



# MEKONG DELEGATION COLUMBIA RIVER STUDY TOUR

## COLUMBIA RIVER HYDROPOWER OPERATIONAL PLANNING By

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# OPERATIONAL PLANNING

- Actual Energy Regulation
- Treaty Storage Regulation
- Assured Operating Plan
- Refill Studies
- Special Power Studies
- Annual Data Submittal
- HYSSR (Hydro System Seasonal Regulation) Model Support
- Regional Power Planning

# COLUMBIA RIVER TREATY (CRT)

- PRIMARY FOCUS: POWER, FLOOD CONTROL
- CORPS IS ONE HALF OF THE US ENTITY
  - ✓ CORPS Responsible for Flood Control
  - ✓ Bonneville Power Administration (BPA) Responsible for Power
  - ✓ British Columbia HYDRO Represents Canadian Entity
- Bi-monthly Operating Committee Meetings
- Weekly Operational Conference Calls
- Canadian Entitlements: 0.5 x Downstream Power Benefits

# CRT's ASSURED OPERATING PLAN (AOP)

- Developed for the 6th Succeeding Operating Year for Optimum Power & Flood Control Benefits in Canada and the US.
- Defines Operating Criteria for Canadian Projects.
- Determines Downstream Benefits  
*(that will do not change, no matter how much actual energy is generated).*

# POWER BENEFITS FROM CANADIAN CRT STORAGE

- Determined by system regulation studies
- Used 3 system configurations:
  - (1) Step 1 System
    - Actual system, operated to maximize power and flood control
    - Includes Pacific Northwest (PNW) resources forecast to be in place, plus
    - any additional generic thermal installations required to meet the PNW load forecast for the AOP study year.
    - Thermal powerplant needs determined in this step are used in the next two steps.
  - (2) Step 2 System - the base (1961) PNW system,
    - with any capacity updates, plus
    - thermal installations determined in the Step 1 study, plus
    - CRT storage
  - (3) Step 3 System - Step 2 with no CRT storage.

# CRT POWER BENEFITS CALCULATION

- Calculated as difference in usable energy production between the Step 2 and 3 studies (with and without Canadian CRT storage).
- Canadian CRT storage treated as “first added” to the base system.
- CRT storage benefits are inversely related to the level of thermal resources needed in the Step 1 study (to meet forecast PNW load for the AOP study year (6 years hence)).
- PNW load forecasts are based on annual BPA “White Book” load forecast --public forecast used across the region.

# CRT DETAILED OPERATING PLAN

- Plan for the upcoming year
- Fine-tuned from the AOP (done 6 years earlier)
- Includes real-time project operations (not in AOP)
- May be changed if mutually beneficial for power AND non-power purposes.
- If not, adopt operating plan from the “default” AOP

# PACIFIC NW COORDINATION AGREEMENT (PNCA)

## COORDINATES OPERATIONS

- 17 parties; 120 dams; 19,000 average Mega-Watts; single-owner serving single load

## DETERMINES RIGHTS AND OBLIGATIONS

- all parties determine aggregate firm load they can carry
- mutually support each other to carry load (deficient vs. excess)
- return of Canadian Entitlements

## USE OPERATING RULES AND “RULE CURVES”

- govern amount of firm energy each project can produce each month
- define potential exchanges

## ANNUAL DATA SUBMITTAL

- project capabilities & operating criteria

# PNCA (cont'd)

## OPERATING RULES AND “RULE CURVES”

1. Deliver in-lieu energy if expected reservoir release is not made
2. Must accept releases if space is available
3. May draft lower if provisional energy can be replaced later
4. Use temporary flexibility adjustments to borrow up to 5% of future Firm Energy Load Carrying Capacity (FELCC)
5. Each party has non-power requirements to meet
6. Maintenance and load/resources purchases to be reported each year
7. The Northwest Power Pool collects data and prepares operational studies

# PACIFIC NW COORDINATION (cont'd)

## PRIORITIES

1. non-power requirements
2. firm energy
3. refill reservoirs
4. non-firm energy

## AER (Actual energy regulation)

- monthly operating guidelines
- storage targets
- forms the basis for interchange rights and obligations.

# THE END

