

TO: Legislative Consumer Committee
FROM: Bob Nelson
DATE: May 10, 2018
RE: Generation Resource Costs

This memo provides a brief overview of NorthWestern Energy's generation resource costs presented by resource type (coal, gas, hydro, wind, solar and market). As indicated, costs can vary significantly over time even for one resource. The costs stated below represent a snapshot taken from the most recently filed 12-month cost tracker. In addition, costs will vary by vintage and the resources described below were acquired at different times. The values described below do not represent future resource costs.

COAL: For the 12 months ending June 30, 2017 (the most recent cost tracker filing), the cost of **Colstrip 4** to NWE ratepayers was \$74.53/MWh.

NATURAL GAS: NWE does not have a traditional gas plant. The **Dave Gates Generating Station** consists of gas turbines and cost \$141.77 - 528.91/MWh in this filing; however, this plant was built to provide "regulation services," justified in large part by the growth of variable generation (wind and solar) on the system. It was not primarily intended to provide energy supply, so its costs are spread over relatively small volumes.

A natural gas fired reciprocating engine plant, **Basin Creek**, cost \$106.57/MWh. It was also built in part to provide regulating services.

HYDRO: The recently acquired **Hydros** cost \$56.68/MWh in the tracker filing. A couple of smaller and older non-QF hydro projects cost about \$38.31 MWh.

WIND: Cost of wind covers a wide range and is difficult to quantify. For example, there is a cost category in the amount of \$1.7 million for "wind other" (such as meteorological data) that must be taken into account, but is not allocated to specific wind resources. Some of the Dave Gates cost should also arguably be allocated there.

With the above qualification:

Judith Gap is a larger (135 MW) non-QF wind project that cost \$30.64/MWh in the tracking period.

Spion Kop (40 MW) wind production cost \$62.86/MWh.

There are several QF wind purchase agreements. Those over the QF-1 tariff eligibility cap are at negotiated or specifically adjudicated rates, while those that meet the QF-1 rate size cap typically use standard offer tariffs.

WKN Montana (Stillwater County) is an 80 MW project with a negotiated (December, 2016) rate of \$37.63/MWh.

Crazy Mountain Wind (79.5 MW) is somewhat newer (August, 2017, but filed July, 2016), and has Commission determined rates of \$42.36/MWh in high load (high demand) hours and \$36.36/MWh in low load hours. The average rate for Crazy Mountain will fall somewhere in between, depending on hours of production.

South Peak, an 80 MW wind farm, has the most recently negotiated rate (March 2018) at \$21.66/MWh.

Other smaller QF wind prices range as high as \$90.87/MWh, depending on date of contract and hour of production. Raw historical wind prices range from \$21.66/MWh to \$90.87/MWh. The tracker shows average QF-1 costs generally, which are mostly wind, as \$60.23/MWh. Recent purchase agreements should bring this average down.

SOLAR: There are six small solar QF projects (totaling 17 MW) that receive \$92.73/MWh in high load hours and \$53.14/MWh in low load hours.

MARKET: A significant component of NWE's tracker supply volumes consists of market purchases, which come from unspecified sources. The cost of these purchases was \$21.77/MWh for competitive solicitations and \$18.31/MWh for spot purchases. NWE projects these market prices to remain low through 2021.