

2009 IRP Advisory Council Meeting Minutes

Date: Thursday, November 13, 2008
Location: Idaho Power CHQ Auditorium

Introductions/Meeting Overview - Mark Stokes

Mark Stokes welcomed the participants to the meeting. Mr. Stokes explained that this meeting would get into the specifics of the resources which ultimately would determine the outcome of the planning process. The agenda for the meeting was reviewed and Mr. Stokes reviewed a flow chart of the IRP process. He stated that currently Idaho Power is looking at the transmission import and will soon begin calculating energy and peak hour surpluses and deficits.

John Gardner asked where the Advisory Council factors into the process on the flowchart. Mr. Stokes replied the Advisory Council is involved throughout the entire process as relevant issues are discussed with the group at the meetings.

Mr. Stokes stated that there is a possibility that there will not be an IRPAC meeting in January, as the analysis will be underway at that time. Mr. Stokes then introduced the first speaker of the day, Tom Noll.

Natural Gas Price Forecast – Tom Noll

Tom Noll presented a summary of Idaho Power's natural gas forecasting process. Mr. Noll explained that gas prices have ranged from \$5 to \$13 per million BTU over the past year, and that volatility in the market is likely to continue. Mr. Noll stated that Idaho Power does not develop a gas forecast, but rather reviews both published and unpublished forecasts, averaging and blending the forecast values for the final natural gas price forecast that is used in the IRP and for other planning purposes.

The natural gas price forecast used by Idaho Power Company anticipates moderate, but steady, price increases throughout the planning horizon. Natural gas prices are anticipated to increase to between \$9 and \$10 dollars per million BTU during the early part of the planning period prior to 2020. Natural gas prices are forecast to increase to almost \$13 per million BTU by the end of the planning period in 2028.

Idaho Power anticipates considerable volatility in natural gas prices. Mr. Noll explained that Idaho Power has developed a stochastic model to prepare different price scenarios. Idaho Power has used a nearest-neighbor routine to generate different price forecasts and intends to use the alternative scenarios in the Aurora regional electric market model.

Mr. Gardner asked if the Northwest Power and Conservation Council (NWPPCC) used an inflation rate of 2.5 percent. He also questioned whether Idaho Power reviews historical projections from past IRP processes. Mr. Noll stated that recent IRP forecasts have been on the low side. The present natural gas price forecast is based on market prices for the early part of the planning period and the forecast changes to price projections for the later part of the planning horizon.

Kevin Kitz stated that the prognosticators indicate that we're going back to the good old days. Mr. Noll replied that Idaho Power does not see a big dip in the future, and expects prices to increase from \$6 today to nearly \$9 per million BTU by 2011 or 2012

Rick Sterling asked about the date of the reviewed forecasts. Mark Stokes replied that Idaho Power used forecasts prepared earlier this summer.

A question was raised as to whether Idaho Power used the NWPPCC's most recent numbers. Jim Yost stated that the NWPPCC had provided the information to Idaho Power Company.

David Hawk asked a question regarding financial or physical hedges and the associated procurement costs. He explained that large industrial customers would rather pay a little more by accident rather than pay a lot more if things get out of hand. Mr. Noll briefly discussed Idaho Power's Risk Management Committee (RMC). Mr. Noll stated that the RMC sets ceilings and floors and tries to keep projected fuel costs within a specified range through dollar cost averaging. The RMC protects against extreme prices and provides a stability somewhere in the middle. Mr. Noll explained the price volatility and stated that prices are adjusted quarterly in the forecast by using a stochastic process.

Steve Munn asked about the expected volumes applied to the prices. Mr. Noll responded that Idaho Power applies the price forecast to the total volume of gas consumed at Idaho Power's generation facilities.

Mr. Sterling asked whether Idaho Power will look at various scenarios with a range in gas prices. He questioned how high gas prices would go before Idaho Power chooses a different resource stack. Mark Stokes replied that a tipping point chart could be used and would show the price resource strategy changes should that occur under different price scenarios.

Mr. Sterling stated that this type of risk analysis is extremely important. Rick Sterling explained that the menu of new resource choices has shrunk, and questioned whether Idaho Power has determined how to manage the volatility and the impact on rates to customers if gas becomes a more significant factor.

Mr. Munn stated Idaho Power should be looking at CHP projects because of the efficiency.

Mr. Noll concluded his presentation and stated that Idaho Power can expect moderate gas price increases and higher volatility.

Mr. Hawk stated there will be more volatility as the margin between supply and demand shrinks. He discussed the subject of shale gas and stated that advances in shale gas technology will result in the ability to deliver additional gas to the Northeast and Southwest.

Mark Stokes commented that Idaho Power can include high and low extreme cases as part of the analysis.

David Hawk commented that budgets for the gas drillers have also been cut severely which may lead to increased costs in a moderate fashion. Mr. Hawk further stated that Idaho Power needs to develop a long-term strategy in for hedging natural gas prices.

Carbon Adder – Rick Haener

Rick Haener, Idaho Power's Planning Analyst, provided a summary on the impacts and dispatch of resources as it relates to a higher carbon tax. Mr. Haener reviewed the 1990 and 2005 Western Electricity Coordinating Council (WECC) emission levels and presented an overview of the various legislative proposals, addressing their possible impacts.

Additionally, Mr. Haener addressed the cost in \$/ton of CO₂ to obtain reductions in total emissions. Mr. Haener presented Idaho Power's expected case of \$43/ton, escalating at 2.5% annually, which he stated fell somewhere in the middle of the possible scenarios. He further explained that the point at which the additional cost would trigger behavior changes would be \$50/ton.

David Hawk questioned where the money generated from the carbon tax would go. He expressed concern that in the short term, a carbon adder would likely increase costs without changing the resource mix or dispatch, and consequently would have little or no impact on carbon emissions. He also expressed concern that there would be significant price shock if the carbon tax were implemented in a single year. Mr. Hawk stated that companies will have to burn more gas to make up for the loss of coal resources.

Rick Sterling asked whether the California initiative had passed. Rich Pagoaga replied that it had failed. The question was raised as to whether the California initiative could be analyzed in the Aurora model and plugged into the resource stack.

It was asked whether the resource stack considers the efficiency of resources. Cory Read replied that this same strategy is used by DSM. Mr. Read explained that there are other programs available that can be considered as costs increase.

Rick Sterling questioned what this would mean in terms of cents per kWh -- 5¢ per kWh?

Rafael Soto asked whether the data is indexed to account for the increasing demands of hybrid vehicles. Mr. Haener replied that 100,000 cars add about 150 MW at night, and wouldn't be a major factor.

David Hawk interjected that if this reduces the available water for generation later, then it would become an issue (such as in a low water year).

James Gall stated Avista is using \$24/ton in 2010, but escalates to the \$80/ton range in outlying years.

Steve Munn stated that a standard needs to be set to reduce carbon. He questioned whether technology currently exists to sequester coal at Jim Bridger or Valmy. Because it does not, this needs to be factored into the resource analysis.

Mr. Haener stated that compared to other states, Idaho does not have a large carbon footprint. He also stated that our large hydro base will help.

Mark Stokes stated that both the carbon adder and natural gas prices will be used in Idaho Power's IRP analysis and will have an impact on resources that emit carbon or consume natural gas.

Update on INL Next Generation Nuclear Project – Rafael Soto

Rafael Soto from the Idaho Nuclear Laboratory provided an update regarding a next generation nuclear project that will enable nuclear energy to enter markets beyond electricity. Mr. Soto explained that the Energy Policy Act of 2005 authorized the next generation nuclear project to be built at the INL. He stated that the technology is used to produce electricity and process heat for hydrogen production and other applications. Mr. Soto explained that next generation nuclear energy was conceived as a public/private partnership and the project is envisioned to develop and implement the technologies required to achieve design and performance requirements through collaboration with commercial end-users. It is also hoped that the project will demonstrate the basis for the commercialization of the nuclear system, hydrogen production facility and power conversion concepts. Finally, it will establish the basis for licensing the commercial version by licensing the prototype with the NRC.

Mr. Munn asked what medium is used for transferring heat. Mr. Soto responded that it uses water with high pressure steam being the heat carrier.

Mr. Hawk inquired about the general cost and the type of industrial customers that could dovetail with this type of process. He questioned whether nuclear could be accomplished in an economical fashion.

Rick Sterling asked about the timeframe to get a nuclear plant online. Mr. Soto replied it takes at least 15 years, whereas a refinery could be online in approximately 48 months.

Mr. Soto explained that there is a steady stream of federal financing, but public and private partnerships will make this technology a reality. He estimated costs to run about \$2,000/kw and stated this is competitive with sequestration.

Mr. Sterling asked whether the project is more of a research facility, or if it could be used as a generating plant and used as a baseload resource. Mr. Soto indicated it would depend on how the development partnership was structured.

There was general discussion regarding the subject of nuclear plant decommissioning, and the possible timeframes associated with decommissioning. Mr. Soto stated that 20% of the plants today will have to be decommissioned. He commented that there are approximately six new licenses to be reviewed at sites that have been previously licensed.

Rafael stated that the larger the investment a private party can bring to the table the more input they can have on how the project is operated.

Mr. Hawk commented that in this current economic climate, it will be difficult for companies to acquire the needed capital required for this type of an investment. Also, there isn't an organized system in place to move these types of technological advances forward.

Mr. Soto replied that the Department of Energy has an integrated policy, but that it is not bullet proof. He stated there must be a comprehensive method to look at the available resources and assess the risks.

David Hawk asked why this plant should be built in Idaho. Mr. Soto responded that Idaho already has a nuclear power plant working here that is a licensed, existing prototype, with a design certification.

Rick Sterling asked about the funding of the project and the certainty regarding project funding. Mr. Soto replied that the Department of Energy provides a certain level of funding (\$160 million) and of that, \$72 to \$73 million would be spent directly on the project.

John Gardner asked about the confidence in the technology. Mr. Soto replied that a gas-cooled reactor has been around since the 1960's.

John Weber asked whether a fuel source other than uranium had been considered. Mr. Weber was concerned because most of the uranium comes from Russia, and relations with Russia are currently strained. Mr. Soto replied that the United States has an abundance of thorium; however, he stated that uranium still is the best source for making and separating fuel.

David Hawk inquired about when the facilities will come up for decommissioning. Mr. Soto replied that there will be a large number of projects decommissioned in 20 years, and some as in little as 10 years.

John Gardner asked how a nuclear plant will fit into the IRP process. Mark Stokes replied that this could be the answer to large load requests.

There was a question as to whether Idaho Power had the transmission capacity to handle a project such as this. Mark Stokes replied that the current transmission capacity does not exist.

David Hawk stated that businesses do not plan on a 20-year cycle, and stated that nuclear cannot be delivered in less than 10 years.

Mr. Soto explained that France is able to bring nuclear projects on-line sooner because they employ a "cookie cutter" approach whereas in the U.S. there are no two plants that are alike. Therefore standardization would be necessary to shorten the length of time required to bring projects online.

David Hawk asked how this could be integrated into the IRP Planning Process and when it could be scheduled for baseload purposes. Mr. Soto replied that it is a triangular distribution and the earliest it could occur would be 2021; however, most likely 2025, but this is dependent upon the partnerships and investment amounts.

There was a discussion regarding cap and trade and the current political climate. A statement was made that speculators should be driven out of the market. It was stated that utilities need to ask for regulation in this area.

Renewable Portfolio Standard Assumption – Brian Hedman

Mark Stokes introduced Brian Hedman and stated that Brian would be discussing assumptions on the Renewable Portfolio Standards (RPS). Mr. Stokes commented that it was unlikely that the State of Idaho would adopt an RPS. Mr. Hedman's presentation reviewed the RPSs in the western states surrounding Idaho focusing on the specific measures contained within each state's RPS.

Mr. Gardner asked how the RPS handles the crossing of state lines. Mr. Stokes replied that it is based on the percentage of sales purchased in the state.

A question was asked about how Idaho Power works with Oregon's RPS. Mr. Stokes responded that Idaho Power is treated as a "smaller" utility in Oregon, and Idaho Power's first target is 10% in 2025. He further explained that there are tiers for different sized utilities with corresponding targets.

Don Sturtevant inquired about the green tags from the Ida-West projects located in California. Mark Stokes replied that PG&E is getting the tags as the projects are located in PG&E's service area and the PURPA contracts were revised a few years ago to account for the value of the tags. Mr. Stokes then stated that Ida-West did not get tags from its Idaho projects because avoided cost rates do not include compensation for the tags. However, there may be opportunities to acquire tags from PURPA projects in future contract negotiations. Mr. Sturtevant stated that this should be kept in mind for balanced future portfolios.

There was additional discussion regarding upgrades at existing hydro projects, Oregon's alternative portfolio, and the possibility of a green portfolio and its associated expenses.

Supply-Side Resource Stack Introduction – Randy Henderson

Randy Henderson from Idaho Power's Power Supply Reporting Department reported on the development of the supply-side resource stack. He reviewed the IRP Process flowchart and reported that Idaho Power has completed calculating the peak-hour surpluses and deficits. A table listing the specific supply side resources Idaho Power intends to include in its resource cost analysis for the 2009 IRP was distributed and reviewed with the group. Mr. Henderson explained that the resource identified in the 2006 IRP to fulfill the 2012 baseload need shifted from a coal plant to a combined cycle natural gas plant due to high construction costs and issues surrounding green house gases and climate change. Mr. Henderson briefly touched on other significant energy industry happenings since the 2006 IRP including a reduction in available credit, significant cost increases for steel, concrete and copper, and available renewable energy tax incentives. Mr. Henderson explained that the assumptions from this process will ultimately drive the levelized cost calculations and have an impact on the development of the various portfolios.

Rick Sterling stated if the current economic conditions persist, utilities may have difficulty obtaining credit, and he questioned whether utilities would build cheaper, gas-fired power plants as a result. Scott Larrondo stated that an in-depth evaluation is conducted for the life of the project, of which capital is only part of the consideration. He stated that the utility has more access to capital, but it is

more expensive. Previously this has not been viewed as a risk and therefore has not been factored into the IRP planning process.

Mr. Henderson commented that Idaho Power missed the mark on construction costs for certain resources in the 2006 IRP because the numbers used were dated. To help alleviate this issue in the 2009 IRP, Mr. Henderson looked at a variety of information sources and tried to land somewhere in the middle with regard to overnight construction costs.

Rick Sterling requested Idaho Power look at the numbers for the different scenarios such as wind and geothermal, carbon adders, coal, etc.

Mr. Munn pointed out that most regulators view the IRP as a dynamic document and resources identified in the plan serve as placeholders, while specificity of resources is really vetted out through the RFP process.

Mr. Kitz commented on the potential for Combined Heat and Power (CHP) resources. Opportunities may become available as facilities with large electric load and associated transmission come into the service territory. Mr. Stokes commented about the limited response to the CHP RFP process. It was concluded that CHP resources be included in the stack.

Mr. Kitz stated it would be less expensive to buy conventional coal rather than look at sequestration. He stated there were a limited number of choices for the short-term and suggested looking at the solar costs without storage capabilities. Rich Pagoaga stated that the Black & Veatch report contained this type of information. Mr. Henderson agreed to add solar without storage capabilities to the stack.

Rick Sterling speculated that if the avoided cost rates rise, there may be more PURPA projects. He expressed interest in a scenario where PURPA replaces some of the resources. Randy Allphin stated that utilities need to be cautious when it comes to including PURPA. He cited past problems with wind resources that were projected to be online in the past IRP and have, to date, not been constructed.

Wind and Geothermal Resources – Randy Allphin

Randy Allphin, Idaho Power's Senior Power Supply Planning Administrator provided an overview of wind and geothermal resources detailing the advantages and disadvantages associated with each resource. Mr. Allphin addressed the wind integration issue and associated costs and provided a brief history of Idaho Power's experiences with both wind and geothermal. The various factors a utility considers regarding the benefits and limitations associated with the resources were discussed. Mr. Allphin stated that both wind and geothermal are valuable additions to the resource portfolios, however, resource predictability is important to both Idaho Power and its customers. He stated that it's not simply a matter of cost, but rather utilities need to be aware of the operating characteristics.

Mr. Sterling made a comment regarding transmission assumptions and the presumed location of future generation. Mr. Haener replied that Idaho Power would look at this with and without transmission. He explained that Idaho Power usually waits for site specifics prior to conducting this type of analysis. He stated that ultimately Idaho Power would end up with an average transmission cost, and stated that the capacity factor is difficult to calculate. He stated the 2006 IRP used 30% for wind whereas the 2009 IRP will use 32%. Mr. Haener explained that it is critical to understand the various resource

alternatives. He stated Idaho Power would like to add more wind and geothermal to the portfolio, but reinforced the point that the company needs to understand the various complexities of each of these resources. Rick Haener stated that Idaho Power has already learned a great deal and will continue to explore these alternative resources.

Mr. Sterling asked whether Idaho Power will be an owner of a renewable resource. Karl Bokenkamp replied that theoretically it could happen, but a lot would depend on capital financing.

Kelcey Brown asked about how Idaho Power Company coordinated the integration of the Elkhorn wind farm with the utility which the wind farm was connected to. Idaho Power replied that Elkhorn is connected directly to an Idaho Power owned transmission line. Therefore, even though the project is not in the Idaho Power service area, the interconnection is still directly to Idaho Power's transmission system, therefore no other utilities are involved with this interconnection.

Natural Gas Resources – Scott Larrondo

Scott Larrondo, Idaho Power's Manager of Power Plant Engineering and Construction, presented an overview of natural gas plants. Mr. Larrondo briefly described the mechanics of a gas turbine and provided a synopsis regarding the characteristics of natural gas-resources. He stated that Idaho Power owns and operates both the Bennett Mountain as well as Danskin projects near Mountain Home, Idaho. Mr. Larrondo reported natural gas plants are Idaho Power's only current option for a short-term baseload generation resource. The specifics of both a simple cycle as well as a combined cycle combustion turbine were reviewed, and the advantages and disadvantages of each were noted. In summary, Mr. Larrondo stated that a natural gas plant is both proven and reliable. Additionally, combined-cycle natural gas plants are a baseload resource that can currently be permitted and constructed. He did note that production costs are heavily dependent on the price of natural gas.

Mr. Kitz asked a question regarding the forecasted gas price for steady use, and whether the gas forecast would still be valid if it is for peaking operations. Mr. Noll replied that Idaho Power pays the market price for gas purchases. Only when it is purchased in real time does this become a factor.

Meeting Wrap-Up and Summary – Mark Stokes/Brian Hedman

Mr. Stokes announced the next meeting would be on December 17th. He stated that as additional information becomes available during the next few weeks, it will be distributed to the group through e-mail. The December meeting will look at the draft portfolios and there are plans for a DSM presentation now that the carbon adder information has been finalized. It was mentioned that the rate case hearings may conflict with the December meeting. Mr. Stokes agreed to review schedules in order to determine the best date for the next meeting and would notify the group accordingly.