

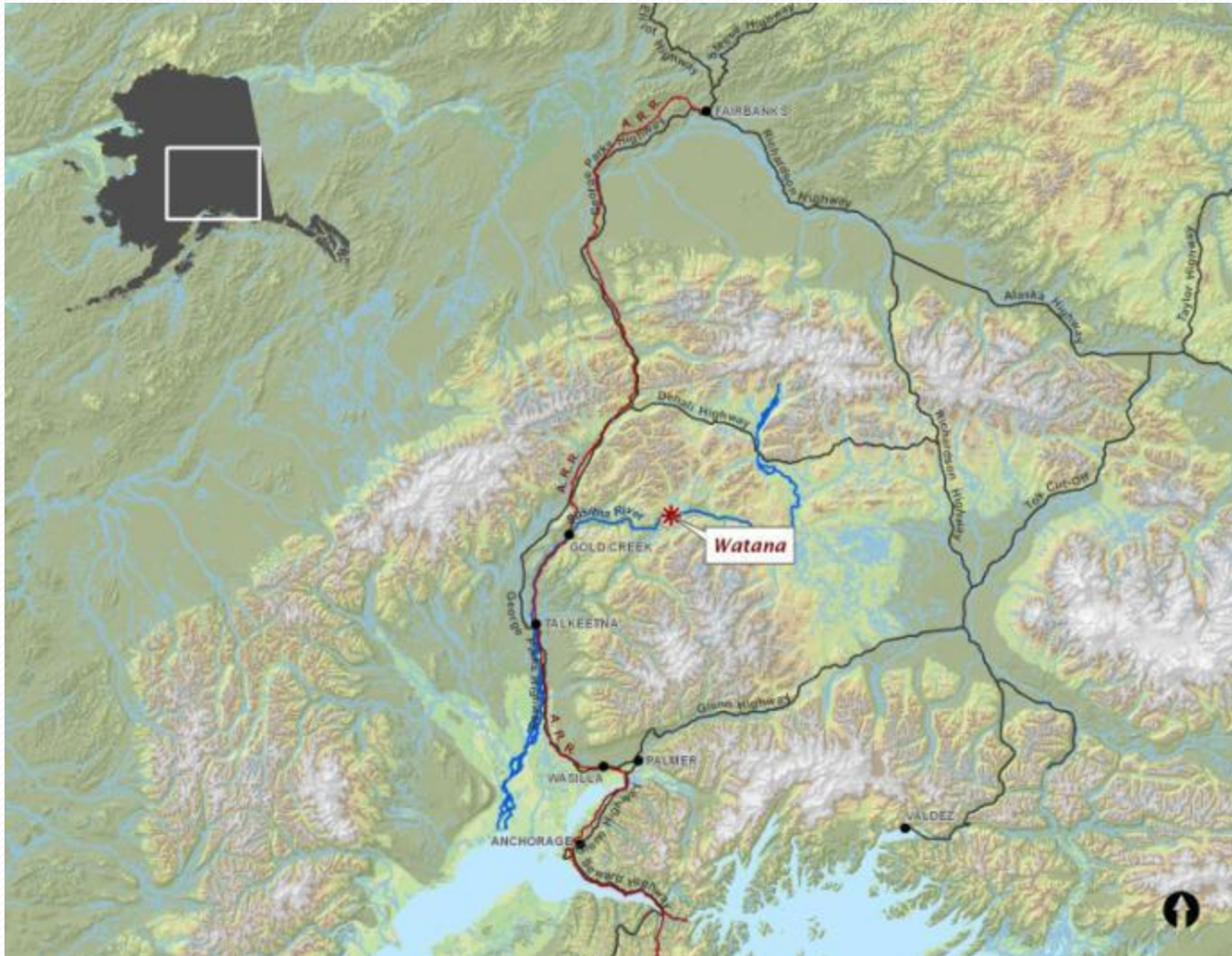
Railbelt Large Hydroelectric

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

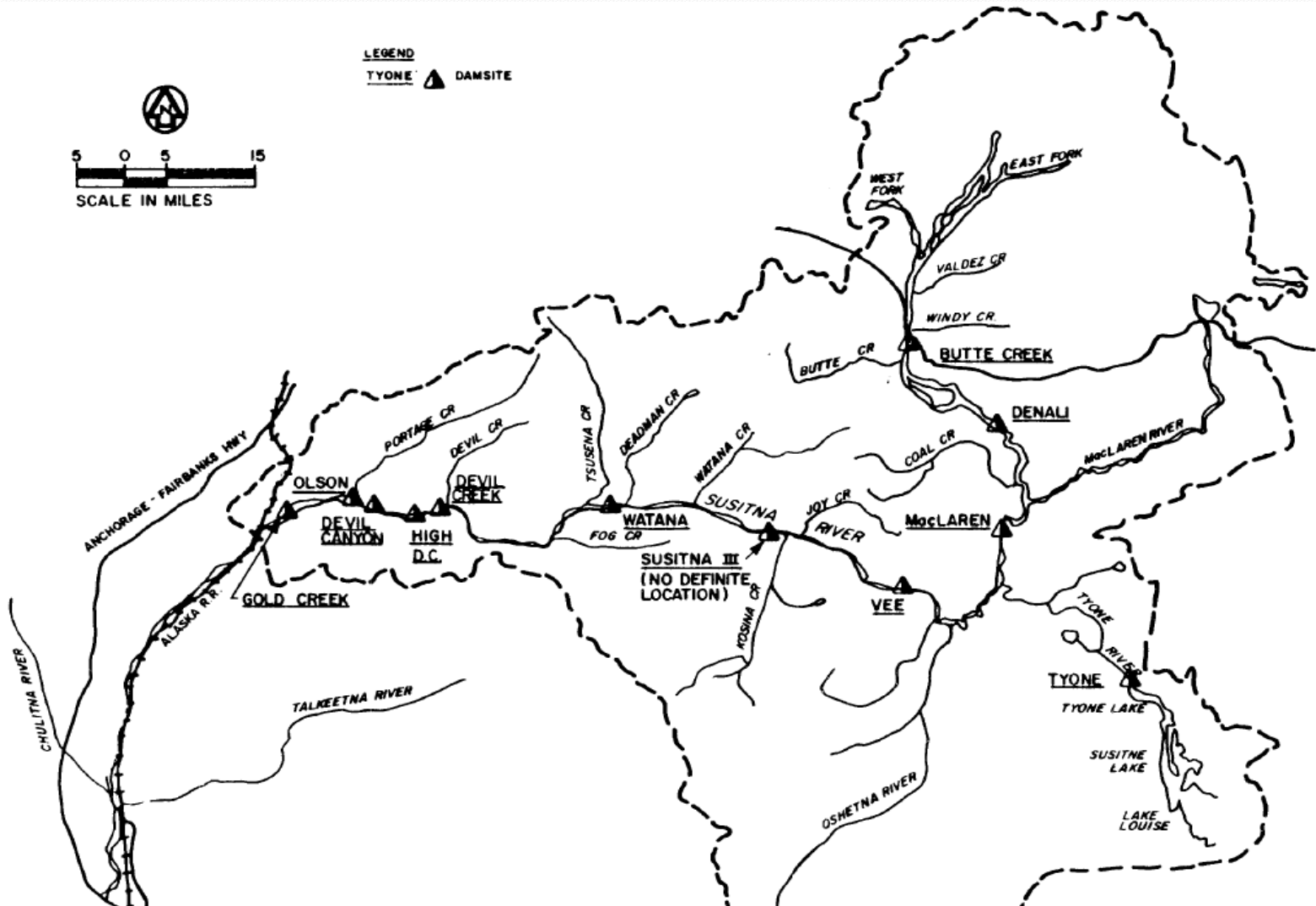
Prepared by Alaska Energy Authority 2/16/2011



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?)**

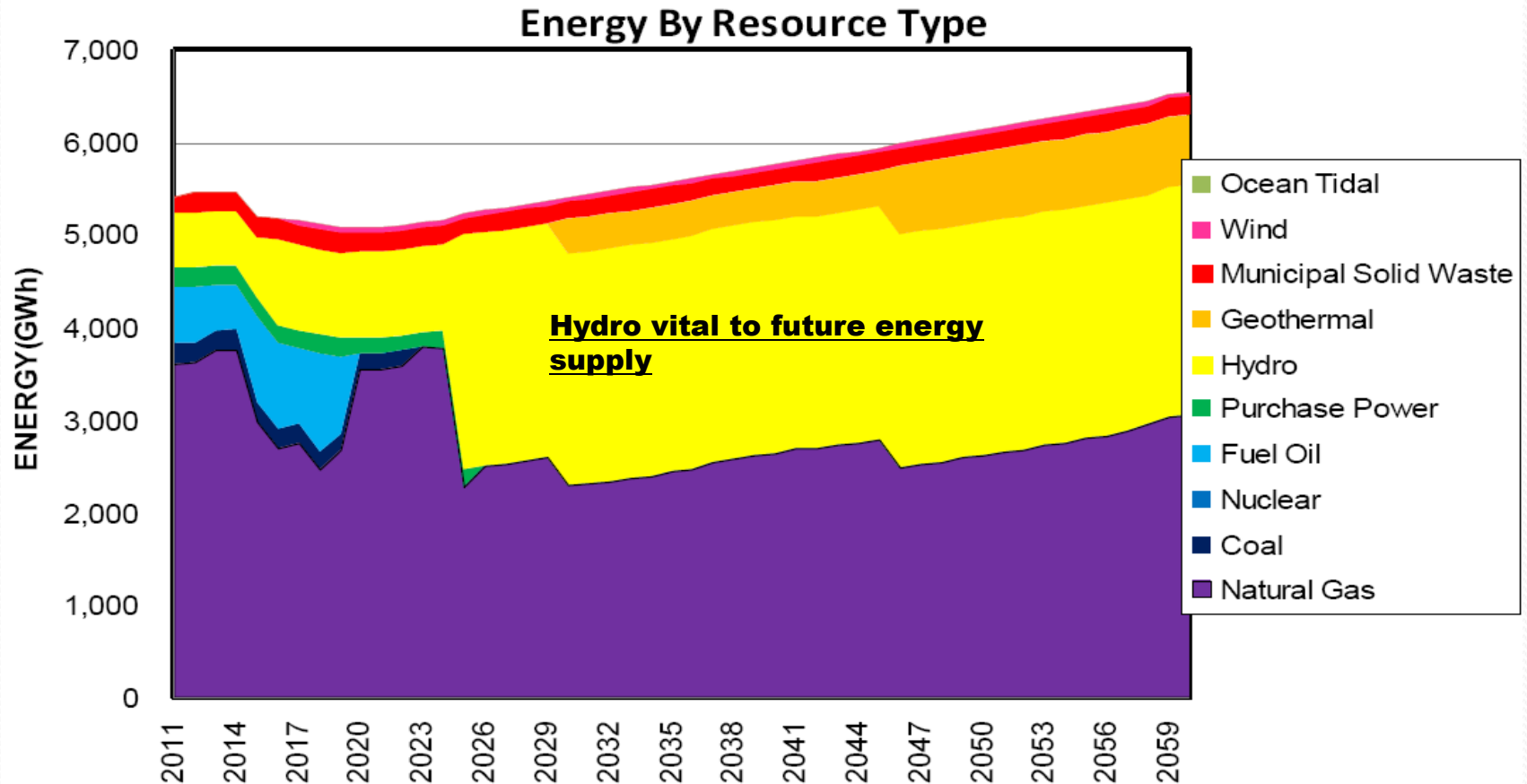
Susitna Recent History

- **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**

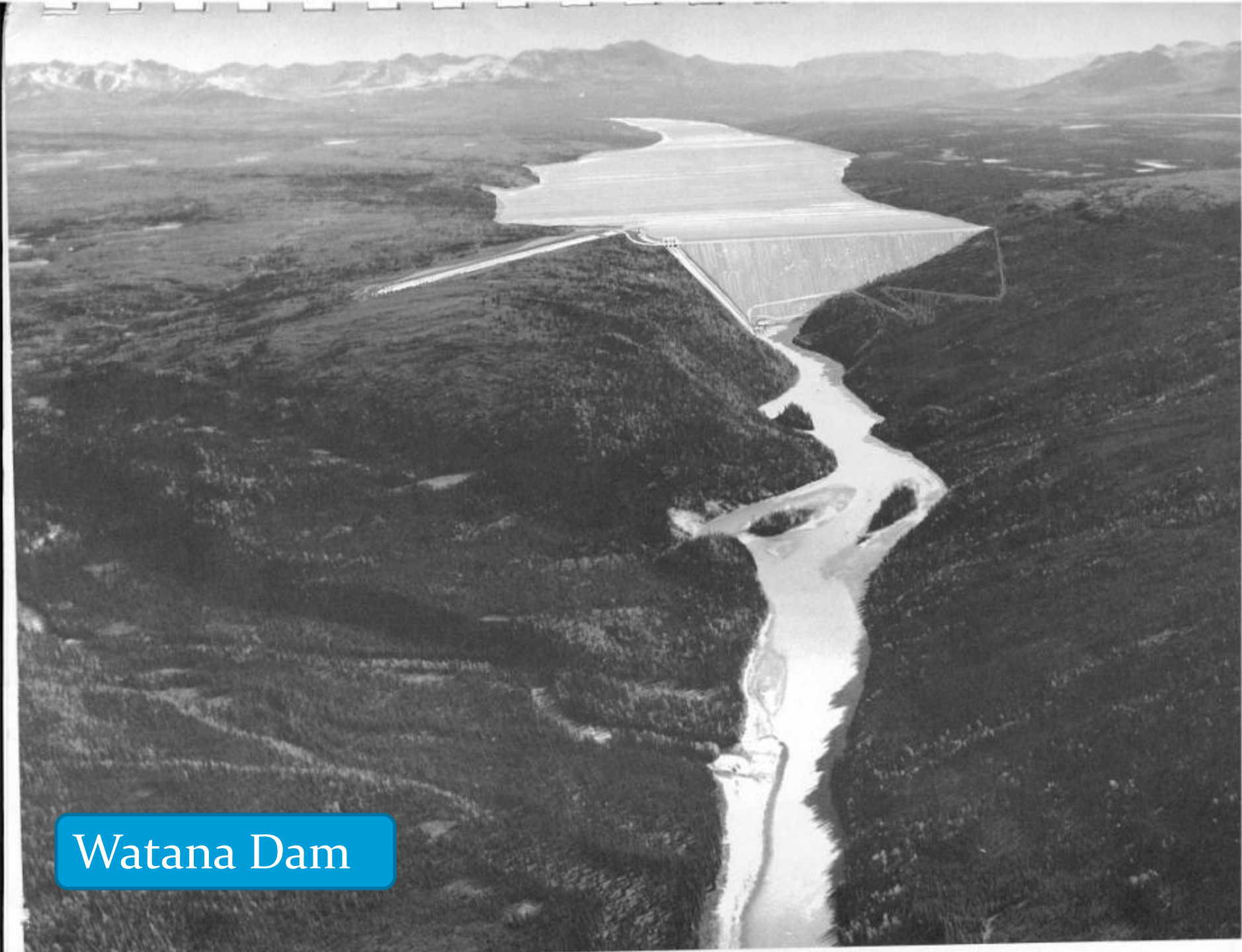
Susitna Project Comparison

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.**