FortisBC’s Operations of Kootenay Lake

Marko Aaltomaa, P. Eng
Manager, Network Services
March 2013
The FortisBC Electric System

- Providing electricity to southern interior for 100+ years
- A regulated utility based in Kelowna, BC, established in 1897
- Serves approximately 163,000 customers
- Owns and operates four generating plants
- Operate and maintain other generating facilities for CPC and Teck in the Kootenay’s
FortisBC Operations Overview
IJC Order and Kootenay Lake Operations

Corra Linn and the IJC Order

- November 11, 1938 IJC granted the order on Kootenay Lake:
  - Store 6’ of water in Kootenay lake, under conditions
  - Excavate Grohman Narrows

Operational requirements:

- Maximum storage level of 1745.32 from Aug 31 to Jan 7
- Lowered to 1744 by Feb1 and 1742.4 by Mar 1
- Lowered to 1739.32 on or about April 1 (zero on Nelson gauge)
- During freshet discharge from Kootenay Lake controlled by Grohman Narrows
BC Hydro Kootenay Canal Plant
- Required to take full advantage of upstream CRT projects
- Diverts water around FortisBC’s plants on Kootenay River
- Drives need for the Canal Plant Agreement

Canal Plant Agreement
- BC Hydro has overall dispatch rights
- FortisBC gets “entitlement” capacity and energy
- Units need to be available to generate
- Many Operating Procedures dictating Operations
The Kootenay/Columbia River System

FortisBC, BC Hydro and US Army Corp of Engineers work together

Operations influenced by:
- Columbia River Treaty
- IJC on Kootenay Lake
- Environmental/aquatic habitat concerns (COFAC)
- Public input on operations
- Power output concerns
Brilliant Dam and BRX

Brilliant Power Purchase Agreement
- May 1996, 60 year PPA and Operations agreement signed between CPC and FortisBC

Brilliant and BRX Operations
- Brilliant Expansion completed in 2007
- Minimum flow requirements
- Brilliant Forebay management
  - Glade Ferry operations
Emerging Issues for FortisBC

• Meeting the Operational Requirements of the IJC Order

• Communications and Information to the Public

• Importance of Generation Resources to FortisBC Customers
Kootenay Lake elevation vs. IJC Rule Curve
Kootenay Lake Elevation: 1928 to 2012

- Corra Linn ≈ 1938
- Duncan ≈ 1967
- Libby ≈ 1975
Public Information: New FortisBC Website
http://webapp.fortisbc.com/lakelevel/lakes.jsp

Kootenay Lake levels

Current Kootenay Lake Levels

Queen's Bay: 1741.38 feet (530.77 meters) as of Mar 05 2013 09:04:25
Nelson: 1741.16 feet (530.71 meters) as of Mar 05 2013 09:04:25

View lake levels for the last 31 days

Lake level forecast - Mar 01, 2013:
Kootenay Lake is forecast to decrease to 1741.10 by March 8th.

Average Daily Kootenay River Discharge at Brilliant for Mar 04 2013: 18505 cfs (cubic feet per second)
Importance of Kootenay River Generation

New power supply costs significantly more than existing power supply.
Questions?

Marko Aaltomaa, P. Eng
Manager, Network Services
March 2013