System Condition Update

Spring Operations Review Forum

Regional Conference Call

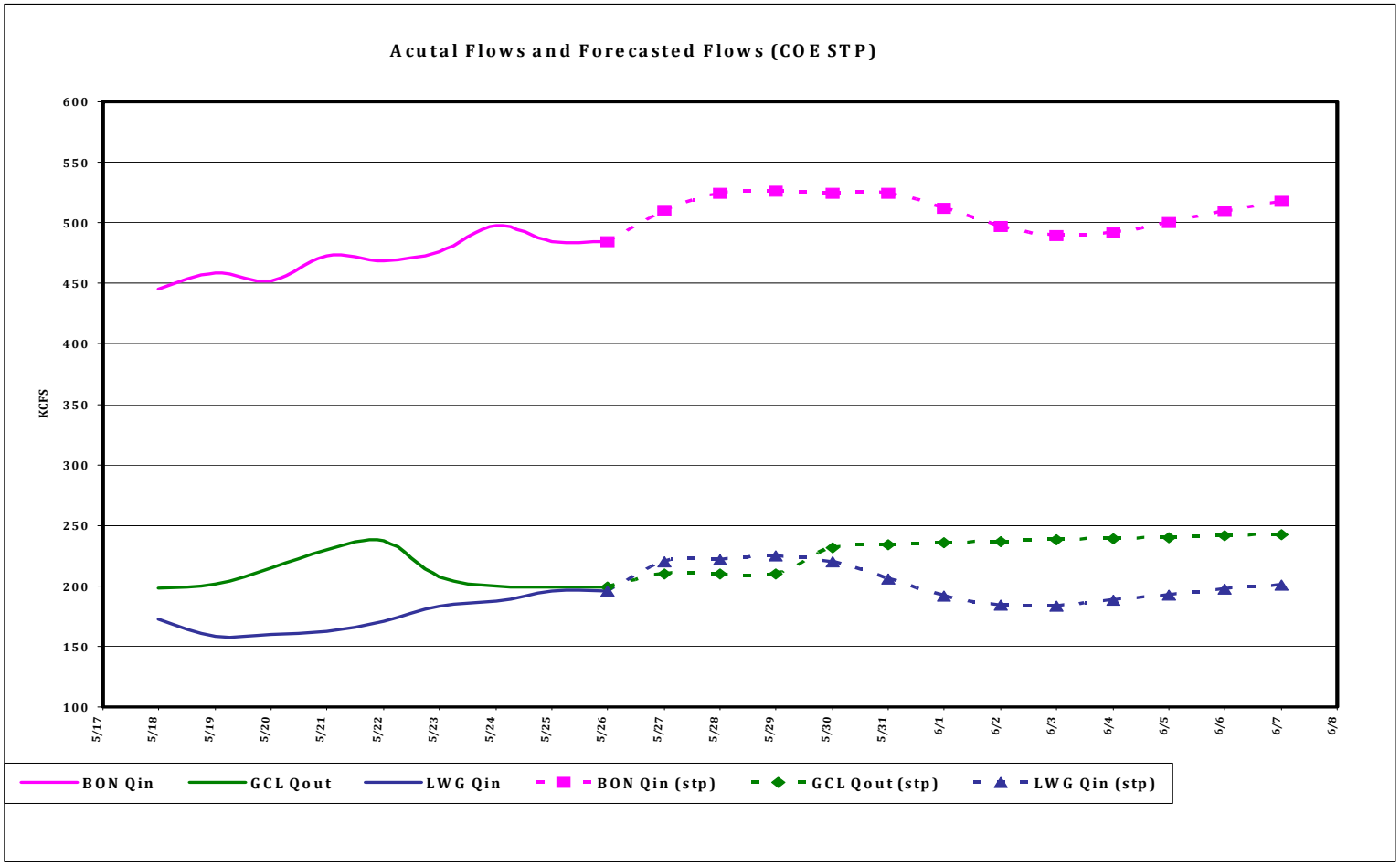
May 27, 2011

1:00 – 2:00 p.m.

To participate in the call please dial: **(877) 322-9654**

When prompted, enter access code: 328457

Hydro Operations Update



Hydro Operations Update

- The Corps of Engineers (COE) requested that Bonneville outflows be regulated to within 1 foot of flood stage (16-17 feet measured at Vancouver)
  - Equivalent to about 505-525 KCFS discharge at Bonneville dam
  - Note that discharges from Grand Coulee/Chief Joseph (GCL/CHJ) need to balance flows on the Lower Snake in order to meet a flow objective at Bonneville.
    - In other words, as Lower Snake flows recede, GCL/CHJ flows need to increase (and vise versa)
  - Since the maximum turbine discharge is about 165 KCFS at GCL and 185 KCFS at CHJ, the resulting generation needs to be fairly flat across the day to minimize TDG
  - RFC May Mid-Month Water Supply Forecast is 133 MAF but their latest set of ESP's has a mean of 140 MAF.

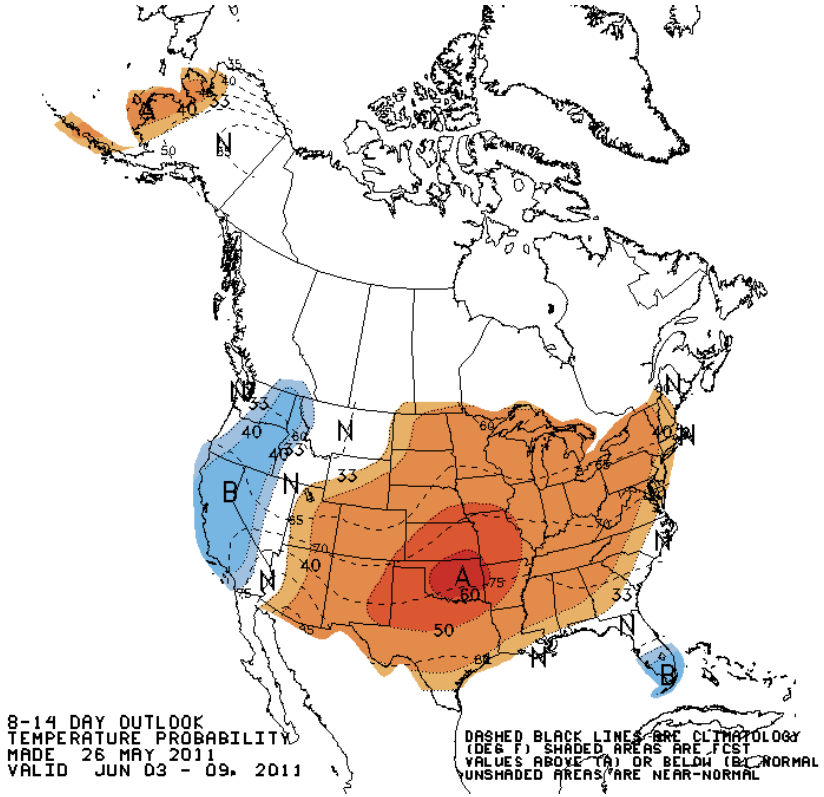
Hydro Operations Update

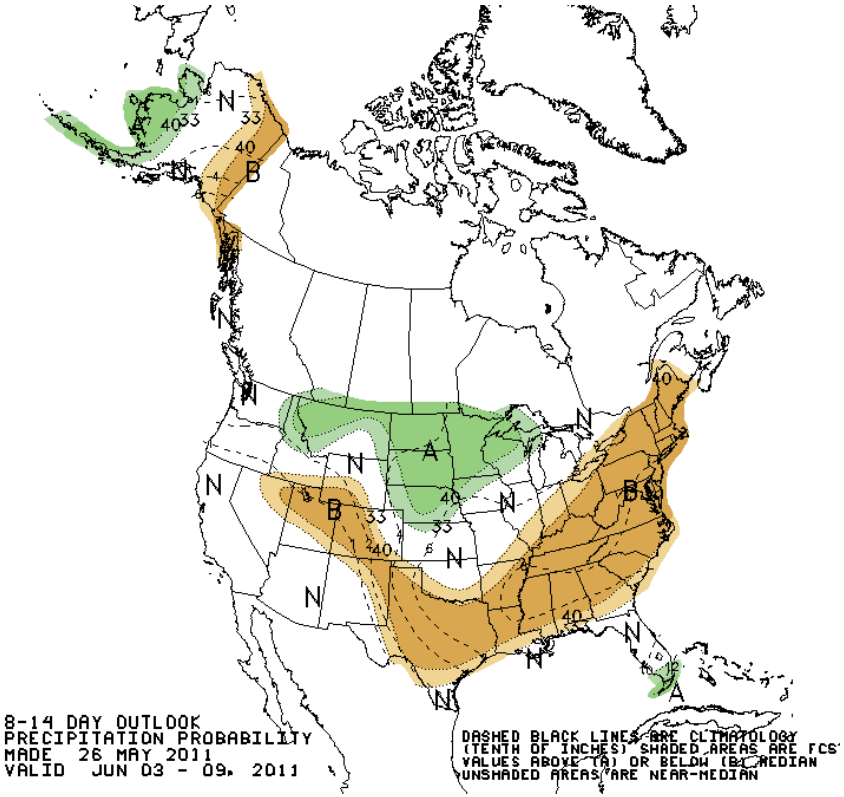
- Overgeneration conditions in the Northwest
  - There was insufficient demand for the resulting generation in light load hours offered at zero cost, so the following steps were implemented to meet the flow objective:
    - DSO 216 INC reserves reduced to 400 MW and DEC reserves reduced to 300 MW
    - Spill up to Level 1 Spill (120% TDG system-wide) – discussed more on the next slide
    - Implement Environmental Displacement/Redispatch
    - Continue to spill up to higher Spill Levels
  - Environmental Displacement/Redispatch
    - All thermal generation within BPA's balancing authority was displaced to their minimum generation first
    - ER implemented every evening since Wednesday (5/18). These actions have displaced over 36,600 MW-hrs of wind generation during this period.
  - 12-hour average TDG levels are 120% or higher across the FCRPS as measured in the tailrace
    - Use of Environmental Displacement/Redispatch was effective in minimizing the amount of TDG in the system
    - Links to TDG data can be found on BPA's Overgeneration webpage or the TMT website

Actions to manage overgeneration

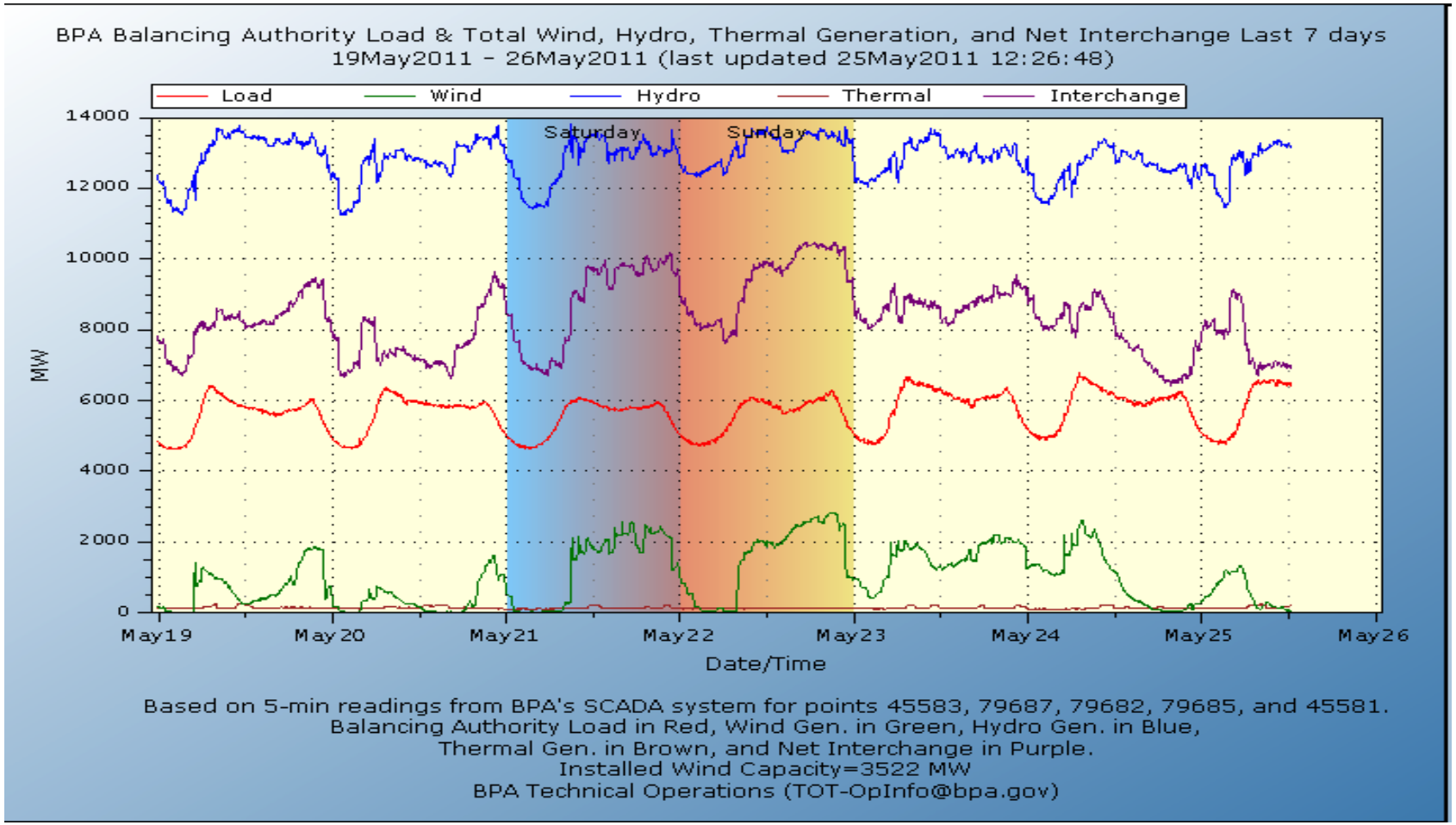
- Offering Spill Exchange Agreements to counter-parties with hydro resources – none signed yet.
  - Since Sat (5/21) we have successfully acquired about 10,000 MWh of load under the Mid-C Spill Exchange agreement.
- Positioning Banks Lake to have the maximum amount of pump load available during May and June.
- Moved non-essential generator and transmission maintenance outages out of May and June.
- Environmental Redispatch has been used nightly since May 18th with the exception of May 24.
- Coordinated LLH spill on Willamette projects.

Weather and Streamflow





Balancing Authority Load and Total Wind, Hydro, and Thermal Generation



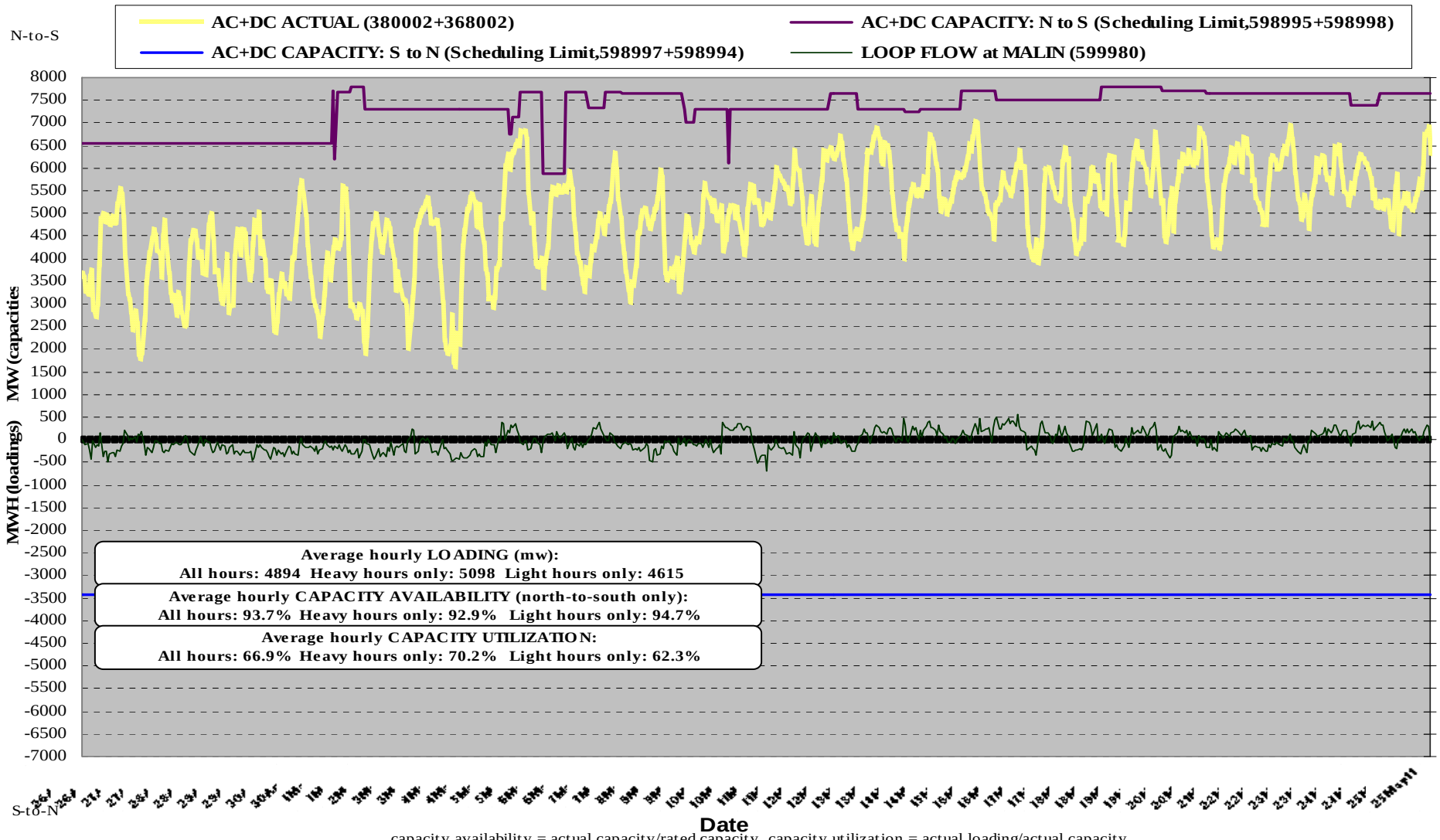
Transmission Updates

- **COI N>S**
  - 5/23 to 5/27: 4660 MW due to PACW Alvey-Dixonville 1 230kv line
  - 5/31 to 6/6: 4600 MW due to BPA Big Eddy-Ostrander 1 500kv line
- **PDCI N>S**
  - 2990 MW : Studied at rated capacity for various outages over next seven days
- **NI S>N**
  - 1950 MW: Studied at or near rated capacity for various outages over next seven days.

Transmission Updates

- **COI +COI + PDCI Capacity Utilization (04/25– 05/24)**
  - All Hours: 66.6%
  - Heavy Load Only: 70.0%
  - Light Load Only: 61.9%
- **Northern Intertie Capacity Utilization (04/25– 05/24)**
  - All Hours: 41.3%
  - Heavy Load Only: 32.9%
  - Light Load Only: 52.7%
  - ***** Many hours with actual NI flows N to S****
- **Montana-PNW Average Utilization (04/25– 05/24)**
  - All Hours: --437 MW
  - Heavy Load Only: -552 MW
  - Light Load Only: -302MW
  - ***The PNW has been a net exporter of energy to Montana the past couple of days***

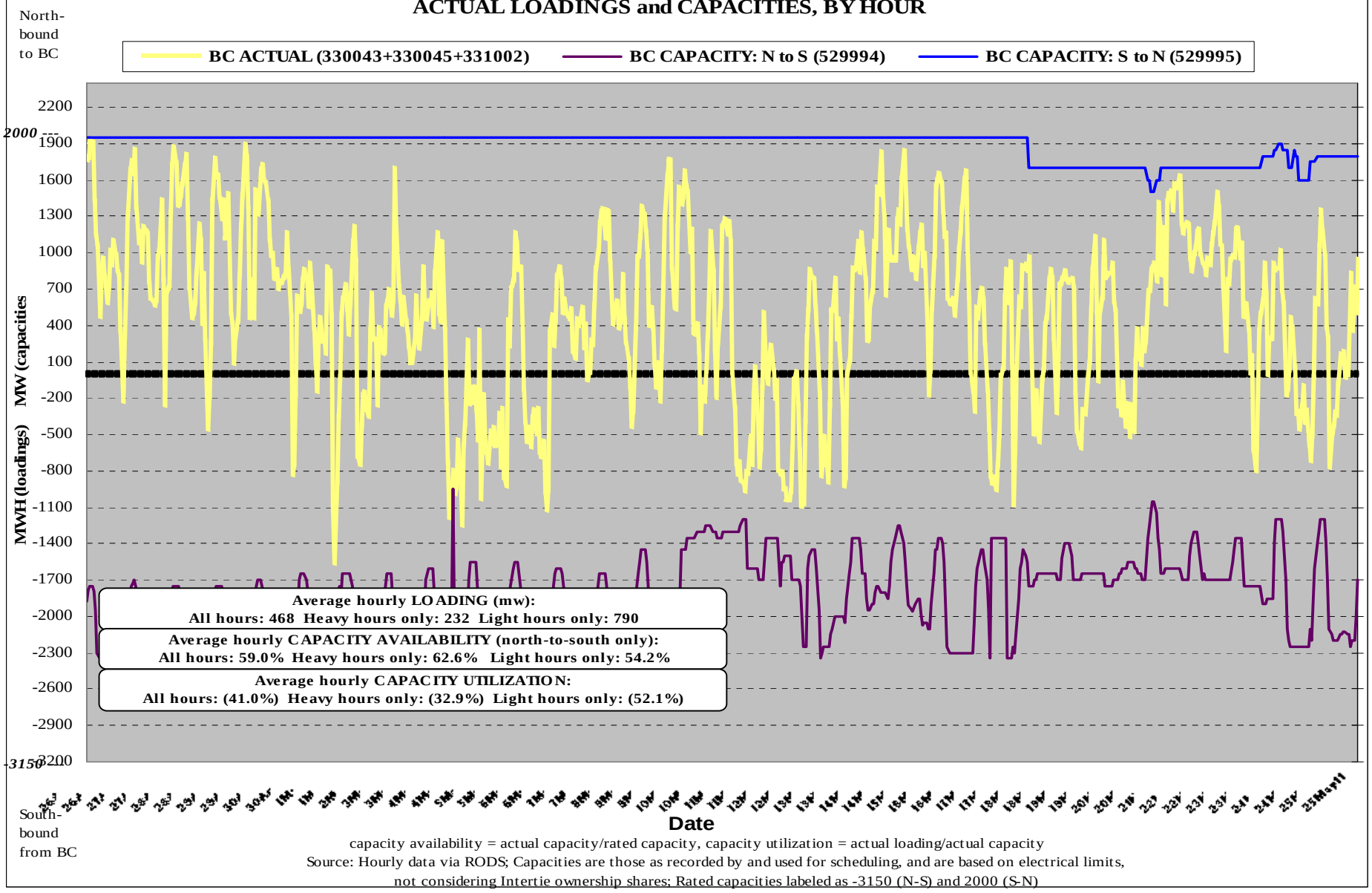
AC+DC INTERTIE AVAILABILITY & UTILIZATION: 26APR11 - 25MAY11 (30 days)
ACTUAL LOADINGS and CAPACITIES, BY HOUR



capacity availability = actual capacity/rated capacity, capacity utilization = actual loading/actual capacity
Source: Hourly data via RODS; Capacities are those at COB or NOB and reflect total path scheduling limit
Actuals may exceed scheduling limit as long as conditions remain within North-of-John-Day vs. COI & PDCI operating nomogram limits

Chart available on BPA's Web site at: http://transmission.bpa.gov/business/operations/intertie/interties/ac_dc.xls

BC INTERTIE (WEST+EAST) AVAILABILITY & UTILIZATION: 26APR11 - 25MAY11 (30 days)
ACTUAL LOADINGS and CAPACITIES, BY HOUR

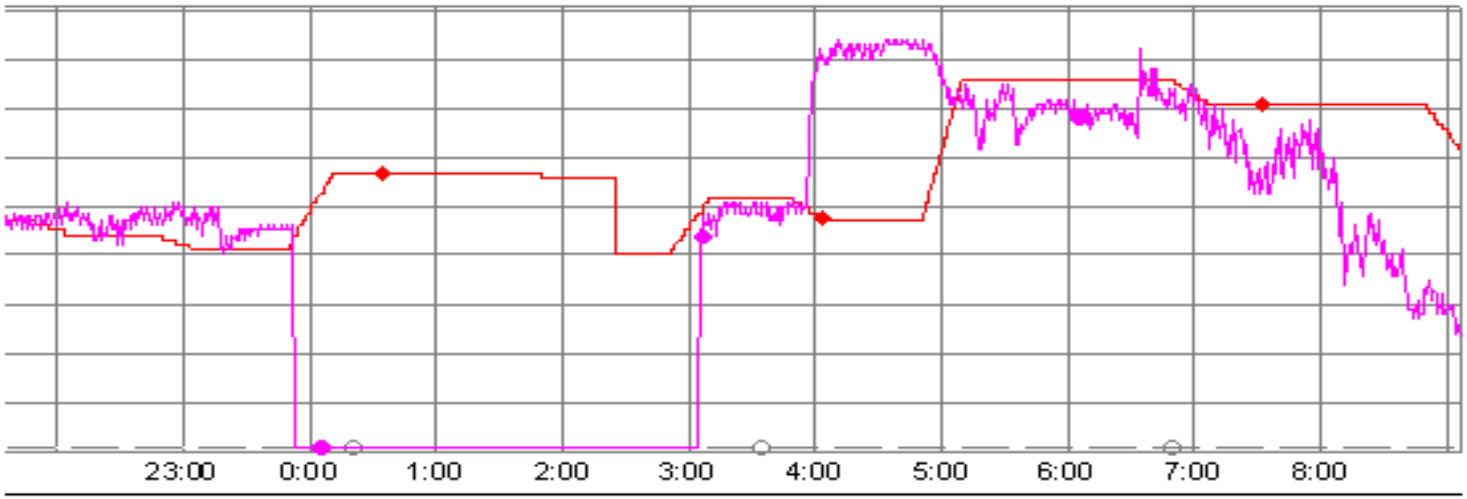


capacity availability = actual capacity/rated capacity, capacity utilization = actual loading/actual capacity
Source: Hourly data via RODS; Capacities are those as recorded by and used for scheduling, and are based on electrical limits, not considering Intertie ownership shares; Rated capacities labeled as -3150 (N-S) and 2000 (S-N)

Chart available on BPA's Web site at: http://transmission.bpa.gov/business/operations/intertie/interties/bcinter.xls

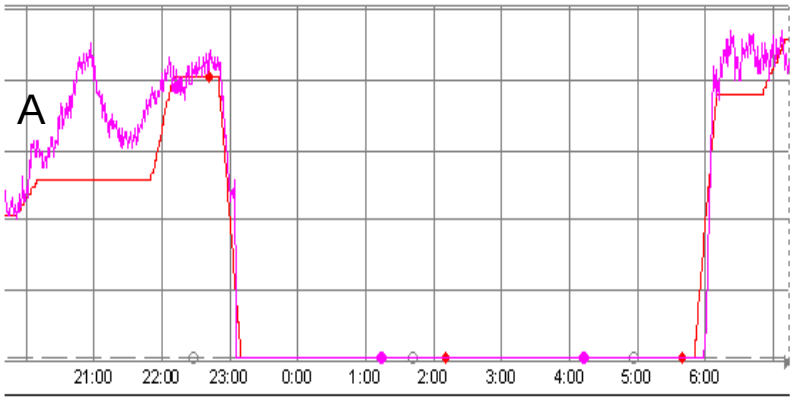
Overcompensation for ER Orders

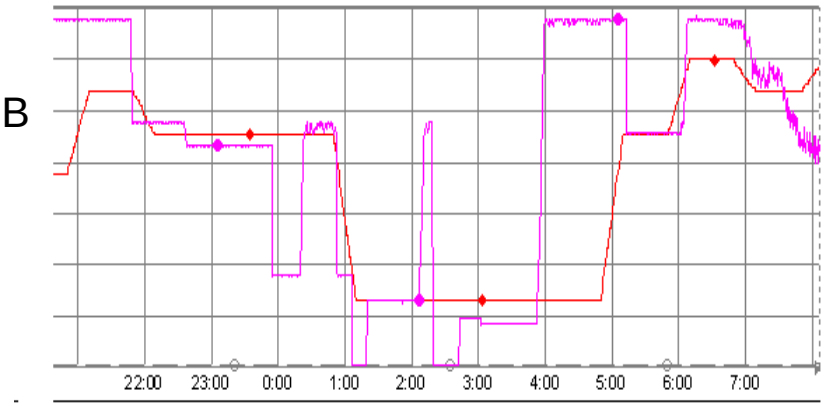
- During the early morning there was relatively high generation for the wind fleet and the hydro system was near, but not at, fully loaded generation.
- To achieve fully loaded generation the ER instructions were to reduce generation by 5% - 15% below scheduled levels. The response at some projects (illustrated below) was far greater than the instruction, resulting in a situation where loads were threatening contingency reserves.
- A modest over response to an ER order is acceptable if plant operators lack sufficient controls to maintain a limit order, but projects should not over react significantly to instructions as such an over reaction threatens the ability to reliably manage load resource balance.
- BPA is working to modify its electronic signaling to make target generation levels easier to identify



Schedule reductions in anticipation of ER

- Comparison of two plants that dropped schedules in anticipation of ER: If a plant operator elects to manage to a reduced output (as in “A”) these are accurate schedules and system operations are unaffected because the operator is managing to that schedule.
- Relying on ER to achieve a schedule that is not indicative of output results in excessive volatility (as in B). This schedule is also depressed, but when ER does not occur or ends the resulting output puts significant error on the system and potentially forces a DSO 216 limit order on the whole fleet. We've been having a number of limit events coming out of ER driven by these kinds of practices.
- BPA's Business Practice (BP) states that VER Customers should continue to schedule their forecast power output.
- If plants are unconstrained this should be their best forecast absent ER. If customers wish to reduce output in anticipation of ER conditions they can reduce schedules accordingly, but they need to be willing and able to apply controls at the project level to enforce those choices.





Contact Information

- To discuss commercial operations, please contact Alex Spain at (503) 230-5780, ajspain@bpa.gov.

- For additional information on Overgeneration, please contact:
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  Public Engagement: Kurt Lynam - (503) 230-5218, kolynam@bpa.gov

- Overgeneration Web site:
  http://www.bpa.gov/corporate/AgencyTopics/ColumbiaRiverHighWaterMgmnt/