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Energy Vision for the Columbia River

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“Learning from Regions: A Comparative Appraisal of Climate, Water, and Human Interactions in the Colorado and Columbia River Systems”
• Energy Vision for the Columbia River
CRITFC Energy Vision for the Columbia River

• GOAL:

Reduce the Pressure of Energy Demands on the Columbia River Basin’s Fish and Wildlife Resources.
CRITFC Energy Vision for the Columbia River

• **BASIC PRINCIPLES:**
  
  – Serve loads more cheaply than they are served today.

  – Provide better protection against unforeseen events.

  – Create a healthier Columbia River Basin for fish and wildlife resources.
Normative River Concept: “Normative conditions, which provide critical habitat functions in the natural landscape, must be restored, not mitigated.” ISAB 1998

- Return Columbia & Snake River flows to a more naturally shaped hydrograph.
- Reduce daily flow fluctuations associated with power peaking operations.
- Utilize spill as an effective means of passing juvenile salmon by dams.
- Breach the Snake River dams.
Normative Seasonal Flows

THE DALLES SEASONAL FLOWS

FLOW (KCFS)

CRITFC outflow
2000 Obs. (98 MaF, Jan-Jly)
NMFS target flow (McNary)
Hanford Reach Power Peaking

- Hanford Reach is the last free-flowing section of the Columbia River.
- Prime fall chinook spawning habitat.
- Subject to extreme flow fluctuation due to power peaking operations.
Daily River Peaking

Columbia River at Hanford Reach

Hourly Flows (kcfs)

Priest Rapids outflow
2001 River Operations Abandoned
ESA Flow and Spill Requirements

• Flow targets were not met at any time during the juvenile migration.
• Spill was eliminated during most of the spring and summer migration.
2001 ESA River Operations (Flow & Spill)

John Day 2001

KCFS

050100150200250 Date Flow Spill ESA Fl. ESA Sp.

April 1 May 15 June 30
Reducing Regional Energy Dependence on the Columbia River:
Economic Considerations

• The electric energy industry has the highest investment in physical plant of any U.S. industry. Thirty-five percent of all capital in place (generation, transmission, & distribution) is there to serve loads that occur less than 5% of the time.

• Using the River to serve distant peak loads is costly.
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Typical Load Duration Curve 1998

Hour of Year (High to Low Load)

Hourly Loads 1998

Representative Transmission Line at 75% of Peak Load
BPA has scheduled $2 billion in new transmission investment in the next 4 years.

The debt service on new transmission investment planned in the region is more than the cost of replacing the energy lost by breaching the Snake Dams.

In 2000, BPA signed contracts for 11,000 megawatts of power sales, with only 8,000 megawatts of power resources available.
CRITFC Energy Vision for the Columbia River

• Energy Resources Portfolio
  – Strategically placed gas-fired generation
  – Strategic pricing of retail power
  – Efficiency improvements
  – Load management
  – Distributed generation (DG)
  – Wind generators
• “Perma-Slice”
  – The government should not relinquish operational control of the River to slice customers.
  – Slice customers must meet their own load growth.

• BPA’s Financial Choices
  – Implement rate increases
  – Reduce agency overhead
  – Do Not sacrifice fish or energy resource acquisitions