

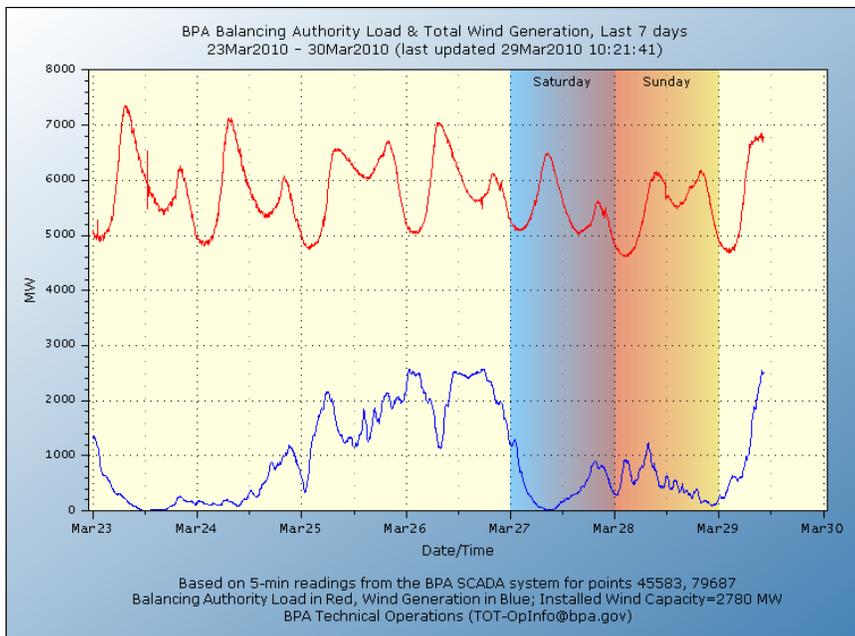
BPA Wind Integration Team Initiatives
Update to WIT E-mail List
March 2010

This is the regular monthly update on BPA’s Wind Integration Team initiatives for March 2010. If you have questions about any of these initiatives, contact Eric King, WIT project manager, at 503-230-5236.

Wind generation in BPA’s balancing authority exceeds 2,500 MW, touches 50 percent of load: As more wind projects come on line in BPA’s balancing authority, the amount of wind generation produced at one time naturally keeps increasing, too. The latest mile marker arrived Sunday, March 21, when more than 2,500 megawatts of wind generation first flowed through BPA’s balancing authority area. That peak coincided with use of the dispatcher standing order 216 limiting wind generation to scheduled output plus allocated reserves, because BPA had deployed more than 90 percent of its balancing reserves.

The 2,500 MW mark quickly became routine as more storms blew through the Columbia River Gorge in late March. At one point, late Friday, March 26, wind energy in BPA’s balancing authority equaled approximately 50 percent of the load BPA was serving at the time. “I’m thinking that’s a North American record,” said Rich

Ellison, manager of BPA Dittmer Dispatch. ERCOT, the regional transmission organization for most of Texas, recently reported a wind-to-load ratio of about 25 percent.



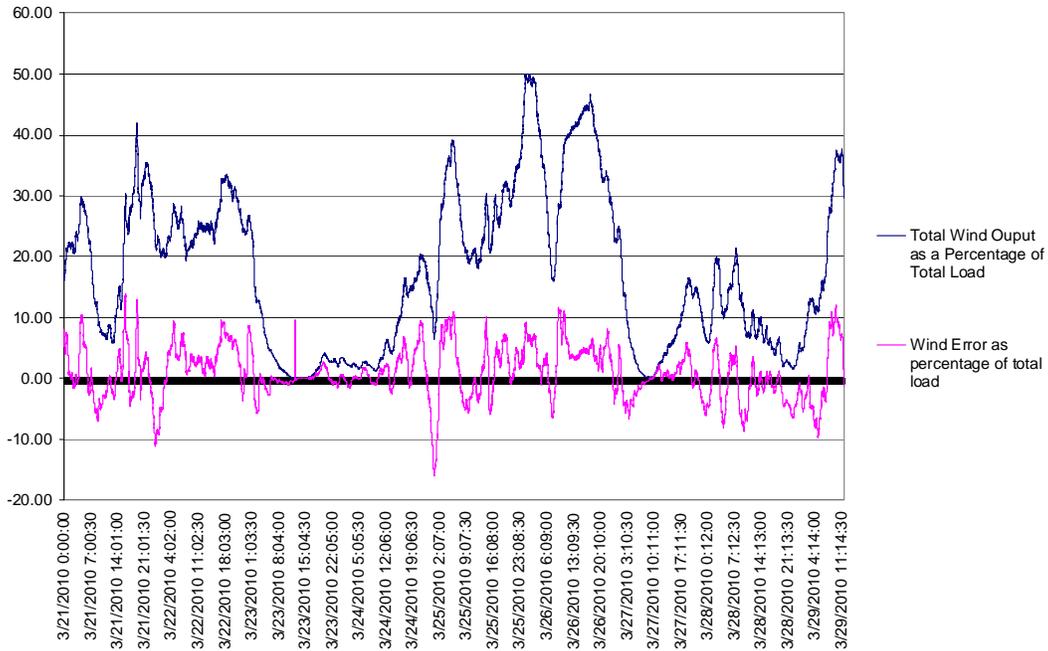
The ratio of wind generation to load served in a balancing authority is important because dispatchers must maintain a constant balance between load and generation in their balancing authority. Most of the wind power based in BPA’s balancing authority is wheeled to Portland General Electric, Puget Sound Energy and other utilities. Dispatchers must constantly and simultaneously serve native load, meet system constraints for fish and other non-power hydro purposes,

accommodate all exports and keep the system in balance. As the proportion of exported wind power to native load rises, this multidimensional challenge becomes more complex.

Wind projects located along the Columbia River in BPA’s balancing authority tend to respond to a similar wind pattern, which means their output tends to peak roughly together. Peak output of the wind fleet in BPA’s balancing authority is tracking at a rate of roughly 85 to 90 percent of peak installed capacity. BPA has had 2,780 MW of wind turbines in its balancing authority since Jan. 15, 2010.



Wind versus load in BPA



While the 2,780 megawatts of wind generation now on line in BPA’s balancing authority correspond to roughly one-fourth of the 10,500 MW peak load in the balancing authority, wind energy production is reaching as high as half the load BPA is serving at any given time. The scheduling error for which BPA’s balancing authority provides balancing reserves now sometimes exceeds 10 percent of the load being served.

Three parties respond to dynamic transfer opening: Iberdrola, PacifiCorp and Portland General Electric responded to BPA’s window for requesting dynamic transfer capacity by the March 19 deadline. BPA is evaluating the requests to see how they match with BPA’s available dynamic transfer capability. “These requests impact the entire system, and we expect that, together, they’ll largely consume the dynamic transfer capability we’ve posted,” said Abbey Nulph, manager of BPA’s dynamic transfer pilot project. A fourth request did not meet the criteria established in the business practice.

BPA invited parties to request use of its available dynamic transfer capacity for a pilot project to begin this summer. Contracts awarding use of the dynamic transfer capacity are expected to begin in July. For more information, see the [dynamic transfer pilot project](#) Web page.

Intra-hour scheduling pilot evaluated and extended: BPA evaluated the first three months of operation under its intra-hour scheduling pilot from December 2009 through February 2010.

Between Dec. 1, 2009, and March 16, 2010, BPA received 52 intra-hour e-Tags totaling 2,157 megawatts. Five customers participated in intra-hour scheduling, and they scheduled power transactions to five balancing authorities.



In February, BPA solicited feedback from customers regarding their experience with the intra-hour pilot. BPA sent 37 different inquiries to potential participants and received feedback from seven respondents. The feedback was generally supportive.

Respondents identified several benefits of using intra-hour scheduling, including mitigating DSO 216 limit events, minimizing generation imbalance and minimizing forecasting error.

Respondents also identified several obstacles to initial participation in intra-hour scheduling, such as balancing authority restrictions, the need to complete modifications to their own transmission tariffs, availability of appropriate transmission rights, and type of e-Tags that can be used. Respondents also identified some areas that they suggested create an obstacle to future participation, including the limited number of participating counterparties, balancing authority restrictions, and potential risk of DSO 216 strikes.

We look forward to continuing use of the intra-hour scheduling option so that BPA and neighboring balancing authorities, customer utilities, independent power producers and others can gain greater experience in this promising tool for effective wind power integration.

We would like to thank all parties who have participated in BPA's intra-hour scheduling pilot and especially those who have provided feedback on their experiences in the project to date. Based on this experience and feedback, BPA has decided to extend the pilot as is, without amendment.

In response to recent dialogue among the leadership of the Northwest's Balancing Authorities, BPA is beginning internal scoping discussions about next steps in fully implementing the three major components of the intra-hour market – common business practices, the intra-hour transaction accelerator platform (ITAP) and the Dynamic Scheduling System (DSS). We will provide additional details about the feedback and next steps at an upcoming [Customer Forum](#) meeting.

Up next: Netting for DSO 216: BPA is preparing a Draft Business Practice that would allow wind project owners and operators with more than one wind project in BPA's balancing authority to net their wind resources in BPA's balancing authority for purposes of responding to dispatchers' directives under Dispatchers Standing Order 216. A wind resource owner would be allowed to aggregate its multiple wind resources into a virtual wind resource to provide the required net response to DSO 216 for those resources. The proposed business practice will provide information on a Netting Agent Agreement, criteria for netting resources and information on how to add or remove resources from their pool of netted resources. BPA Transmission expects to post the draft business practice for customer comment in early April. Watch the [business practice Web page](#) for details. We will inform recipients of [Tech Forum](#) and [WIT](#) mailings when the business practice is posted for comment.