



Minutes of the 3<sup>rd</sup> Meeting of Demand Forecast Advisory Committee  
in preparation of the 7<sup>th</sup> Power Plan

Julie Peacock(State of Oregon), Villamor Gamponia(PSE), Tom Payant (Snohomish), Tom Potiowsky(PSU/NERC), Robert Downes( SCL), Grant Forsyth(Avista), Chris McGuire (UTC), Adam Rue, Thomas Familia (PacifiCorp), Charlie Grist (NWPCC), Keith Knitter(Grant PUD), Steve Simmons (NWPCC), Tom Haymaker (Clark PUD), Sandra Eluerad (PGE), Dave Lenar (NW Natural), Bud Tracy ( private citizen), Jeff Kugel( PNGC), Sarah Burczak (BPA),Sarah Damen(PGE)

Following link will take you to the presentation material for this DFAC meeting.

[https://www.nwcouncil.org/energy/df/meetings/2014\\_11/](https://www.nwcouncil.org/energy/df/meetings/2014_11/)

The meeting started at 9:00 AM. There were 18 members attending in person and on the web.

Massoud Jourabchi started with a round of introductions. Then the draft agenda was reviewed. Members were asked if there were any suggested changes to the agenda. No change to the agenda was required.

Massoud Jourabchi, started with the first item on the agenda,

Sides 3-8 "Review of Economic Drivers". Massoud Jourabchi, went through the current assumptions for each sector. It was stated that the economic drivers were updated with March 2014 data from IHS\_Global Insight. In general forecast compared to the 6<sup>th</sup> plan shows slower growth rate in population, new home additions and commercial floorspace. Growth in industrial output is showing growth.

[Correction: Subsequent to the DFAC meeting while reviewing the inputs to the current model, Massoud Jourabchi realized that version of the IHS\_Global Insight forecast incorporated into Council's load forecasting model has been the August 2014 not March 2014 version as was stated in the meeting.]

Sarah Damen (PGE): Asked about growth in population, growth in population is much smaller than numbers given in regional population graph/table. Is there an urban/rural

breakdown for population growth (faster growth in urban versus rural; does this account for that difference).

Massoud Jourabchi in response indicated that, No- Council modeling is done at the state level.

### Residential

Villamor Gamponia from PSE asked about the Multi-family space heating fuel? They are seeing lots of gas (central boilers) for high-rise multi-family in PSE area, more Electric space heating in Oregon.

### Commercial Employment

Sarah Damen- PGE: Oregon employment forecast looks too low. Sarah asked if difference between Urban / Rural growth rates can count for the difference. Urban areas growing/recovering faster than rural areas.

Brent Spoke: Commercial seems low compared to Spokane.

Sarah Dam: Commercial employment forecast looks too low.

Villamor Gamponia from PSE: 0.6% employment seems too low. They are not projecting drop off in the longer term.

Grant Forsyth (Avista): Growth rates seem low (0.6% growth in employment in 2020-2035)

**Action Item: Review Commercial Sector employment projection for 2020-2035. Consider raising growth rate range if warranted.**

### Industrial

Tom Haymaker: Huge range. Others members also indicated that range of growth rate seem wide.

Villamor Gamponia ( PSE) : Low end could be too high

Tom Snohomish: Industrial low end we see 30% drop. Low end 1.5% is super high.

\_Tom Payant: Snohomish PUD saw decrease 15% in Industrial load. A decrease in the low end for AAGR of 1.5% seems too high

**Action Item: Review Industrial Sector output projection by state. Consider lowering growth rate range if warranted.**

### Natural Gas

Massoud Jourabchi, then presented the natural gas price forecast. This forecast was approved by the Council on July 2014.

Tom Haymaker (Clark PUD): Low gas prices drive export industries, liquid natural gas, pretty big loads – ancillary products that come from natural gas

There were some discussions regarding impact of low gas prices.

Sarah Damen (PGE): GI had too strong of claims on industrial recovery due to low natural gas prices (a couple years ago). They've changed since – revised since last March

Massoud (in response): We have August. GI forecast – will run this by state economists.

Grant Forsyth (Avista): asked about Reshoring – expect to see more

Council (in response) We aren't seeing new entries in reshoring

Tom Potiowsky: Reshoring – wage differences are shrinking, differentials are not as high (down from 5 to 6 years ago). Likelihood you could have more reshoring. Foreign firms starting manufacturing here.

Tom Payant: Natural gas – parts of the country where gas is ½ price of Pacific Northwest – likely of onshoring- gas not large in the northwest

#### Economic Trends Missing?

Sarah Burczak (BPA): Global Insights bullish on PNW growth, but now revised downward. Forecast has been revised since March.

Grant Forsyth (Avista): Re-shoring? Some uncertainty. Tom: Gas is cheap in Pennsylvania. That's where re-shoring will go. May not be sizable in PNW. NNG not bullish on it.

#### **Action Item: Review latest forecast from Global Insight.**

Slides 13-19

#### Federal Appliance Standards (Slides 13-19)

Massoud Jourabchi and Charlie Grist, discussed the upcoming federal standards, previously discussed in June 2014 presentation to DFAC. Discussed load impact of standards. Overall impact of standards, including standards on transformers is about 700-800 MWa. Also discussed was impact of standards on conservation potential. Villamor asked if Council has measured impact of standards on the supply curve. Charlie Grist responded that that work is not completed.

#### Miscellaneous End-uses (slides 20-25)

Massoud presented Council's finding on loads from this category of end-users. Forecast for this sector shows a decline due to both federal standards and technology trends. Energy consumption in this category is expected to decline substantially during the forecast period.

#### Solar Roof-top PV (slides 26-39)

Charlie Grist presented Council's current analysis on PV. The discussion presented in this meeting covered rooftop solar. Utility level PV is going to be covered in the Generation Resource Advisory Committee.

Steve Simmons presented Council's current assumptions of the future trend on costs. Indicating that cost have significantly reduced over the past few years and cost is expected

to decline further over the next few years reducing the costs to about half the current cost. The preliminary analysis suggests about 250 MWh of generation from solar rooftop units.

Villamor asked if we had turned off tax credit in the solar rooftop market ?

Yes. Massoud responded that investment tax credits are turned off in the forecast.

Bud Tracy: What was buy-back price? It was suggested that it could be getting less.

Bud Tracy: Price at utility avoided cost instead of retail rate.

Bud Tracy: Will purchaser get the benefit of solar, what about sell back portion.

Integration costs: Look at issues in CA.

Sarah Damen( PGE) : Not seeing much solar penetration in rural areas

Grant Forsyth -Avista: Very slow penetration. How the utility will deliver solar makes a difference. What about community solar as a utility model.

Tom Haymaker: Inland community solar project

How the utility introduces solar – Clark PUD is working on community solar panel. Credits from the state of Washington are greater than if you put it on your roof (subsidy goes over \$1,000/MWh).

Data from Spokane suggest smaller Median size residential 3kW.

Jeff Kugel: suggests testing lower sell back rates such as a wholesale price.

Grant Forsyth: solar can be really intermittent due to cloud cover, they are finding in CA. Solar PV put on the grid may be more volatile than initially thought. Actual generating data is looking much different that modeled data. The shape is important.

Grant Forsyth (Avista): Inverters sized too small. Some Installation problems are observed. Intermittency is higher than people expect. We may need some measurement. Actual real sampled data.

Massoud asked about interconnection costs assumed by utilities. No clear figures were provided.

**Action Item: test sensitivity of PV energy production to lower net metering purchase price in the future. It should be noted that EIA data suggest majority of generated rooftop PV power is consumed by the consumer at their site.**

Plug-in Hybrid Electric Vehicles (slides 40-53):

Massoud Jourabchi then presented the revised analysis for PHEVs. PHEVs were impacted by the significant drop in new vehicle sales since 2007. He presented the findings from the EV project. The key difference in the 6<sup>th</sup> Plan and 7<sup>th</sup> Plan analysis of PHEVs is that in the 6<sup>th</sup> Plan PHEVs were treated as a sensitivity case but not included in the load forecast used in development of the Plan. In the 7<sup>th</sup> plan, load from PHEVs will be included in the base forecast.

Dave Lenar (Northwest natural) commented that the High range for PHEVs is too high. Low is too high. Suggest 2.5% to 10% for Low to High. It's a second car market. A designer car market.

Bud Tracy: asked what would happen to peak?

Massoud indicated that given the charging patterns seen there is very small peak period impact from PHEVs.

### Indoor Ag (slides 54-60):

Massoud Jourabchi then discussed Council's activities in estimating load from the recreational cannabis in the region. Council used the current information on Cannabis usage and developed projections of usage over the long-term. It was emphasized that recreational cannabis market are in early stages of development and Council's estimates should be treated as very preliminary

Sarah Dam (PGE): indicated that EXEL Energy has some data.

Dave PNGC asked : Will states track sales?

Massoud Jourabchi : Yes, states will track sales and tax revenues.

Sarah Dam (PGE) said the EXEL energy show 448 kWh/sf for indoor cannabis.

Massoud Jourabchi discussed the three approaches to estimating cannabis load.

- 1) Using indoor square footage and kWh/sq (about 450 kwh/sf)
- 2) Using connected load per sq feet (0.04 KW/sq) and usage pattern
- 3) Using KWH/KG (4400-6100) and estimated demand for cannabis in kilograms.

Using method 1, Council estimates load of about 120 MWA.

Using second method estimated load is 80 MWA

Using the third method load is estimated at 57 MWA.

Sarah Dam(PGE): A lot lower based on revenue projection. Depends on what you think is already out there being produced.

Sarah Dam (PGE): asked about Price elasticity of cannabis use.

Grant Forsyth (Avista) said that he does not have Cannabis load in his forecast. Investor groups looking for sites. Progressing slowly. May take longer than think. Banking issue due to federal law. Cash based. But his credit union is taking deposits from growers and it was difficult to get. Also and issue of how it's being taxed. Underground market has tax advantage.

Sarah B (BPA) indicated they are seeing smaller production sites. Not the big ones. Also personal grow may take up slack.

Tom Potiowsky(PSU/NERC): Eco-Northwest study say OR will look different than WA. More outdoor. Can handle all demand; with 80% outdoor.

**Action item: review ECO-Northwest study, modification to Oregon load from Cannabis.**

### Data Centers ( slides 61-67)

Massoud Jourabchi and Charlie Grist then presented council's findings on data Center. Different types of data centers were discussed. The load estimates for embedded data centers, from the study commissioned by the Council, was presented. The estimates are that currently about 450 MWA of is in embedded data centers. Also presented was the potential for load reductions as demand for data centers increase by about 18% annually, while improvements in server technology and storage technologies increase faster.

**Action item: Review commercial sector forecast by incorporating embedded data center forecast. This action item will be implemented during the Draft to Final stage of the Plan development.**

### To Freeze or Not to Freeze (slides 68-74):

Charlie Grist and Massoud Jourabchi then presented the issue of Frozen Efficiency in the face of fast moving technologies. It was discussed that in order to avoid double counting the conservation potential, Council methodology freezes the technologies at the start of the planning period. However, if you have rapidly improving technologies, such as solid state lighting, freezing efficiencies would lead to overestimation of savings potential. The efficiency gains through market drivers would be counted in the conservation potential instead of being subtracted from the load forecast. Massoud showed impact of freezing loads at 2015 compared to 2020.

Villamor: What happens if not frozen? Load would be lower by 400 MWa in the balance.

No clear suggestion regarding which year to freeze efficiency.

### Preliminary Load Forecast (Slides 75-81)

Massoud Jourabchi: reviewed the factors that push the loads up or down.

Energy load forecast to be between 0.5% and 1.0% between 2015 and 2035.

Peak load growth is between 0.4% and 0.9%.

Off peak loads are expected to grow faster at 0.9 to 1.2% per year.

Sector level load forecasts, suggest very slow growth in residential sector, 0.4%.

Compared to 0.7 % in commercial sector and 1.2% annual growth rate in industrial sector.

Transportation has the highest expected growth, due to inclusion of PHEVs in the forecast.

Sarah Damen (PGE): 2015-2035 forecast is higher, summer peaks going up

Grant Forsyth (Avista): their IRP shows load growth for 2015-2035 at about 0.6% per year.

Summer peak growing.

Massoud Jourabchi presented a comparison of Council forecast with the NRF and Council's short-term forecast.

NRF forecast is net of conservation, how much conservation is not clear.

### Dynamic Standards(slides 82-83)

Massoud Jourabchi, presented a "what If" scenario where appliance standards are increased in 10% increments every 6 years, in 2020, 2026 and 2032. Load forecast for this scenario is flat.

Tom Haymaker (Clark PUD): Show this to PNUCC

### Final comments:

Sandra PGE: What have been big changes in 6p to 7P. Fed standard shift

Villamor: Council needs a clear view of impacts of standards. Look for the interplay between programs and standards. Dynamic interplay between growth forecast and standards interplay and conservation compare to mid-term forecast.

Tom Haymaker (Clark PUD): Take a look at the most recent round of WA IRPs. Summary should be out soon. Clark at 1.1% pre-conservation.

Massoud Jourabchi then presented the next steps in the analysis.  
He then thanks everyone for participating.

Meeting ended at 12:10 PM.

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