Northwest Power and Conservation Council

November 29, 2006

MEMORANDUM

TO: Power Committee

FROM: Michael Schilmoeller

SUBJECT: Utility Integrated Resource Plans Status

Of the eleven utilities we have been tracking, only one, Idaho Power Company (IPC) has completed an IRP since our last status report in July 2006. Many utilities are postponing their IRPs. None of the Washington utilities have had an opportunity to respond to Initiative 937 in their resource planning.

Based on the status of these reports, it appears another update in July 2007 is warranted. No Committee action or decision is necessary. The following summarizes the situation for each utility. The accompanying MS PowerPoint presentation is part of this report.

Avista – Avista is currently in the process of developing its 2007 IRP. It is expected to be submitted to the public utility commissions in September 2007. Avista currently has a peak load of about 1900 MW, 1283 MWa. Its energy resources are about 33 percent hydro, 32 percent natural gas- and oil-fired, 19 percent purchases, and 14 percent coal-fired, with a small remaining portion of biomass generation.

Avista developed a preliminary portfolio of optimized resources for discussion purposes within the Technical Advisory Committee, comprised of an added 986 MW capacity by 2027:

- Wind 20%, acquired early in planning period
- CCCT 12.6%, also acquired early in planning period
- Coal 6.7%, assumed to be IGCC, no pulverized allowed
- Other renewables, 16.2%, acquired throughout
- Oil sands 32.7%, between 2015 and 2024
- Nuclear 11.6%, after 2025

Demand-side resources, however, haven't been evaluated yet.

Differences of this draft portfolio from their 2005 IRP are

- Renewables are lower, although non-wind renewables are higher.

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- Gas is higher but small role in total
- Coal is much less
- Oil sands were not considered in 2005 IRP
- Nuclear appears only after 2025, and it was not considered in 2005 IRP.

Idaho Power Company (IPC) – The Idaho Power Company filed their 2006 IRP with the Idaho and Oregon Public Utilities Commissions September 2006. Between 2006 and 2025, the planning horizon for the IRP, IPC expects to add 80 MW (2.1%) demand and 40MWa (1.9%) energy annually to the existing requirements base (2961 MW and 1660 MWa, respectively). It currently meets the energy requirement with 36 percent hydro generation, 32 percent coal-fired production, 22 percent net purchases, and 10 percent gas-fired generation. This utility encounters import difficulties during periods of peak summer requirements, especially when Pacific Northwest hydrogeneration is above average, because of transmission congestion from PNW deliveries to the southeast.

The selected portfolio in the IRP adds supply side resources capable of providing 1,089 MW of energy, 1,250 MW of capacity to meet peak-hour loads, and 285 MW of additional transmission capacity from the Pacific Northwest. The portfolio also includes DSM programs estimated to reduce 2025 energy loads by 88 MWa and peak loads by 187 MW, acquiring on average about 4.9 MWa and 9.35 MW annually. The timeline for adding resources is:

- 2006 - develop implementation plans for new DSM programs with guidance from the EEAG; investigate opportunities to increase participation in the highly successful Irrigation Peak Rewards DSM program; evaluate the Energy Efficiency Rider level to fund DSM expansion
- 2007 - finalize DSM implementation plans and budgets with guidance from the EEAG; evaluate/initiate DSM programs
- 2008 - 100 MW wind; evaluate/initiate DSM programs
- 2009 - 50 MW geothermal
- 2010 - 50 MW CHP
- 2012 - 150 MW wind; 225 MW transmission McNary-Boise
- 2013 - 250 MW Wyoming pulverized coal
- 2017- 250 MW Regional IGCC coal
- 2019 - 60 MW transmission Lolo-IPC
- 2020 - 100 MW CHP
- 2021 - 50 MW geothermal
- 2022 - 50 MW geothermal
- 2023 - 250 MW INL nuclear

The next IRP will be in 2008.

Northwestern Energy (NWE) – Northwestern released their Electric Default Supply Resource Procurement Plan in December 2005. While there has been progress on some of the contract acquisitions targeted in that plan, the strategic direction remains unchanged. The next plan is slated for December 2007.

The most obvious and pressing uncertainty facing NWE is the resource requirement created in mid-2007 by the expiration of two primary PPL Montana (PPL) contracts. These two contracts currently provide about 55 percent of the total energy needs of the default supply. NWE continues it efforts to find contracts to bridge requirements to longer-term purchase-power agreements (PPAs).

NWE has developed portfolios that contain PPAs for specific resource types, such as coal-fired generation or wind power. NWE estimates that its current resource energy base is about 36% coal, 36% hydro, 9% wind, and the rest (18%) natural gas-fired. The four favored portfolios for resource expansion all assume a bridge contract between the expiration of the PPL contracts and December 2011. By 2010, NWE estimates its annual energy requirement will be about 750 average megawatts. Future resource additions are as follows:

	Portfolio 2	**Portfolio 14**	**Portfolio 18**	**Portfolio 31**
2010		100 MW wind, 264 MW gas-fired CCCT	200 MW wind, 264 MW gas-fired CCCT	200 MW wind, 100 MW gas-fired SCCT
2013	600 MW coal	200 MW coal	200 MW coal	400 MW coal

where, as usual, SCCT denote single-cycle combustion turbines and CCCT denotes combined cycle combustion turbines. It should be noted that these values are in MW, and wind and SCCT will typically operate at lower capacity factors than coal plant or CCCTs. This means that while Portfolio 2 results in near energy balance for NWE, the others leave NWE in an energy deficit situation. Finally, only about one-third of NWE service area that falls within the Region, so the preceding figures should be discounted accordingly for a Council perspective.

NWE expects to ramp up their conservation activities aggressively over the next several years. By 2007, they expect to acquire 5 MWa of conservation annually. (Again, about a third of this figure accrues to the Region.) They believe they can sustain that level over the next 20 years. This would effectively cut their load growth in half.

Puget Sound Energy (PSE) – PSE completed its last IRP in 2005. That IRP concluded that PSE has a significant near term need for resources. To that end, PSE accelerated its conservation programs and issued a request for proposals (RFP) in fall 2005 seeking up to 1,500 average-megawatts of new power-supply resources. PSE's requirements are roughly 4730 MW peak and 2470 MWa energy, which they meet from 34 percent hydro, 29 percent coal, 20 percent cogeneration, 11 percent gas-fired turbines, and 5 percent miscellaneous sources.

Out of 120-plus submitted bids PSE short-listed seven proposals. In early November PSE announced that it had entered into an agreement to purchase the 277-megawatt (MW) combined cycle gas turbine (CCGT) at the Goldendale Energy Center operating in south-central Washington from Calpine for $100 million. PSE has also recently brought on line 150 MW of wind and is in the process of acquiring additional renewable resources (mostly wind) so that these resources can serve at least 10% of its load (about 5160 MW, 2790 MWa) by 2013. PSE has also acquired approximately 20 MWa of energy savings annually since 2004.

PSE's next IRP is scheduled to be completed in the spring of 2007. In this IRP, PSE will be testing alternative resource portfolios across seven "scenarios." Preliminary results indicate that the projected cost of all supply-side resources has significantly increased since 2005. This was confirmed when PSE reviewed the bids it received in its 2006 all resource RFP. The "low end" of the 2006 bids were \$15 to \$20/MWh higher than comparable resource bids in 2005.

Portland General Electric (PGE) – PGE plans to conclude the public involvement process on December 8 and file their IRP by second quarter, 2007. Its 2002 IRP was last updated in March 2004.

PGE currently faces a 500MWa resource shortfall from its 2300 MWa load, which it is bridging with short-term market purchases. The Port Westward combined-cycle combustion turbine and Biglow Canyon wind project are slated to come on-line in 2007 and 2008, respectively. In 2008, PGE will be roughly in energy balance on a critical hydro basis. (Critical hydro generation for PGE is about 125 MWa lower than normal in 2007.) Power from long-term contracts will diminish slowly, and by 2012, PGE will again face a 440 MWa shortfall. This shortfall will grow with load requirements. On a capacity basis, PGE is short over this time period, achieving minimum shortfall of about 500MW after the completion of Port Westward. PGE's current energy resources are 35 percent net purchases, 28 percent natural gas-fired turbines, 26 percent coal-fired generation, and 10 percent hydrogeneration.

PGE is in the process of examining ways of filling the shortfall, primarily from 2012 on. Candidate portfolios include reliance on the short-term market ("do nothing"), maximizing energy efficiency and renewables, another CCCT, another conventional coal-fired unit, and an IGCC unit.

PGE relies on the Energy Trust of Oregon for its energy efficiency acquisitions. The Trust has identified 13 MWa as a reasonable annual acquisition goal.

Seattle City Light (SCL) – SCL will be presenting its draft IRP to the Seattle City Council by the end of December. The City Council is scheduled to adopt a final IRP early next year.

SCL's energy generation mix is currently about 45 percent owned hydrogeneration and 45 percent BPA and other contract hydrogeneration. The rest is made up from biomass generation, nuclear energy, wind, and non-hydro contracts. SCL serves a load of 1820 MW peak and 1140 MWa energy.

SCL's draft analysis indicates that it has sufficient resources to meet its forecast loads through 2010 with the addition of a small landfill gas project in 2010 and call options for winter energy during 2009. It also concluded that it should maintain and, if possible, accelerate its conservation acquisitions. In accordance with city policy, all portfolio's examined were "carbon neutral." Therefore, in SCL's IRP the cost of offsetting carbon emissions improved the economic competitiveness of renewable resources. As a result SCL's draft portfolios rely primarily on renewable resources, including wind, geothermal and landfill gas. None of the portfolios considered contain coal or nuclear. While results are preliminary, SCL will probably acquire between 6 and 12 MWa of energy efficiency annually.

PacifiCorp – PacifiCorp is scheduled to release a draft of the 2006 Integrated Resource Plan in January 2007. There is one more meeting of stakeholders to discuss the IRP analysis in December 2006.

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PacifiCorp system loads in 2005 were about 8900 MW summer peak, 8300 MW winter peak, and 5450 MWa energy, of which Oregon, Washington, and Idaho comprise about 2240 MWa. (These estimates do not include Clark County PUD load, which will be leaving the PacifiCorp system.) By 2017, system energy loads will grow to about 7300 MWa, or about 2600 MWa for the tri-state area. Energy to meet current requirements is about 83 percent coal, 8 percent hydro, 7 percent cogeneration, and small amounts of natural gas- and oil-fired, biomass, wind generation.

At this stage of the IRP process, the goals for conservation are a firm 220 to 240 MWa of system-wide savings with a possibility for another 200 MWa over the next 10 years. The likely goal for demand response is about 200 MW over the same period.

As of their October 31 public process meeting, PacifiCorp was considering nine candidate portfolios. All candidates in at least 1,000 MW of renewables, to bring the system total to 1,400 MW, with some candidates holding an additional 600 MW. All candidate portfolios have 1,000 MW of load control or demand-side management and distributed generation added. All but one candidate included a 340 MW coal plant in 2012, followed by another 600 MW or 750 MW in the 2013 to 2017 timeframe. All plans incorporated two IGCC plants on the west side of the Cascades in the 2016 to 2018 period. The first is 200MW; the second is 300MW. All but one candidate anticipate a 300+ MW single-cycle combustion turbine (SCCT) coming into service in 2012. Five include about 600 MW of combined cycle combustion turbine, also added in 2012. PacifiCorp is also evaluating a 12 percent planning reserve margin in three candidates, in lieu of the standard 15 percent margin. Finally, five of the candidates employ over 1,000 MW of purchases (“front office transactions”) over the 2012 to 2016 period.

Earlier this year PacifiCorp released an initial draft RFP for four “benchmark” coal resources with capacity totaling between 1600 and 2290 MW in the 2012-14 period. That RFP has since been changed to two resources totaling between 840 and 915 MW in the 2012-13 period.

Eugene Water and Electric Board (EWEB) – The most recent IRP was completed in 2004. A review of that IRP was scheduled for December 2006, but will not be prepared. IRP plans for 2007 are still under formulation.

Total loads were about 310 MWa in 2004 and the utility counts about 350 MWa of resources and contracts under critical water conditions. EWEB’s generating resources are predominantly hydro electric (71 percent) through BPA purchases and from several facilities on the middle sections of the Willamette River and tributaries. Cogeneration and wind make up most of the remainder. BPA supplies about 72 percent of EWEB’s power needs. Current practice is to stay long.

The 2004 IRP identified the following key issues for EWEB:

- Bonneville price increases combined with below average hydroelectric conditions in four of the five years prior to 2004 have had a serious impact on EWEB’s financial condition. Rates are up and reserves are low
- Re-licensing of EWEB’s Carmen-Smith hydro facility is a potential large cost and important decision facing the utility
- Climate change impacts on owned hydro production are a concern (west-side of Cascades)

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- Timing of financial recovery versus long-term goals of gradual displacement of contracts with a diversity of renewables and cogeneration is a consideration

The 2004 action plan calls for continued high rates of conservation acquisition (5 percent of gross revenues) generally aimed at a gradual displacement of a small portion of BPA and other contract purchases and limited development of prioritized ‘lost-opportunity’ generation as financial conditions permit. Priority of new resources is given to conservation, wind, hydro, solar thermal, biomass, fuel switching, distributed generation, and cogeneration in that order. The action plan gives rough guidance on how much of each new resource and favors mostly conservation and wind. The plan recommends a focus on ‘lost-opportunity’ renewables or contracts, limited to 5 to 20 MWa in the near term.

Snohomish County PUD (Snohomish) – Snohomish has not yet updated its 2004 IRP. A 2006 update was planned but has been delayed. The plan is to develop one by May 2007. Snohomish is gearing up to do more IRP analysis internally.

Total loads for Snohomish are about 750 MWa. The PUD buys about 80 percent of its power from BPA. About half is BPA’s block product and the other half is slice. Owned resources include hydro, cogeneration at a Kimbery Clark plant, and some landfill gas. Need for new generation is in the 2013-to-2017 time frame depending on the pace of conservation. Since new generating resource needs are a decade out, the action plan of the 2004 IRP mainly forms a foundation for further analysis.

The 2004 IRP highlighted several issues facing the utility:

- Structure of BPA purchases (slice versus block) and amount of Tier 1 allocation
- Need to identify resources options for 2013-1017 time frame
- Shaping of BPA purchases to utility load profile
- The pace of conservation acquisition
- The need for strategies to evaluate near-term ‘lost-opportunity’ generating resources

Findings from their portfolio analysis highlight a general insensitivity to resource choices, because BPA purchases make up 80 percent of resources. It identifies the value of an increased pace of conservation. Further, there appears to be a modest increase in market risk under BPA load-following product strategy compared to BPA slice product. Since new generating resource needs are a decade out, results mainly form a foundation for further analysis.

Tacoma Public Utilities (Tacoma) — Tacoma has not updated its 2004 IRP. The next installment of IRP is scheduled for sometime 2007. Tacoma’s loads are about 570 MWa. BPA net requirements supply about 400 MWa of resources. The utility owns four hydro projects, buys hydrogeneration from Grant’s Priest Rapids project, Grand Coulee irrigation, and BPA’s Environmentally Preferred Product. The utility is surplus. No new resources were planed in the 2004 IRP. Under most water conditions Tacoma is a net seller of power.

Like most partial requirements utilities, the form and structure of BPA purchases is one of the biggest issues in play. Tacoma expects to lose some operational flexibility with re-negotiated Priest Rapids contract (automatic generation control or AGC, peaking, shaping, reserves and storage). Utility-owned hydrogeneration projects at Cushman and Cowlitz may decrease hydro flexibility. Cowlitz projects (462MW) re-license is up in the air and the project needs a major refurbish. The potential loss of flexibility is driving consideration of improved planning tools for operational decision making.

Conservation acquisitions remain relatively low in 2006 mostly to avoid upward pressure on rates. The utility is focusing on lost-opportunities, market transformation and low-income conservation. The IRP sets forth options for higher conservation targets under high load growth or high price futures.

The 2004 IRP action plan focuses on recommendations for the next IRP, including

- Continued involvement in the forums related to the future role of BPA in the region.
- Conducting further evaluation of aspects of operational flexibility in Tacoma Power's current power supply portfolio and how it will change in the future.
- Continued enhancement of analytical and decision support system tools for optimization of the power supply portfolio, and
- Initiation of a new, comprehensive conservation potential assessment (CPA).

Clark Public Utilities (Clark) – No IRP at this time

Pacific Northwest Generating Utilities (PNGC) – No information

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Update on Utility Integrated Resource Plans

Michael Schilmoeller

for the

Power Subcommittee

Tuesday, December 12, 2006

Portland

Northwest Power and Conservation Council

Overview

- IRPs and the Council's 5th Plan
  - How do utility plans correspond to the Council's regional resource plan?
- Last Presentation
  - July 11, Missoula MT

Utility	Lead	Last IRP	Current Activity
Investor-Owned			
Avista	Morlan	October 2005	Postponed to September 2007
Puget Sound Energy	Eckman	2005	Draft by Winter 2006, final by May, 2007
Portland General Electric	Schilmoeller	2002 IRP, Action Plan Update March 2004	Postponed to Second quarter, 2007
PacifiCorp	Corum	2004 IRP filed in January 2005, updated in November 2005	Postponed to January 2007
Idaho Power Company	Lindstrom	July 2004	Completed October 2006
Northwestern	Bushnell	Filed December 2005	Next IRP December 2007.
Consumer-Owned			
Seattle	Eckman	September 2000, updated October 2002	Draft to City Council by end of December, 2006
Tacoma	Grist	July 2004	Deferred to some time in 2007
PNGC	Fazio	May 2006	no information
Snohomish PUD	Grist	2004	Deferred to May 2007
EWEB	Grist	December 2004	December 2006 review deferred. Plans for 2007 IRP

General Impressions

- Results are preliminary, and another status report around July 2007 is warranted
- Wind, renewables, and energy efficiency are popular
- Many utilities are committing, reluctantly, to gas-fired generation
- PacifiCorp, Idaho Power Company, and Northwest Energy all plan on coal additions after 2012

General Impressions

- Utilities are reluctant to commit to IGCC in the near future
- Avista and Idaho Power Company have identified nuclear as an option, but only after 2023
- Many utilities reference Council work for load- and natural gas-price forecasts, conservation potential estimates, reliability and adequacy standards, and risk management and measurement concepts