Delivered
Deputy Attorney General	<input type="checkbox"/>	U.S. Mail
Idaho Public Utilities Commission	<input type="checkbox"/>	Overnight Mail
472 W. Washington Street	<input type="checkbox"/>	FAX (208) 334-3762
P.O. Box 83720	<input checked="" type="checkbox"/>	E-mail
Boise, ID 83720-0074		
scott.woodbury@puc.idaho.gov		

Peter J. Richardson	<input type="checkbox"/>	Hand Delivered
Richardson & O'Leary PLLC	<input checked="" type="checkbox"/>	U.S. Mail
515 N. 27th Street	<input type="checkbox"/>	Overnight Mail
P.O. Box 7218	<input type="checkbox"/>	FAX (208) 938-7904
Boise, ID 83707	<input checked="" type="checkbox"/>	E-mail
peter@richardsonandoleary.com		

James T. Carkulis	<input type="checkbox"/>	Hand Delivered
Exergy Development Group of Idaho LLC	<input checked="" type="checkbox"/>	U.S. Mail
1424 Dodge Avenue	<input type="checkbox"/>	Overnight Mail
P.O. Box 5212	<input type="checkbox"/>	FAX
Helena, MT 59604		

Richard L. Storro	<input type="checkbox"/>	Hand Delivered
Director, Power Supply	<input checked="" type="checkbox"/>	U.S. Mail
Avista Corporation	<input type="checkbox"/>	Overnight Mail
1411 E. Mission Avenue	<input type="checkbox"/>	FAX (509) 495-4272
P.O. Box 3727, MSC-7	<input checked="" type="checkbox"/>	E-mail
Spokane, WA 99220-3727		
dick.storro@avistacorp.com		

R. Blair Strong	<input type="checkbox"/>	Hand Delivered
Paine, Hamblen, Coffin, Brooke & Miller	<input checked="" type="checkbox"/>	U.S. Mail
717 West Sprague Avenue, Suite 1200	<input type="checkbox"/>	Overnight Mail
Spokane, WA 99201-3505	<input type="checkbox"/>	FAX (509) 838-0007
r.blair.strong@painehamblen.com	<input checked="" type="checkbox"/>	E-mail

Dean J. Miller	<input type="checkbox"/>	Hand Delivered
McDevitt & Miller LLP	<input checked="" type="checkbox"/>	U.S. Mail
420 W. Bannock Street	<input type="checkbox"/>	Overnight Mail
P.O. Box 2564	<input type="checkbox"/>	FAX (208) 336-6912
Boise, ID 83701	<input checked="" type="checkbox"/>	E-mail
joe@mcdevitt-miller.com		

Jared Grover
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Cassia Gulch Wind Park LLC
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John R. Hammond, Jr.
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