MEMORANDUM

TO: Council members
FROM: Massoud Jourabchi
SUBJECT: NW Economic, Electricity Sales and Revenue Trends

BACKGROUND:

Presenter: Massoud Jourabchi

Summary: Council staff monitors regional economic trends as well as electricity sales and revenues of utilities in the region. At the March 2016 Power Committee meeting staff will present an analysis of recent trends in gross state product and employment as indicators of the overall condition of the regional economy. Staff will present data on both actual and weather normalized regional electricity sales.loads, utility revenues and average prices over the past several years. Staffs analysis indicates that although economic activities and regional employment have recovered to pre-recessionary levels, electricity sales continue to be flat, hovering at about 19,600 average megawatts per year. However, while the consumption of electricity has not increased, regional electric utility revenues have grown at an inflation adjusted rate of 2.4% per years since 2010. Total 2014 revenues from the sale of electricity in the region are now just over $13 billion dollars. Data shows that the region continues to expand its economy, while keeping the consumption of electricity stable and maintaining a regional average cost per megawatt-hour lower than most other states.
Relevance: Section 839b(e)(3)(D) of Northwest Power Act requires a demand forecast of at least twenty years.

Workplan: In order to maintain analytical capabilities of demand forecasting tools, Council staff monitors economic conditions, electricity sales, loads, and prices at state level.

Background: Tracking sales and loads enable forecasting models to be calibrated to actual observed data.
Northwest Economic Trends and Electric Utility Sales and Revenues in 2014

Massoud Jourabchi
March 2016

In Today's Presentation

- Economic Trends of Northwest States
  - Gross state product
  - Employment
- Electricity Sales and loads
  - Actual
  - Adjusted for temperature
- Sales and Revenues by Sector
- Doing more with less
Oregon, Washington, and Idaho Are Growing Faster Than The Nation

The Region’s Economy Is Growing Faster than the Nation
Regional Employment Has Increased

Since 2010 employment increased by over 363,000

2014 Regional Electricity Retail Sales Were Lower Than the Three Prior Years
Trends in Retail Sales by Sector
(Not Weather Normalized)

Compared to 2013 in 2014:
Commercial = -250 aMW
Residential = -100 aMW
Non-DSI Industrial = +100 aMW
Irrigation sales = No Change

Trends in Retail Sales by Sector
(Weather Normalized)

Compared to 2013 in 2014:
Commercial = No Change
Residential = -130 aMW
Non-DSI Industrial = -100 aMW
Irrigation = No Change
Weather Adjustments:
Summer of 2014 was 29% Warmer Than Average
Winter was 10% Warmer Than Average

Impact of Temperature on Annual Sales
Impact of Temperature on Monthly Sales

2014 Peak Load

- Peak regional load occurred on 8 AM Thursday February 6th
- Average Regional Temperatures = 15 °F
- A weather system kept average regional daily temperatures in the 14 - 15 °F range for three consecutive days
**2014 Peak Load**
8 am Thursday February 6th

**System Load** (MW)

**Average Regional Temperature** (°F)

- Temperature
- WN Load
- Actual Load

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**Electric Utility Revenues up 4.2%**

- Adjusted for inflation, regional utility revenues grew by 2.4% per year from 2010 to 2014

**Regional Electricity Sales Revenue (billions)**

- 2012 dollars
- Current Dollars
Average Regional Revenue/MWH Has Increased

Average Regional Residential Sector Revenue/MWh by Utility Ownership
NW States Have Some of Lowest Cost Electricity in the Country

| National Rank of Electricity Prices by Sector (1= Most Expensive) |
|---|---|---|---|---|
| **2014** | Residential | Commercial | Industrial | All sectors |
| Idaho | 47 | 52 | 37 | 48 |
| Montana | 44 | 32 | 51 | 41 |
| Oregon | 40 | 41 | 46 | 40 |
| Washington | 52 | 51 | 52 | 52 |

Indicators That the Region is Doing More with Less Electricity

- Trends in weather normalized electricity sales:
  - Residential sector electricity consumption per household
  - Commercial sector output per MWH of electricity consumption
  - Manufacturing sector output per MWH of electricity consumption
  - Total regional gross product per MWH of electricity consumption
**Residential Sector Electricity Consumption Trends**

Annual Average Use/Person (MWh/yr)

\[ y = -0.03x + 5.3739 \]

\[ R^2 = 0.5896 \]

**Commercial Sector Electricity Consumption Trends**

Output (2012$)/MWh

\[ y = 177.97x + 6300.3 \]

\[ R^2 = 0.9589 \]
Trends in Non-DSI Manufacturing Sector Electricity Consumption

\[ y = 684.41x + 6489 \]
\[ R^2 = 0.8623 \]

Trends in Regional Economic Output

\[ y = 0.1052x + 2.3388 \]
\[ R^2 = 0.9778 \]
Summary

- Regional Economy Is Expanding
- Employment has returned and exceeded pre-recessionary levels
- Electricity sales are fairly flat
- Utility revenues are increasing
- Region continues to produce more goods and services using less electricity