

**Minutes of the  
Northwest Power Planning Council's**

**Demand Forecasting Advisory Committee**

Held at the Council's Offices  
851 SW Sixth Ave., Suite 1100, Portland, OR  
April 18, 2002

The first meeting of the Demand Forecasting Advisory Committee (DFAC) for the Council's 5<sup>th</sup> power plan was called to order at 9:30 AM by chair Terry Morlan. There were 9 persons in attendance. The sign-up sheet is included as Attachment 1.

These minutes are not intended to reflect exactly what was said at the meeting, but rather what the Council staff heard as the basic advice during the meeting.

**Attendance:**

Members	Visitors
Robin Adams, Resource Strategies	Dick Watson, NPPC
Randy Barcus, Avista Utilities	
Dick Byers, WUTC	
Ken Corum, NPPC	
Reed Davis, Pacificorp	
John Hanson, Northwest Natural Gas	
Jon Hirsch, BPA	
Terry Morlan, NPPC	
Ham Nguyen, PGE	

**Welcome and Introductions:**

Members and attendees introduced themselves to begin the meeting. Following introductions Dick Watson, the Council's Power Planning Director, welcomed the DFAC members and described the context for the committee's work for the 5<sup>th</sup> power plan. Copies of the Council paper on "Issues for the Fifth Power Plan" we provided to the committee (Attachment 3).

**Forecasting Strategy for the 5<sup>th</sup> Power Plan:**

Following the meeting agenda (Attachment 2), Terry Morlan described the basic strategy and preliminary results for demand forecasting in the 5<sup>th</sup> power plan (Attachment 4). That strategy involves developing a recovery from summer 2001 consumption levels that returns to near the Council's medium forecast from the 4<sup>th</sup> power plan. Growth rates from 2005 to 2015 would then be used to forecast a range of demands, low to high, from the 2005 level.

This led to some discussion of recent demand conditions for various utilities. All had seen significant decreases in demand since 2000.

There was concern among some members that assuming a return to the Council's old trend forecast may not be a good strategy. There was concern about the recovery of energy intensive industries and about the effect of energy efficiency investments that were being made that would have long-term effects.

The Council's conservation analysis is intended to develop estimates of the effects of recent efficiency improvements and new energy building codes. These will be subtracted out of the demand forecast after it is developed. The demand forecasts being developed are intended to reflect only the effects of electricity prices on demand for electricity. However, the effects of changing electricity price forecasts from the ones used in the Council's 4<sup>th</sup> power plan will be incorporated informally to the extent the changes are significant in a later iteration of the demand forecasts.

The industrial sector was more of a concern for these forecasts. The aluminum plants were to be discussed later in the agenda. However, committee members stated that the Council should attempt to break out the region's most energy intensive industrial plants and assess their prospects individually. There are examples of plants that are not likely to recover from the recent recession and price increases. This not just a result of recession and higher electricity prices, but also reflects changing global business trends. It was suggested that the Council hire consultants who understand specific industries to help assess the risks to key consuming industries.

There was a discussion of expectations for prices returning to lower levels. Some members expected prices to decrease although not to 1999 levels, others thought that prices would remain high. Most utilities financed some of their cost increases to spread the price shock over time, so in any case the price declines are not likely to be immediate just because wholesale prices have recently returned to low levels.

Council staff was advised to be specific about their assumptions regarding economic recovery and electricity price changes even though we are not using a formal modeling process for this plan's demand forecast.

The causes of the recent declines in demand were discussed. The significant decrease in the early summer of 2001 occurred before electricity prices to consumers had increased much. The role of publicity about the energy crisis was thought to play a big role in that decrease. Such responses seemed to be focused in the residential sector except for the various buyout programs for large electricity consumers. The response was greater for commercial and smaller industrial consumers after the more significant price increases occurred in October. The price increases are expected to keep residential consumption lower, whereas without the price increases, the response to publicity and Governor's conservation pleas would likely dissipate quickly.

### **Status of Council's 4<sup>th</sup> Plan Forecast:**

Terry Morlan presented the evidence that the Council's 4<sup>th</sup> plan forecast, which was developed in 1995, remains pretty accurate in terms of aggregate demand and demand for the major consuming sectors. This is the reason that the revised forecasts are targeted to return to near the medium forecast starting in 2005. The concern remains, among advisory committee members that there may be more permanent changes to the large industrial sectors that would argue for possibly not returning to the previous forecast by 2005. Morlan noted that the DSI forecast is a placeholder for now, and is intended to measure the largest amount of demand that the region's power system might be called on to meet.

There was some discussion of the difficulty of measuring aluminum industry electricity consumption due to the increasing role of energy marketers and independent suppliers in providing electricity to aluminum plants. It was suggested that aluminum electricity consumption could be estimated with reasonable accuracy from data on aluminum production.

### **Short-Term Forecast Assumptions:**

Terry Morlan described the intent and the methods of the short-term monthly forecasts to 2005. Since summer of 2001 when the forecasts were developed actual regional loads have followed the forecasts pretty closely. However, an important uncertainty is if, and how soon, aluminum industry loads may come back on line. One member suggested that 750,000 tons of aluminum production might be able to come back on line by the end of this year.

### **Aluminum Plant Assumptions and Strategy:**

There were two main topics regarding aluminum plants; how much aluminum capacity is likely to be viable in the region long-term, and what role might aluminum plants be able to play in providing some demand side elasticity to increase the reliability of the regional power system.

There was a brief discussion of the potential role of aluminum plants to help alleviate power emergencies. The crucial role played in the summer of 2001 was recognized. It was stated that the ability of aluminum plants to provide demand-side reserves depends on not only the cost of electricity, but also on the price of aluminum. The price of electricity can be expected to be high when power markets are tight and this would provide an incentive for aluminum plants to participate in a demand reduction effort. However, the power market is most likely to be tight when the economy is strong and there is at least some correlation between a strong economy and higher aluminum prices and this would reduce the likelihood that aluminum plants would be willing to shut down.

The development of a new technology was noted that could facilitate more smelter flexibility. Through “modulation” a smelter would be able to reduce its load by about 25 percent for 4 to 6 hours at a time and 3 to 4 times a week. This is accomplished through improved control of the smelting process. The technique was developed by Alumax and bought by Alcoa, which intends to install it in all of their plants.

There was a long discussion of factors that would influence the long-term viability of smelters in the region. Again it depends on aluminum prices and electricity prices. It was noted that very few aluminum smelters have ever closed for any reason other than electricity prices. The difficulty of closing aluminum smelters permanently was noted. Generally, an existing smelter with depreciated capital costs can compete with a new more efficient plant. In addition, there is the difficulty of siting new plants and the potential environmental expense and liability of abandoning an old site.

In the long run, a new technology could become feasible that significantly improves the efficiency, reduces the capital cost, and lowers the emissions of a new smelter. Inert anode technology is one such possibility although its introduction would not be feasible before 2010 if ever. However, such a technology that makes the cost of production from a new facility cheaper than the marginal cost of production from existing facilities can have a disastrous effect on existing plants. This is at the root of the current steel crisis and has happened in the case of nickel as well.

It was noted that the Council’s draft assumption of possibly having all but 2 plants in operation by 2005 was a reasonable upside level of aluminum power needs. Many of the region’s smelters could come back if electricity prices stay around \$30 a megawatt-hour or below and aluminum prices recover to around \$1450 per tonne (70 cents a pound). However, if electricity prices turn out to be \$35 a megawatt-hour very little aluminum smelting would occur in the region. Currently the Pacific Northwest, the Midwest U.S. and Western Europe account for about one third of the smelter capacity in the world. Electricity prices in this area tend to be around \$23 to \$30. At those prices, new capacity in developing countries, even with electricity prices between \$18 and \$20, are not likely to displace existing plants in the U.S. and Western Europe.

A question was raised as to whether it would be attractive to site an aluminum smelter near a source of natural gas that could only reach extensive market through liquefaction. Such a proposal had been rejected recently as not economic in spite of the costs of liquefaction and shipping of the LNG.

Again the Council staff was urged to look at non-aluminum key industrial electricity consuming plants on an individual basis using industry specialists if necessary.

### **20 Year Forecast Extension:**

Following lunch, discussion turned to the long-term forecast extension beyond 2005.

One issue involved generation technologies that could occur at consumer sites. These include cogeneration, fuel cells, micro turbines and other forms of self-generation. Terry noted that these technologies are generally handled on the supply side of the Council's analysis. However, it was recognized that care must be taken to keep the accounting straight and not overlook the potential effects of such technologies. There was also some discussion of conservation and its role in the forecasts shown by the staff. It was clarified that the forecasts beyond 2005 were intended to reflect the effects of electricity price changes on demand, but not the effects of future conservation programs or changes in future energy codes.

There was some discomfort with starting the long-term forecast range from a single medium forecast point in 2005. While the committee understood the desire to focus on a different kind of uncertainty, tied to weather and business cycles, in the pre-2005 forecast, they nevertheless felt that there is some long-term uncertainty in 2005 due to long-run effects and trends. It was agreed that the long-term range should start in the last "normal" historical year instead of 2005. The results need not be shown before 2005, but the range would exist at the start of the 2005 extension, instead of starting at a single point. There was agreement that the uncertainty focus in the near-term should be on weather and business cycle variations and their potential effects on demand during the year, at particular times of the year, and during peak periods.

A second major change recommended by the committee was to drop the low and high forecasts. There were a few reasons for this. First, the Council's forecast has demonstrated a high degree of accuracy and the low and high no longer seem reasonable. Second, the long-term ranges contribute far less to actual decisions that will be made in the next several years than they used to. Third, this would reduce staff workload and allow more time to be spent on enhancing the near-term forecast and analysis of demand variations in the short term.

There was some discussion of the possibility of improving the performance of the irrigation demand forecasts by adding precipitation information. Some thought this was not a big enough sector to bother with.

### **Future Issues for DFAC:**

There was a general discussion of other demand related issues that the DFAC may want to take up in future meetings.

Developing demand forecasts for other states in the West is something the Council should now address to provide input to the Aurora model. The only suggestion was to use the WSCC data and sum of utilities forecasts. Mention of the Aurora model led to discussion of the role of electricity prices in the forecast. If electricity prices turn out to be significantly different than assumed in the 4<sup>th</sup> power plan, the demand forecasts may need adjustment.

There was discussion of ways to accomplish more demand-side market response. The feasibility and effectiveness of real time pricing strategies was discussed briefly and may be a topic for future discussion. Other strategies for developing demand side response were discussed as well including potential flexibility among large industrial users.

There was some discussion of electricity commodity prices. It was noted that electricity futures markets are very thin and not liquid enough to support some kinds of demand side transactions. It was noted that there might be institutional or contractual barriers to implementation of demand side flexibility in specific cases. An example was given of the Alcoa Wenatchee smelter's take or pay contract with Chelan PUD.

There was a short discussion of the growing difficulty of tracking recent electricity demand. This is part of a Council issue about data requirements generally for purposes of both planning and monitoring the electricity market condition, and the market's own need for good information in order to operate efficiently.

A date was not set for the next DFAC meeting.

These minutes are an accurate and complete summary of the matters discussed and conclusions reached at the Demand Forecasting Advisory Committee meeting held on April 18, 2002.

Certified by: \_\_\_\_\_  
Terry H. Morlan, Chairman

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