

Pend Oreille County PUD #1

Modeling, Data and Analysis

Long-term Data Forecasting Information

To determine load growth and future energy needs, one of the Districts' projection methods include a trend of previous year's actual energy consumption using 'heating degree days' as a way to relate each day's average temperature to the demand for energy use. The process involves obtaining monthly heating degree day (HDD) information for Newport, Washington from the Western Regional Climate Center Agency for the previous year. Additionally, Western US Climate Historical Summary Data is provided to include 30 year average HDD information for Newport and Boundary. The 30 year averages consider normal weather conditions and cover the time period of 1971-2000 and are updated every 10 years. The next update will be in 2010. The data is then inputted to the HDD excel calculation spreadsheet.

Next, the previous year's actual kilowatt hour usage and customer count is extracted from the District's Sales History report for the following customer classifications:

- Residential
- Commercial
- Industrial
- Street Lighting
- Interdivisional
- Non-Revenue
- Surplus Firm
- Ponderay Newsprint

The actual data is used to calculate and trend load growth, including average, peak and load factor calculations. The calculation reflects customer count and customer load growth as adjusted for temperature, for both residential and commercial classifications reflected as a percentage amount. The District also receives estimated peak load and energy usage from its large industrial customer, Ponderay Newsprint. This data is provided annually and reflects their industrial load estimate of the fiber mill and paper plant.

The District's average growth calculation and data is then used for reporting purposes to support the Northwest Regional Forecast as required and described below.

Northwest Regional Forecast - A ten year composite utility view of the Northwest's projected electric loads and anticipated generating resources used for evaluating the adequacy of the Northwest power supply.

The data submittal includes and addresses the following information for use in regional documents and analysis done by the Pacific Northwest Utilities Conference Committee (PNUCC), Pacific Northwest Coordination Association (PNCA), Bonneville Power Administration (BPA), the Northwest Power and Conservation Council and others as requested:

1. **Load Forecast** – 10-year forecast of monthly peak and energy loads for the utility's retail load within the region. The operating year is August to July and all annual information is reported as such. (unless specified otherwise)

The forecast will:

- Include system average firm energy and peak load for each month of the period. (i.e. January 2007 through July 2017)
- Be adjusted to reflect peak and energy savings due to demand-side resource programs. The demand-side resource savings will represent only those from implementation of demand-side resource programs and will be reflected as an adjustment (reduction) to energy and peak forecast data. The Districts methodology used to calculate annual and cumulative demand-side energy savings are summarized below:

Demand Side Management Methodology

Pend Oreille County PUD #1's involvement with Demand Side Management (DSM) Programs is limited to conservation activities. Data on annual kWh savings are recovered from annual reports submitted to Bonneville Power Administration in October of each year. The savings are calculated for each of 3 business sectors: Residential, Commercial, and Industrial.

A take-off sheet is used to sort data from two years into a calendar year format. This step is necessary because BPA arranges the data in the form of the federal fiscal year of October through September.

The annual data is recalculated into megawatts of power as follows: kilowatt-hours per year divided by 8760 hours per year divided by 1000 equal megawatts.

$$\frac{\text{kWh}}{8760} / 1000 = \text{megawatts}$$

The annual data is plugged into Form EIA-861 and also submitted to PNUCC Northwest Regional Forecast. This documentation on treatment of Demand Side Management Programs is available and will be provided to NERC/WECC upon request.

Incremental effects are added to the previous year's cumulative effects for new totals. Annual Peak Reduction in megawatts is rounded to zero if less than one-tenth.

Effects of conservation measures for our large industrial customer, Ponderay Newsprint Company (PNC) are added in the year they are reported to Bonneville Power Administration. PNC has not reported conservation that would necessitate a decrement in their load forecast, and the District does not anticipate that PNC will report any such conservation.

The District does not expect that rising electricity prices will have any effect in demand. Pend Oreille expects that savings from appliance efficiency standards and energy codes will be so small as to be immeasurable due to the small numbers of appliance sales and building permits.

- Include monthly peak loads, which are the highest expected 60-minute clock-hour average demand for each month assuming normal weather conditions
- Include firm energy loads for normal weather conditions
- Identify interruptible loads separate from firm loads and describe the terms and conditions of these interruptible loads.

2. Generating Resources

The forecast will:

- Include existing resources in actual operation as of December 31
- Reflect potential future resources to include the various stages of planning and development categorized as:

Under Construction – projects that are not complete as of December 31, but are currently being built. Under construction resources are included along with existing resources when assessing the regional surplus or deficit.

Planned – projects that are not under construction as of December 31, but which developers or utilities have made a firm commitment to construct or acquire and are at some stage in the site certificate process.

Prospective – projects that developers or utilities have made some commitment to construct or acquire and are in the initial stages of filing for site certificates and licenses for construction.

Under Consideration – projects that developers and utilities are considering for construction and acquisition.

3. Contracts

The forecast will:

- Include contracts reflected as Exports, Imports, Contracts Out and Contracts In. The information includes transfers: with utilities outside and within the Northwest Regional Forecast area; and intra-company transfers with service areas outside the Northwest Regional Forecast area.

New contracts will include start/end dates of the contract, the description (seasonal exchange, capacity/energy exchange, etc.) and monthly values of all firm peak (MW) and energy (MWh) transfers through end of period. (i.e.: July 2017) Amounts supplied should be at the area border and include any transmission losses associated with the transfers. Indicate if contracts are reported in aggregate.

Resources, Renewables and Conservation

The District customer base is made up of the General Service Load (GSL) which contains Residential, Commercial and Industrial accounts; and Ponderay Newsprint Company (PNC) by which service is provided by a power sales contract. PNC's fiber mill is identified by BPA as a 'New Large Single Load'.

The District provides all of its GSL with its own hydroelectric resources which includes a share of Seattle City Light's Boundary Hydroelectric facility located in Pend Oreille County. The District serves PNC through its own resources, BPA, and short term market purchases as per the power sales contract.

The District provides conservation through the BPA programs since 1992 and continues to do so while keeping options open for renewables and other green initiatives.

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