

Bonneville Power Administration

For
Montana Energy and Telecommunications Interim Committee
Hydropower in Montana
July 28, 2010

Federal Columbia River Power System

Columbia River Basin & BPA Service Area

What is BPA?

- Self-funding federal agency within DOE. Sets rates to recover costs.
- Markets power at cost from 31 federal dams and 1 nuclear plant – over one-third of electricity used in PNW
- Markets transmission services – owns 75% (15,000 miles) of the high-voltage lines in PNW
- Protects, mitigates & enhances fish & wildlife in the Columbia River Basin
- 300,000-square mile service area – includes WA, OR, ID and Western MT
- \$3 billion in annual revenues
- 3,000 employees
- Headquarters in Portland, OR
- Established in 1937



FCRPS Resources in Montana

Hungry Horse Dam

- Hungry Horse Dam on the South Fork of the Flathead River
- Owned by: Bureau of Reclamation
- Capacity: 428 MW installed capacity – 117 average annual
- Storage: 3.4 million acre feet – 2.9 maf active
- Head: 564 feet dam height – 477 feet head
- Penstock discharge capacity: 9000 cfs
- Placed in service in 1952 - final unit 1953
- 4- units



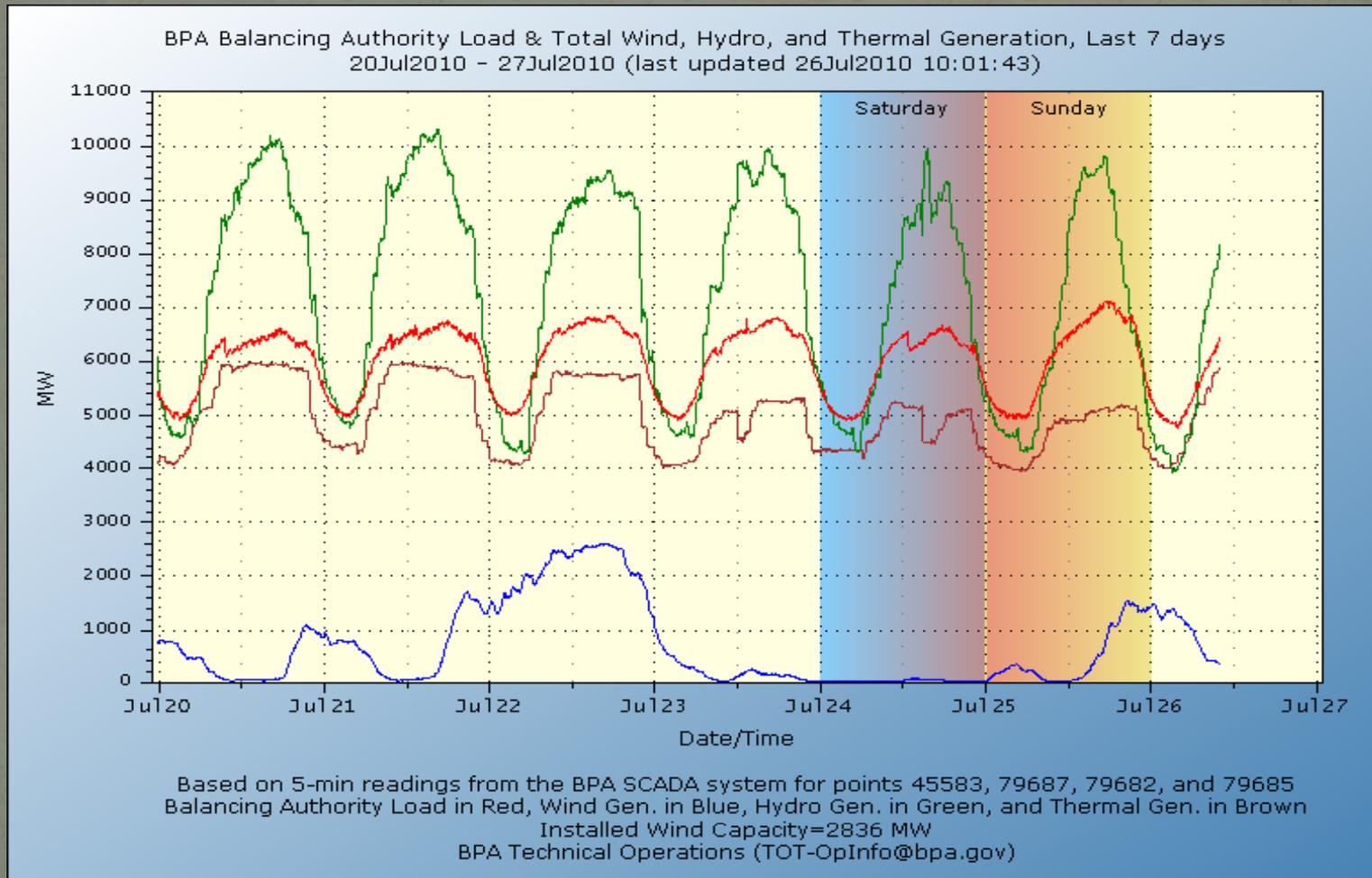
FCRPS Resources in Montana

Libby Dam

- Libby Dam on the Kootenai River
- Owned by US Army Corps of Engineers
- Capacity: 525 MW installed capacity – 240 average annual MW
- Storage: 5.8 million acre feet - 4.9 MAF active
- Head: 370 total dam height - 275 feet head
- Penstock discharge capacity: 24,000 cfs
- Placed in service: 1975
- 5 units



Wind Integration



Federal Columbia River Power System Efficiency Upgrades

- **Hydro Optimization Program:** efficiency improvements, turbine runner replacements, other rehabilitation and upgrades
- **System-wide: 13 projects over 13 years resulted in 143.4 aMW additional production capability at a cost of \$216 million**
- **Hungry Horse Projects:**
 - Date: 1990 – 1993
 - Old Capacity: 285 MW -- New Capacity: 428 MW
 - Increased copper in generators set with tighter windings – upgraded 50's technology to 90's technology -- capacity of each unit went from 71.2 MW to 107 MW
 - Conversion work for remote operation begun 1994; switchyard rebuilt 1995
 - Penstock selective withdrawal system installed 1995 for water temperature control
- **Libby Project – as built contains 8 slots for turbine generators currently 5 units installed**
 - “6th Unit” proposed for fish operations – not a true capacity increase
 - Non-power constraints limit operations seasonally
 - Forced spills rare – available energy produced with 5 units
 - Transmission constraints
 - 6th unit would shift water flow into spring
 - Fish response uncertain – spill test 2002 and 2010
 - Water quality issues

Changes in FCRPS Operation

- Seasonal shifts in power production due to fish operations
- Target fish – anadromous and resident
- ESA and non-listed
- General description of ESA operational changes:
 - Spill water at lower river dams: pass anadromous fish (salmon, steelhead, sockeye)
 - Resident fish actions:
 - Testing spill at Libby for increased discharge (flows) to aid sturgeon spawning
 - Ramping rates for bull trout
 - Increased summer drafts, lowered fall and winter drafts, higher spring discharges
 - Libby/Hungry Horse operation advocated by MT in current Biological Opinion that is under court review

On The Horizon

- What is the 2014/2024 Columbia River Treaty Review?
- **The Columbia River Treaty** between the United States and Canada has served as a model of international cooperation since 1964, bringing significant flood control and power generation benefits to both countries.
- The year 2024 is a significant date for the Treaty. It marks the end of 60 years of pre-paid flood control space from Canada. In addition, either Canada or the United States can terminate most of the provisions of the Treaty any time on or after Sept. 16, 2024, with a minimum 10 years' written advance notice (hence, the reference to 2014).
- Due to the importance of this issue, the U.S. Army Corps of Engineers and the Bonneville Power Administration, the agencies responsible for implementing the Treaty for the United States on behalf of the U.S. Entity, are conducting a multi-year effort to study post-2024 Treaty issues. This effort is called the 2014/2024 Columbia River Treaty Review.

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