



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Simpson, Brown, Helgeson, Manning and Mital
FROM: Erin Erben, Power & Strategic Planning Manager and Sibyl Geiselman, Energy Resource Analyst
DATE: April 8, 2012
SUBJECT: Cost of New Resources

Issue

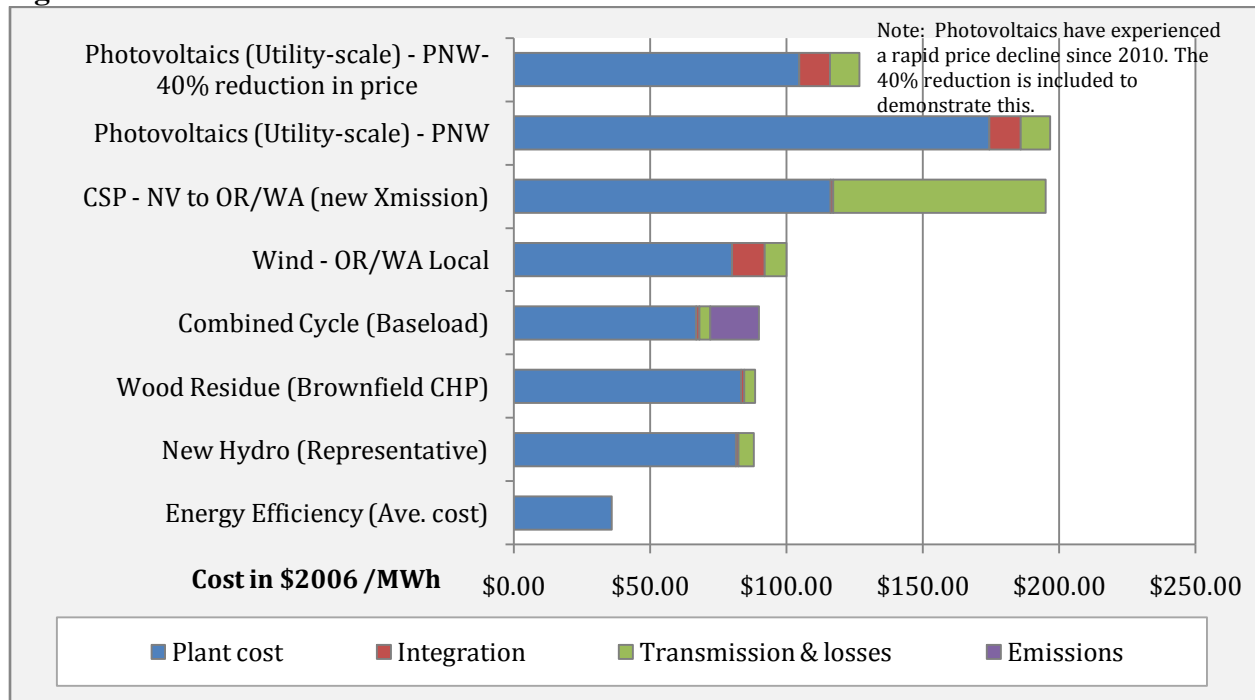
The board expressed an interest in seeing updated data regarding the cost of new power resources.

Background

The cost of new energy generating technologies was a key assumption used in the Integrated Electric Resource Plan (IERP) analysis. New energy efficiency, conservation, and demand response are the only resources that were recommended for acquisition in the IERP. These demand side resources are not only dramatically lower in cost than new supply side generating technologies, but they provide a number of TBL benefits that supply-side resources cannot provide. Because demand-side resources are the only new resources that EWEB will be acquiring in the next few years, demand-side resource costs are arguably the most important for implementation of the IERP. Maintaining an understanding of the costs of new supply-side resources contributes to other key aspects of resource planning such as portfolio optimization, market awareness, and estimation of generation asset value.

In the IERP, modeling of new resource costs and characteristics was based on Energy Information Agency (EIA) and Northwest Power and Conservation Council (NWPPCC) data that was developed for the 6th Northwest Power Plan analysis, with modifications to biomass and localized distributed solar PV costs based on EWEB specific data on recent projects. Figure 1 summarizes NWPPCC estimates of new resource costs in 2025. A modified representation of Solar PV is included to show what was analyzed in the IERP. This data has not been updated since the 6th Plan and new data will be available later this year as analysis for the 7th plan gets underway. The EIA also does not have any new data available on new resource costs.

Figure 1: 6th NW Power Plan Estimated Cost of New Resources ca 2025¹

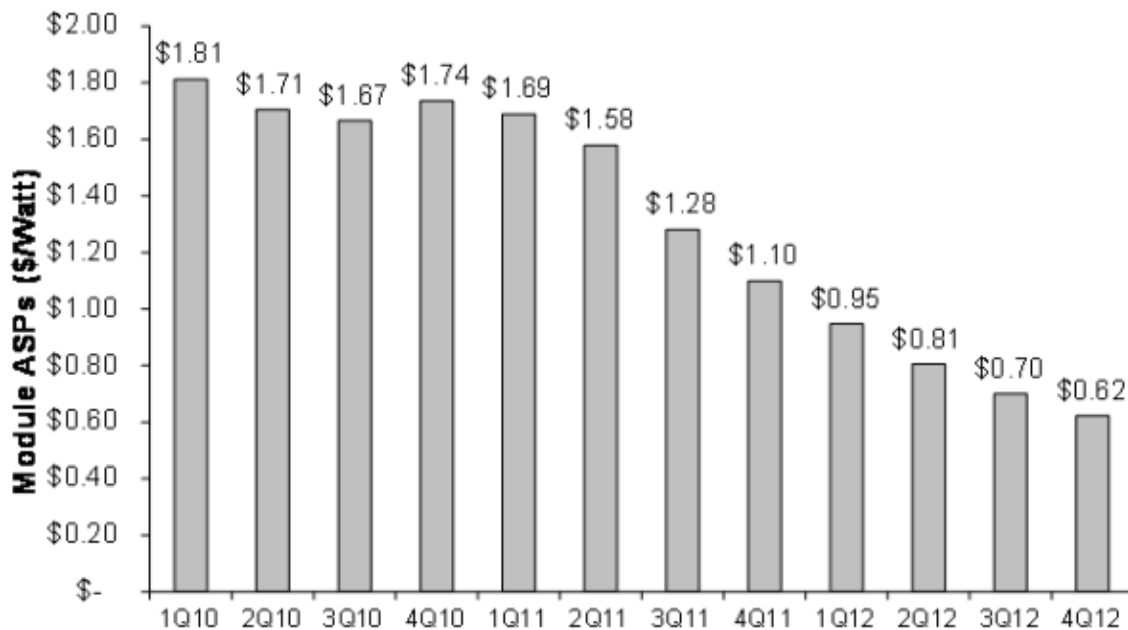


Discussion

The cost of some new resources has declined since the 6th Plan analysis was completed. The biggest change noted is in the price of new Solar Photovoltaics. Figure 2 shows the rapid decline in module cost since 2010. Module prices impact utility scale PV as well as the price of distributed PV that people install at their homes and businesses, but do not represent the total cost of the resource. Other components such as installation costs, mounting materials, inverters and balance of system have also declined though not as rapidly as modules, making the total decline in new build system costs roughly 40%. This price decline was driven by technology advances and by Chinas entrance into the PV market. It is unknown if the extreme low prices seen at the end of 2012 are sustainable for the industry.

¹ Northwest Power and Conservation Council Data from website.
<http://www.nwcouncil.org/energy/powerplan/6/newresourcecosts.htm>

Figure 2: Module ASPs Fell~(11%) Q/Q to a blended average of \$0.62/W in 4Q12²



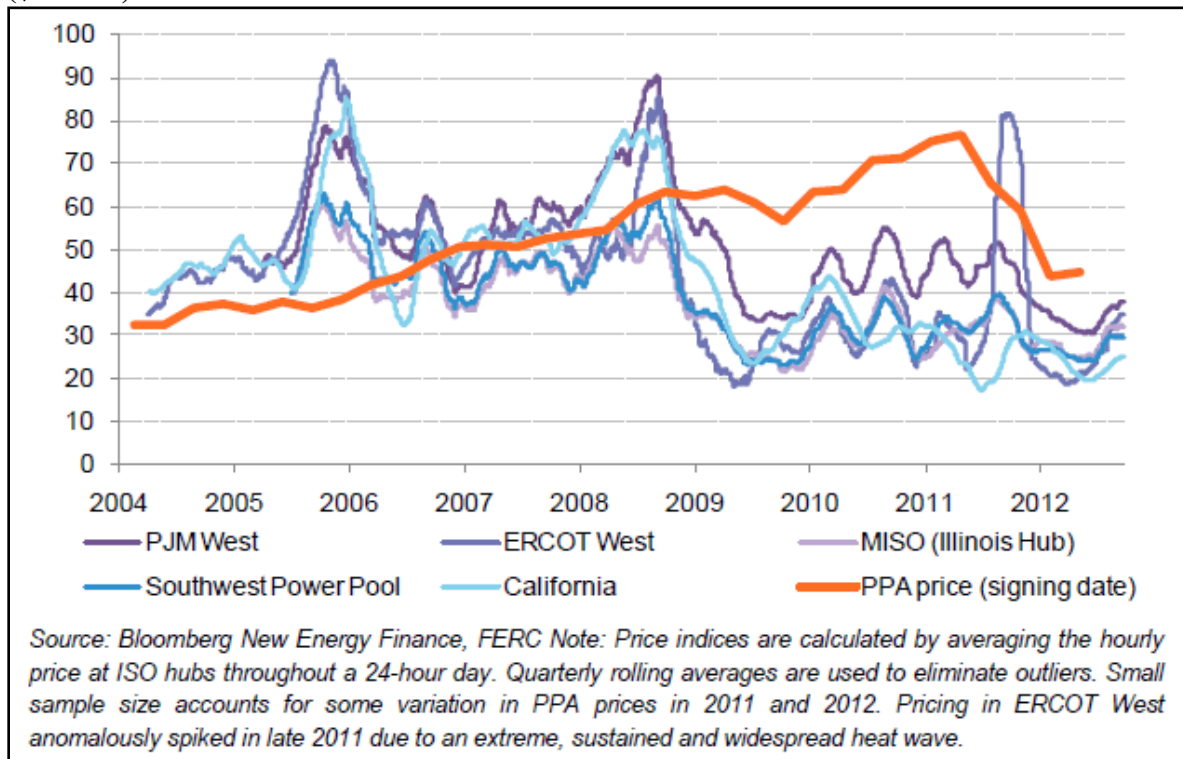
Source: Yingli Green Energy Holdings and Maxim Group estimates

Solar resource prices in \$/MWh are also highly dependent on the location of the projects. The prices shown in Figure 1 represent PV located in the Pacific Northwest, and would be higher than prices that might be seen in locations with stronger solar regimes such as southern California or the desert southwest.

Wind resources have also seen a rapid decline in price since the 6th plan analysis. As demonstrated in Figure 3, the price of wind PPAs (which should be mostly reflective of the cost of new builds) rose steadily until mid year 2011, and then started a rapid decline throughout the remainder of 2011 and into 2012. The price at which wind developers are willing to sell the output of their facilities is dependent on the market for Renewable Energy Certificates (RECs) and is directly impacted by subsidies such as federal tax credits like the recently extended Production Tax Credit, which is equivalent to \$22.00/MWh for the first 10 years of production for facilities online by the end of 2013. The wind industry is struggling with a reduction in demand which could be impacting the price.

² Bloomberg New Energy Finance. *H2 2012 US PPA Market Outlook, Cheap as They Are Rare*. Rep. N.p.: Bloomberg New Energy Finance, 2012. Online Subscription.

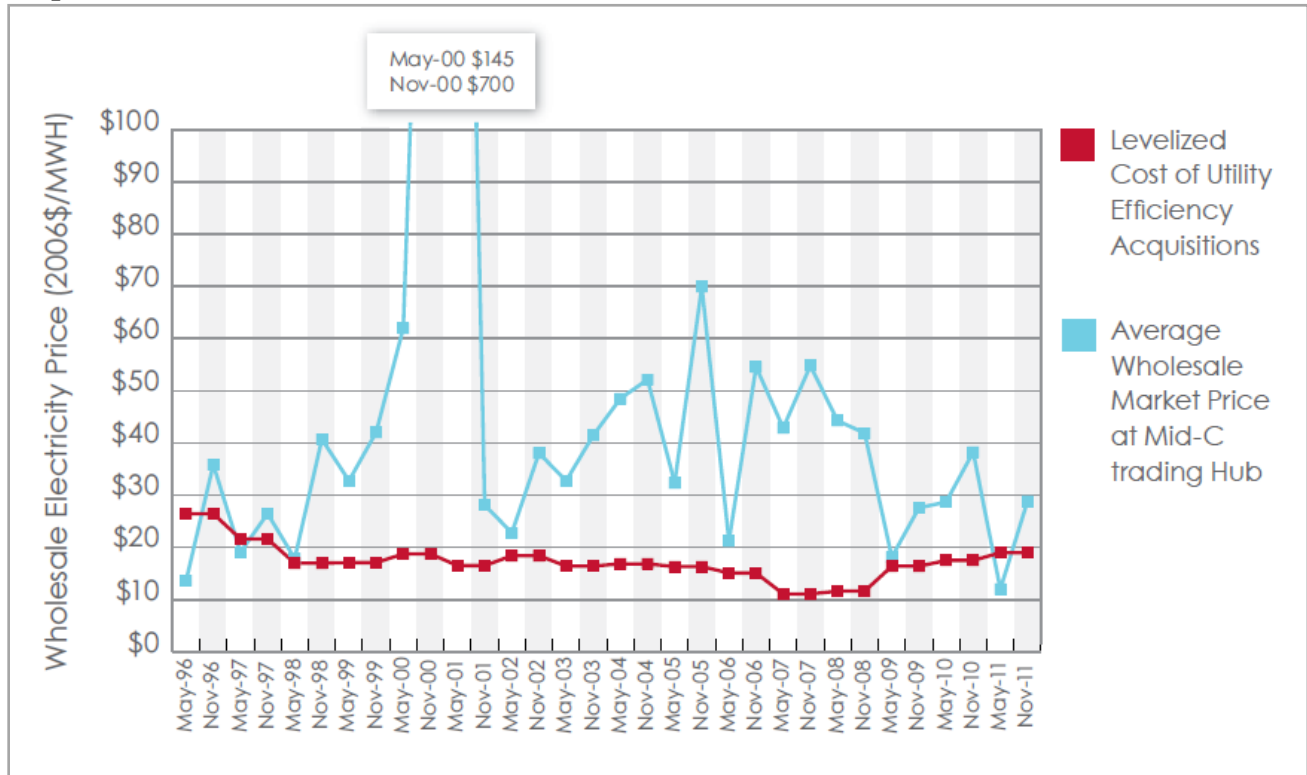
Figure 3: Average wind PPA price relative to wholesale regional prices, 2004-Sept 2012 (\$/MWh)³



Conservation/energy efficiency has also been available at lower prices than previously forecast, and has consistently been achieved at below the wholesale price for electricity. Figure 4 represents this comparison, also demonstrating how much lower in cost new energy efficiency is compared to supply side resources. EWEB is continuing to monitor its own conservation and energy efficiency savings and associated costs.

³ Bloomberg New Energy Finance. *H2 2012 US PPA Market Outlook, Cheap as They Are Rare*. Rep. N.p.: Bloomberg New Energy Finance, 2012. Online Subscription.

Figure 4: Wholesale Power Market Prices and Levelized Cost of Utility Efficiency Acquisitions⁴



TBL Assessment

This background is for information purposes only. For TBL analysis associated with various generating technologies and demand side resource strategies, please see the 2011 IERP document.

Recommendation

Staff plans to use this information for portfolio optimization and potentially for asset sales analysis.

Requested Board Action

None at this time.

⁴ Northwest Power and Conservation Council. "Sixth Northwest Power Plan Mid-Term Assessment Report." Pg.25 *Nwncouncil.org*. Northwest Power and Conservation Council, 13 Mar. 2013. Web. <http://www.nwncouncil.org/media/6391355/2013-01.pdf>.