

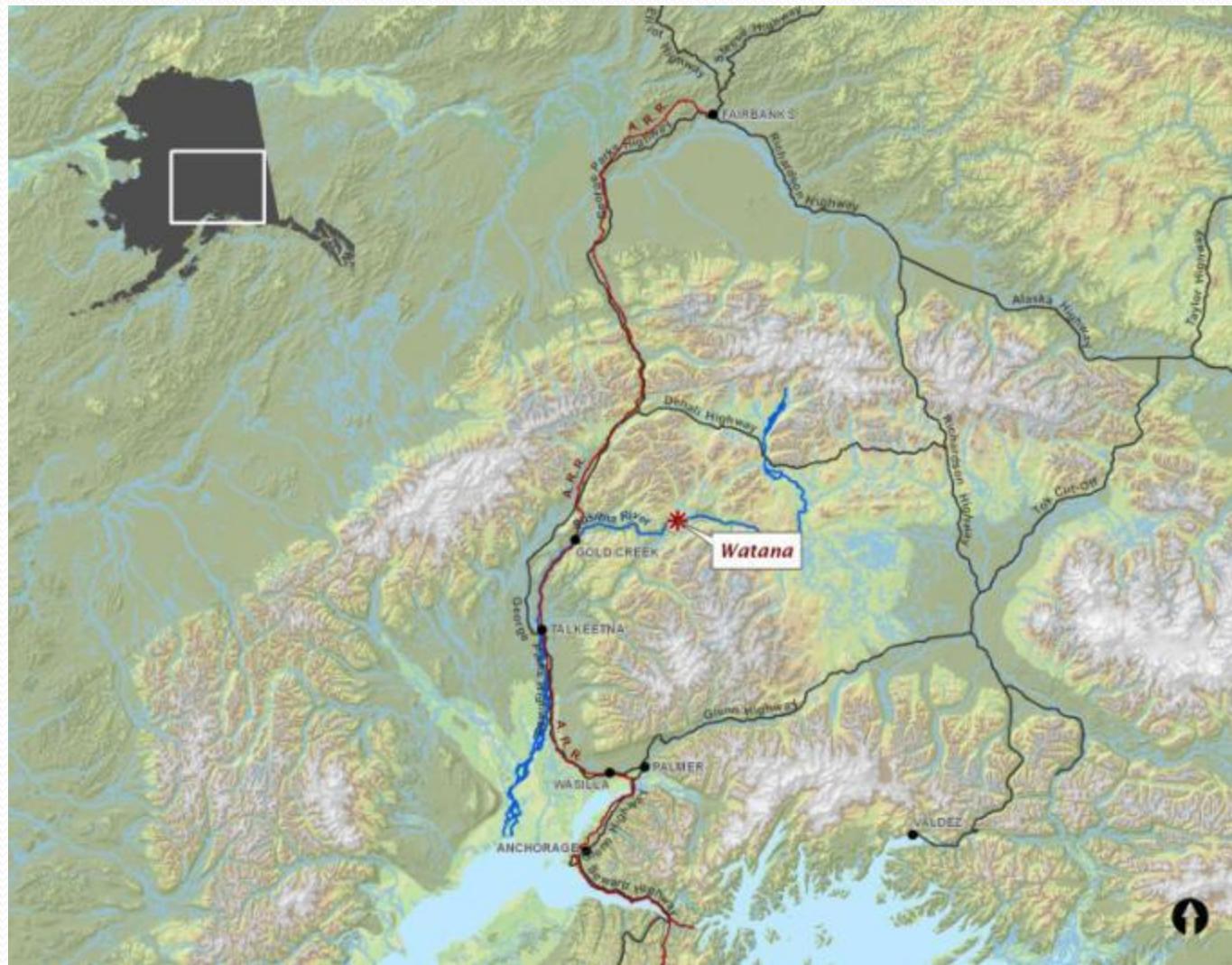
Railbelt Large Hydroelectric

House Energy Committee – History of
Susitna River & Bradley Lake Hydroelectric Projects

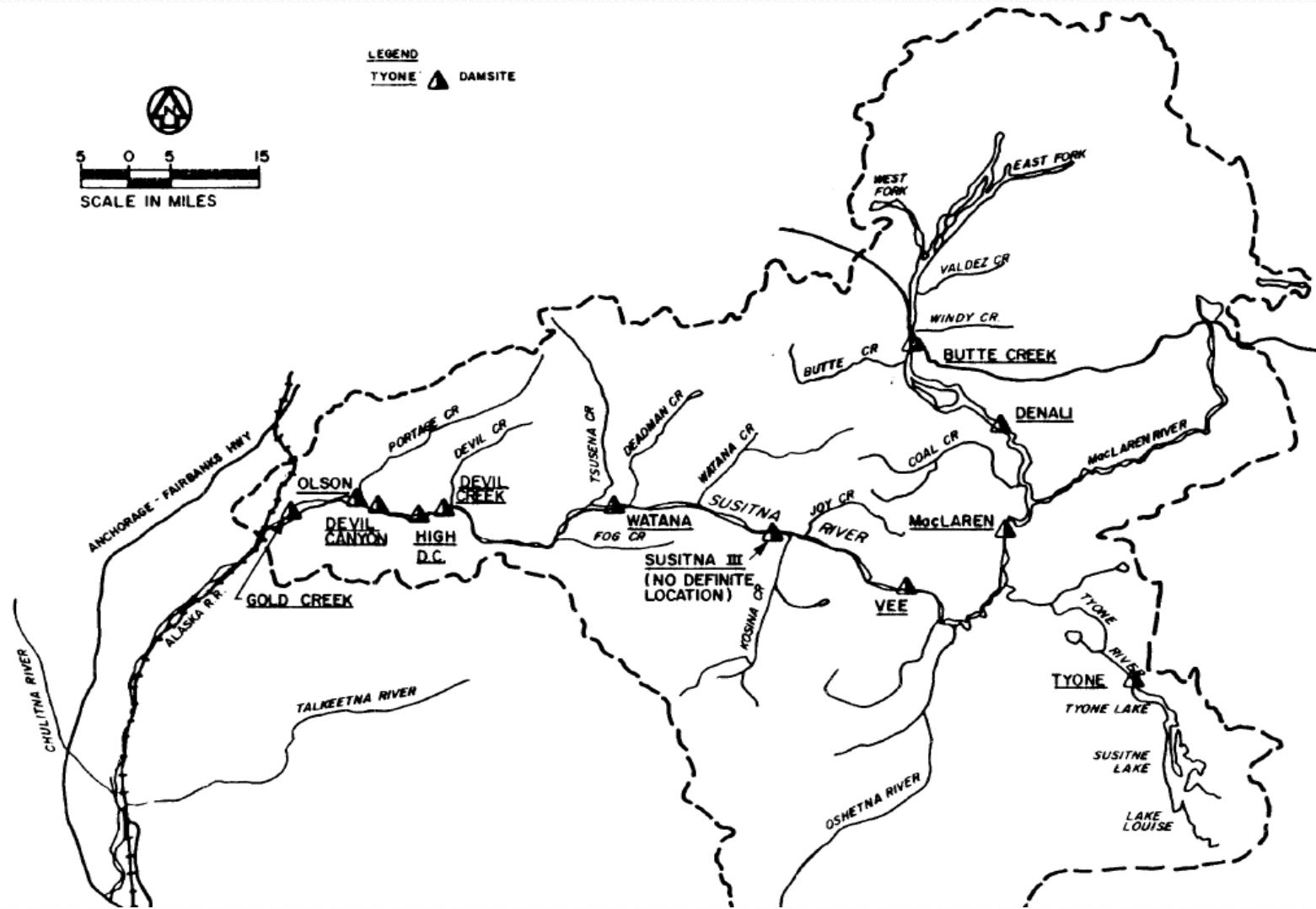
Prepared by Alaska Energy Authority 2/16/2011



Watana Location



Upper Susitna Basin Dam Sites



Susitna History

- 1950s – Bureau of Reclamation Studies (4 dam scheme))
- 1970's - Army Corps of Engineers (2 dam scheme)
- 1976 - Alaska Power Authority created
- 1981 - Railbelt Energy fund established primarily for Susitna
- 1978 to 1984 - Construction of the Four Dam Pool
- 1983 - APA Files for Susitna FERC license (Two dams Devil Canyon & Watana)
- 1985 - Project restructured in three stages
- 1985 - Oil prices drop & abundant low cost natural gas available
- 1986 - Project development efforts halted and put on hold
- 1989 - Alaska Power Authority changed to Alaska Energy Authority
- 1991 – Bradley Hydro commissioned (Model Financing?)

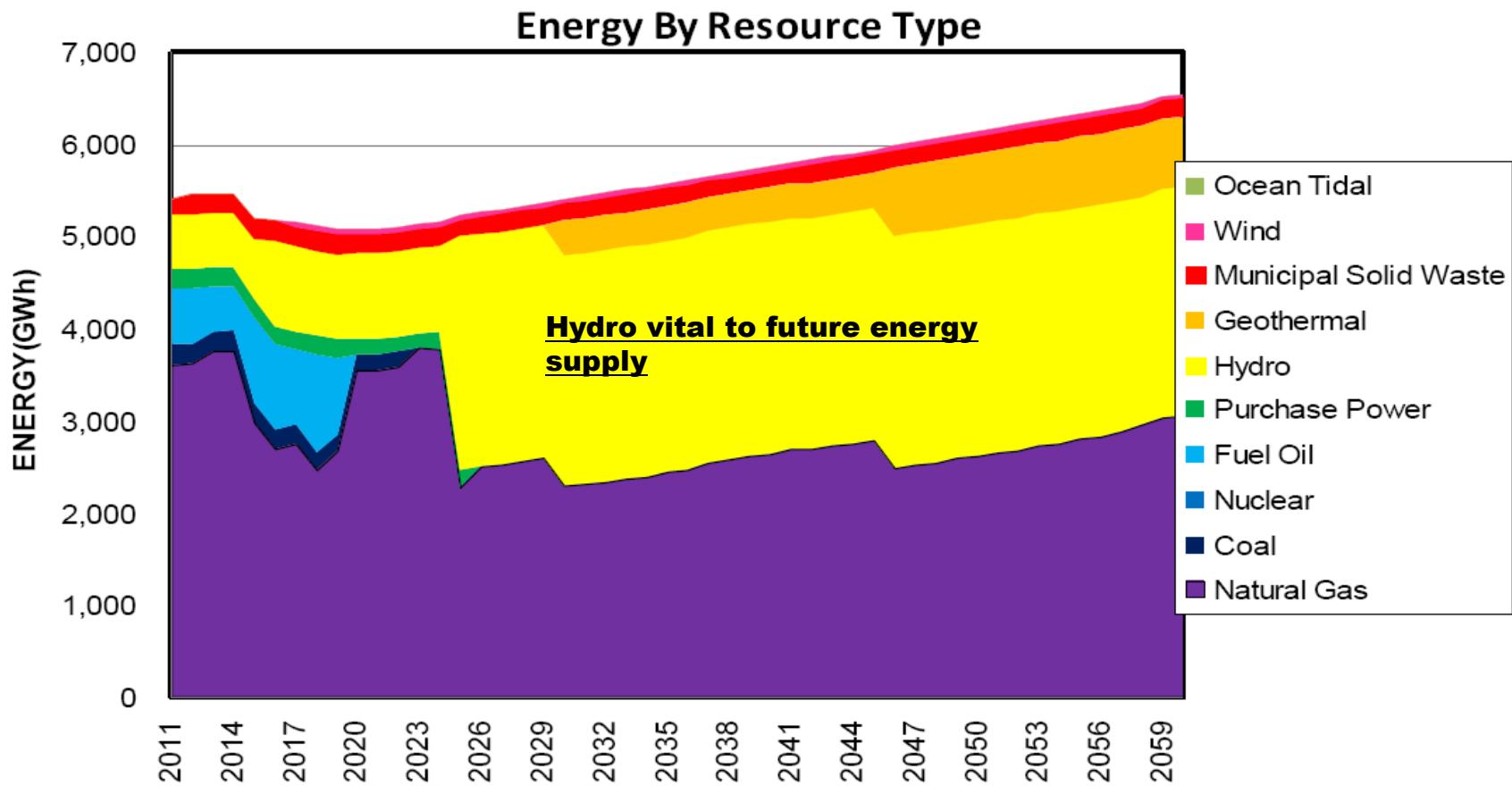
Susitna Recent History

- **Concerns about declining availability of natural gas and aging infrastructure**
- **2008 - \$2.5M Appropriation to re-evaluate Susitna Project**
- **2010 – Railbelt Integrated Resource Plan**
- **2010 – HB 306 State goal of 50% Renewable by 2025**
- **2011 – HB103 Proposed Reestablishment of AEA ability to own new projects & use of old Railbelt Energy Fund**

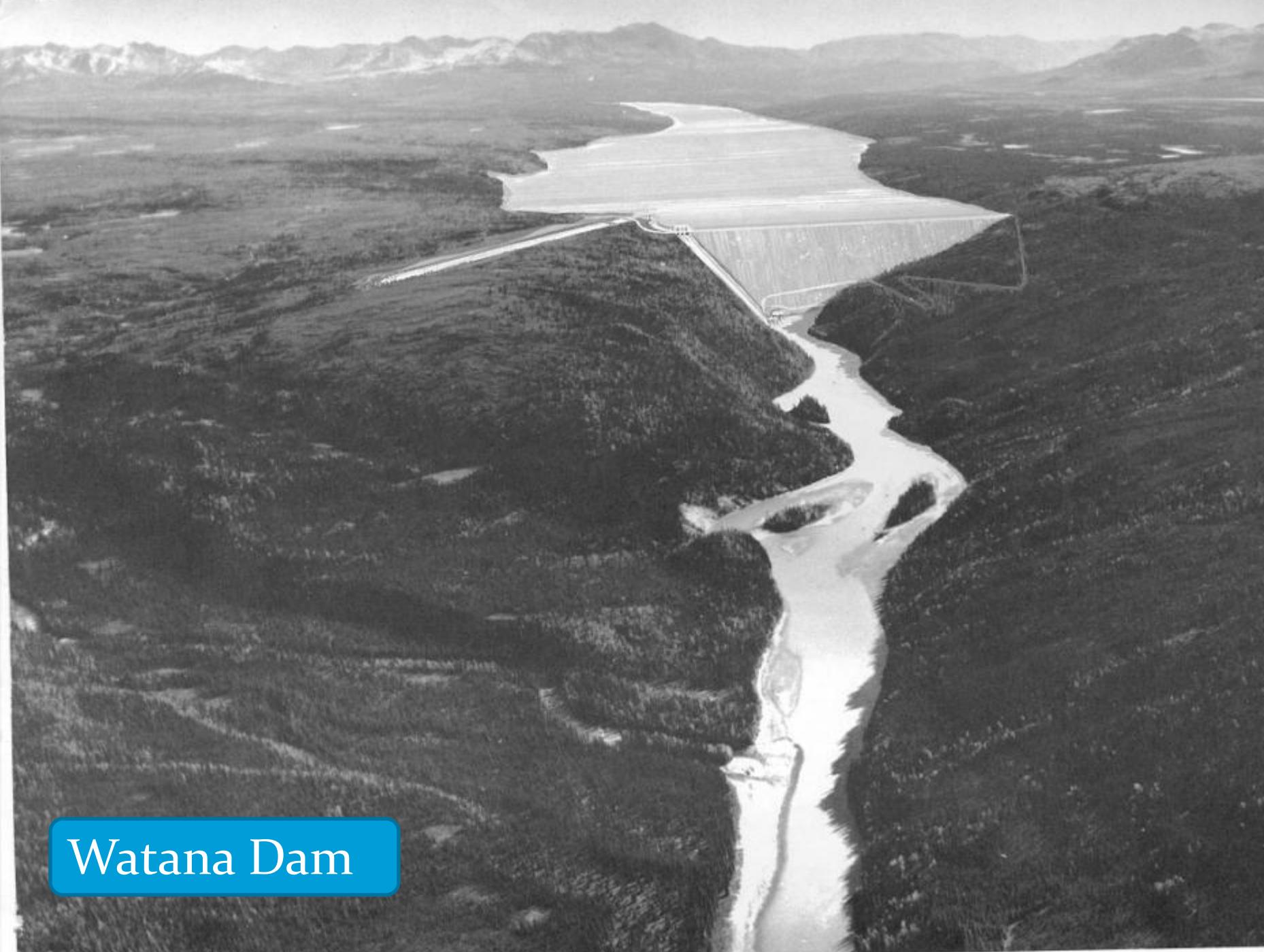
Susitna Project Comparison

Current Susitna	1980's Susitna
Dam at Watana (700')	Embankment dam at Watana (885') and Concrete arch dam Devil Canyon (646')
Annual Energy about 50% of Railbelt	Annual Energy greater than existing Railbelt
Natural gas quickly increasing in cost	Natural gas low cost & abundant
Replaces aging generation facilities	New generation

Railbelt Energy Needs:



B&V RIRP
2009



Watana Dam

Bradley Lake Hydro Development



**A model for successful
planning, financing,
design and construction**

Bradley Lake Hydro Development Process

- FERC License issued Dec. 31, 1985
- Construction financing obtained in 1985
- Construction started in 1987
- Commercial operation Sept. 1991
- Power Plant Capacity 120 MW
- Project has a concrete faced embankment dam, a power tunnel, power plant and two 20-mile long, 115-kV transmission lines
- Power purchasers include:
 - Chugach Electric Assn
 - Municipality of Anchorage
 - AEG&TC (Homer and Matanuska)
 - GVEA
 - City of Seward

Bradley Lake Hydro Financing Model

- **Total Capital Cost = \$357 million**
- **High interest rate environment (6.1% to 7.25%)**
- **Construction financed by short term Variable Rate Demand Bonds**
- **Long-term financing with 50% Revenue Bonds and 50% State Appropriations**
- **Power sale agreement required payments for beyond the Bond Repayment Period to repay State Appropriation.**