Lake Dorothy
The Cost of Generation

Tim McLeod
President
Alaska Electric Light and Power
Challenges to developing new hydro resources

- Timing
- Permitting
- Design
- Financing
- Construction
- Customer acceptance
- Regulatory approval
Lake Dorothy Hydroelectric Project Site
Lake Dorothy Hydroelectric Project Site
Lake Dorothy Hydro

- Powerhouse
- Bart Lake
- Louie Lake
- Lake Dorothy
Project history

- **1996** – 1st Preliminary permit submitted
- **1999** – 2nd Preliminary permit submitted with revised scope
- **2001** - Draft License Application and Preliminary Draft Environmental Assessment filed with FERC and agencies
- **2002** – Final license application and draft environmental assessment Filed
- **2002** - FERC issued final environment assessment (EA) for agency and public comment.
- December 24, **2003** – FERC License Order Issued
- May **2006** – With final design complete, financing in place construction began
- **August 2009** – Project on line
Phase I Development

- Power Tunnel and Lake Tap
- Bart Lake Diversion Dam.
- 1.8 Mile Access Road from Powerhouse Site at Tidewater to Bart Lake
- 8400’of 60” Diameter Penstock from Bart Lake to Powerhouse Site.
- Powerhouse/Turbine/Generator
- Shop and Maintenance Crew Quarters
- Substation and switch yard
- 3.5 miles of overhead transmission line
- 15 MW
- 75 GWH
Lake Dorothy Lake Tap & Tunneling Project
Lake Dorothy
Lake Dorothy Portal on July 25, 2009

Lake Dorothy

Lake Tap Portal
A Look Inside the Portal on July 28, 2009
Access Road and Penstock
Access Road Construction – 2007 (working from tidewater to Bart Lake)
May 4, 2009 – 1st Shipment of Penstock Pipe Arrives
The Valve Vault – August 18, 2008
Note: MK174, Baker Disassembly Joint, 60” Valve and MK173 in Place
Penstock Install Along Road – October 16, 2008
(Installing MK167)
View of the Penstock Pipe Staged along the Access Road
• Bart Lake Dam
May 28, 2009 – Pouring the Last of the Bart Lake Dam Face Slabs
Powerhouse Foundation and Building Erection
Turbine & Generator
15.3 MW Bart Lake Generator Final Assembly & Test at Factory
June 24, 2009 – The Runner is “Home”
August 31, 2009 – Commercially Operational!!!
Bart Lake Substation & Transmission Line
The Bart Lake Substation Complete & Back Energized from Snettisham T-line - October 27, 2008
Snapshot of Blast Along T-Line
Typical Structure Sites
Heavy Lifts Moving Equipment and Poles
Flying in a Crossarm and Crews Working on Assembly
High Time for the Lineman
Lake Dorothy Breaker - East Terminal - Lower Yard Complete
“Hydro projects inflate until you build them”

Scott Willis, AELP
Rate impact illustration

Total Cost to Ratepayers

Cost per KWH vs. Year

- Without new hydro
- With new hydro
Rate impact illustration delayed construction

Total Cost to Ratepayers

- Without new hydro
- With new hydro

Year

Cents per KWH

Rate impact illustration delayed construction

Total Cost to Ratepayers

- Without new hydro
- With new hydro


Cents per KWH: 0, 10, 20

Graph shows the total cost to ratepayers over time with and without new hydroelectric construction.
The Importance of Surplus Hydro Energy

- Provides the lowest energy rates over time
- Available for load growth
- Provides rate stability
- Enables incentive rates
- Avoid diesel use during dry years
The importance of surplus energy sales

Surplus sales benefit others

Princess Cruises Shore Power Facility
<table>
<thead>
<tr>
<th>Project</th>
<th>Completion Year</th>
<th>Actual Cost (2009 $)</th>
<th>Actual Cost (2009 $)</th>
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Price increase in Juneau over the past 15 years

Food cost based on family of 4, children 6-11. Survey measures same commodity amounts each year since 1996 for many Alaska locations. December data was used through 2009. Juneau’s current electricity price based on peak season rate, including 18.5% interim rate adjustment.