Susitna-Watana Hydroelectric Project Document
ARLIS Uniform Cover Page

Title: Alaska Railbelt regional integrated resource plan (RIRP) : draft report presentation	**SuWa 184**
Author(s) – Personal:	
Author(s) – Corporate: Black & Veatch	
AEA-identified category, if specified:	
AEA-identified series, if specified:	
Series (ARLIS-assigned report number): Susitna-Watana Hydroelectric Project document number 184	**Existing numbers on document:**
Published by: [Overland Park, Kan. : Black & Veatch, 2009]	**Date published:** December 10, 2009
Published for:	**Date or date range of report:**
Volume and/or Part numbers:	**Final or Draft status, as indicated:** Draft
Document type: Slide presentation. No commentary.	**Pagination:** 88 p.
Related work(s):	**Pages added/changed by ARLIS:**
Notes:	

All reports in the Susitna-Watana Hydroelectric Project Document series include an ARLIS-produced cover page and an ARLIS-assigned number for uniformity and citability. All reports are posted online at http://www.arlis.org/resources/susitna-watana/

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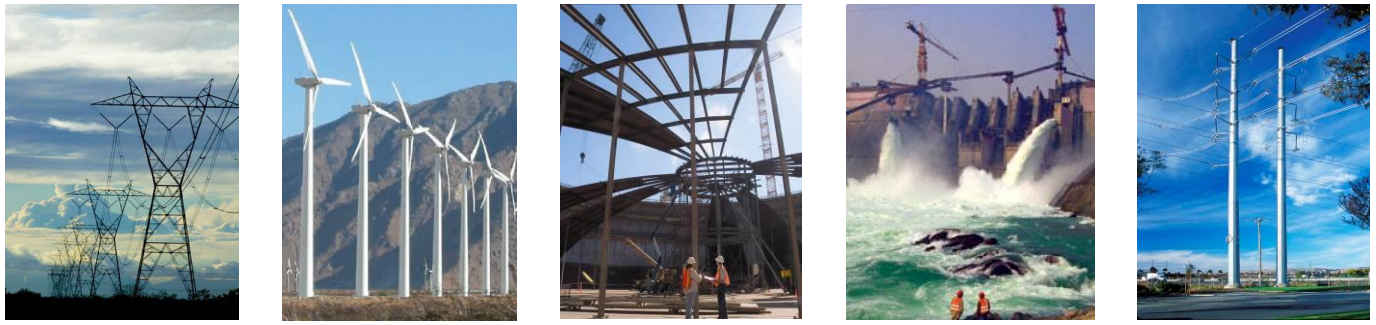


Alaska Railbelt

Regional Integrated Resource Plan (RIRP)

Draft Report Presentation

December 10, 2009

Agenda

- Introductory Comments and Introductions
- Project Overview/Executive Summary
- Situational Assessment
- Methodology Considerations
- Key Assumptions
- Susitna Analysis
- Summary of Results
- Financial Analysis
- Risks and Uncertainties
- Implementation Action Plan (2010-2012)
- Questions and Answers
- Concluding Comments

Consultant Team

- Black & Veatch – Prime
- HDR, Inc. – Susitna Analysis
- EPS, Inc. – Transmission Stability Analysis
- Seattle-Northwest Securities – Financial Analysis

Advisory Working Group Members

- **Norman Rokeberg**, Retired State of Alaska Representative, Chairman
- **Chris Rose**, Renewable Energy Alaska Project
- **Brad Janorschke**, Homer Electric Association
- **Carri Lockhart**, Marathon Oil Company
- **Colleen Starring**, Enstar Natural Gas Company
- **Debra Schnebel**, Scott Balice Strategies
- **Jan Wilson**, Regulatory Commission of Alaska
- **Jim Sykes**, Alaska Public Interest Group
- **Lois Lester**, AARP
- **Marilyn Leland**, Alaska Power Association
- **Mark Foster**, Mark A. Foster & Associates
- **Nick Goodman**, TDX Power, Inc.
- **Pat Lavin**, National Wildlife Federation - Alaska
- **Steve Denton**, Usibelli Coal Mine, Inc.
- **Tony Izzo**, TMI Consulting

Project Overview / Executive Summary

Some Definitions

- **REGA** means “Railbelt Electrical Grid Authority”
- **GRETC** means “Greater Railbelt Energy & Transmission Company”
- **RIRP** means “Railbelt Integrated Resource Plan”

Three Discrete Tasks

- **REGA** study determined the business structure for future Railbelt G&T
- **GRETC** initiative is the joint effort between Railbelt Utilities and AEA to unify Railbelt G&T
- **RIRP** is the economic plan for future capital investment in G&T and in fuel portfolios that GRETC would build, own and operate

What is an RIRP?

Current Situation

- Limited redundancy
- Limited economies of scale
- Dependence on fossil fuels
- Limited Cook Inlet gas deliverability and storage
- Aging G&T infrastructure
- Inefficient fuel use
- Difficult financing
- Duplicative G&T expertise

RIRP Study

- Plan that economically schedules what, when, and where to build, based on available fuel and energy supplies
- 50-year time horizon
- Competes generation, transmission, fuel supply and DSM/energy efficiency options
- Includes CO_2 regulation
- Includes renewable energy projects
- Arrives at a plan to build future infrastructure for minimum long-run cost to ratepayers
- Considers fuel supply options and risks

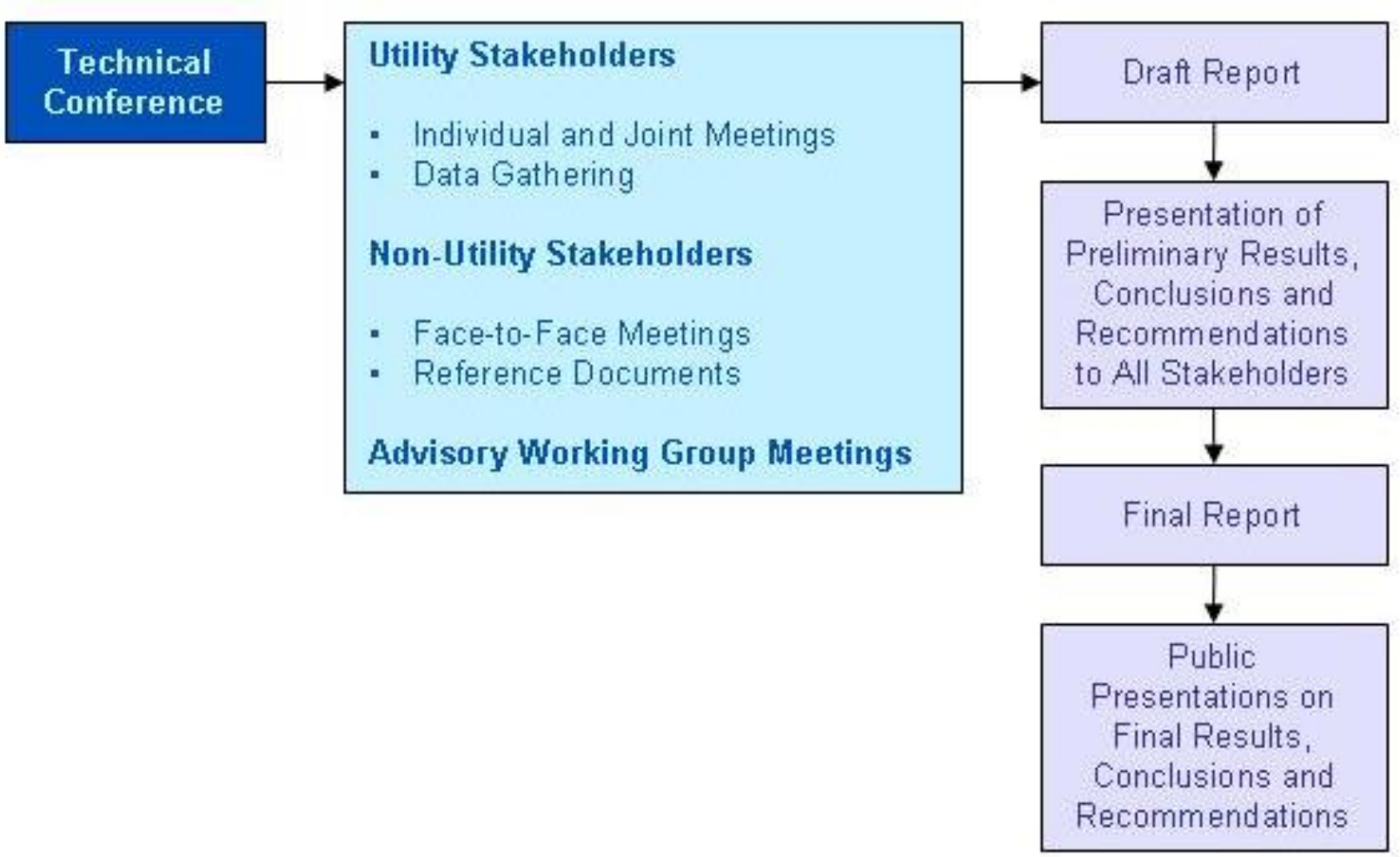
Limitations of RIRP

- Does not set State energy policy
- Directional
- Identified/generic/actual projects
- Agnostic to owner/developer of projects

GRETC Vision

- A statutory company
- Privately owned not-for-profit company with public responsibilities defined in law
- Own and operate Railbelt power generators and transmission lines
- Build infrastructure specified in the RIRP
- Significant financial muscle to shoulder long-term debt
- Make use of State and federal financial underwriting
- To benefit all Railbelt ratepayers equally
- Regulated by RCA under tailored regulations or non-jurisdictional with strong bond covenants

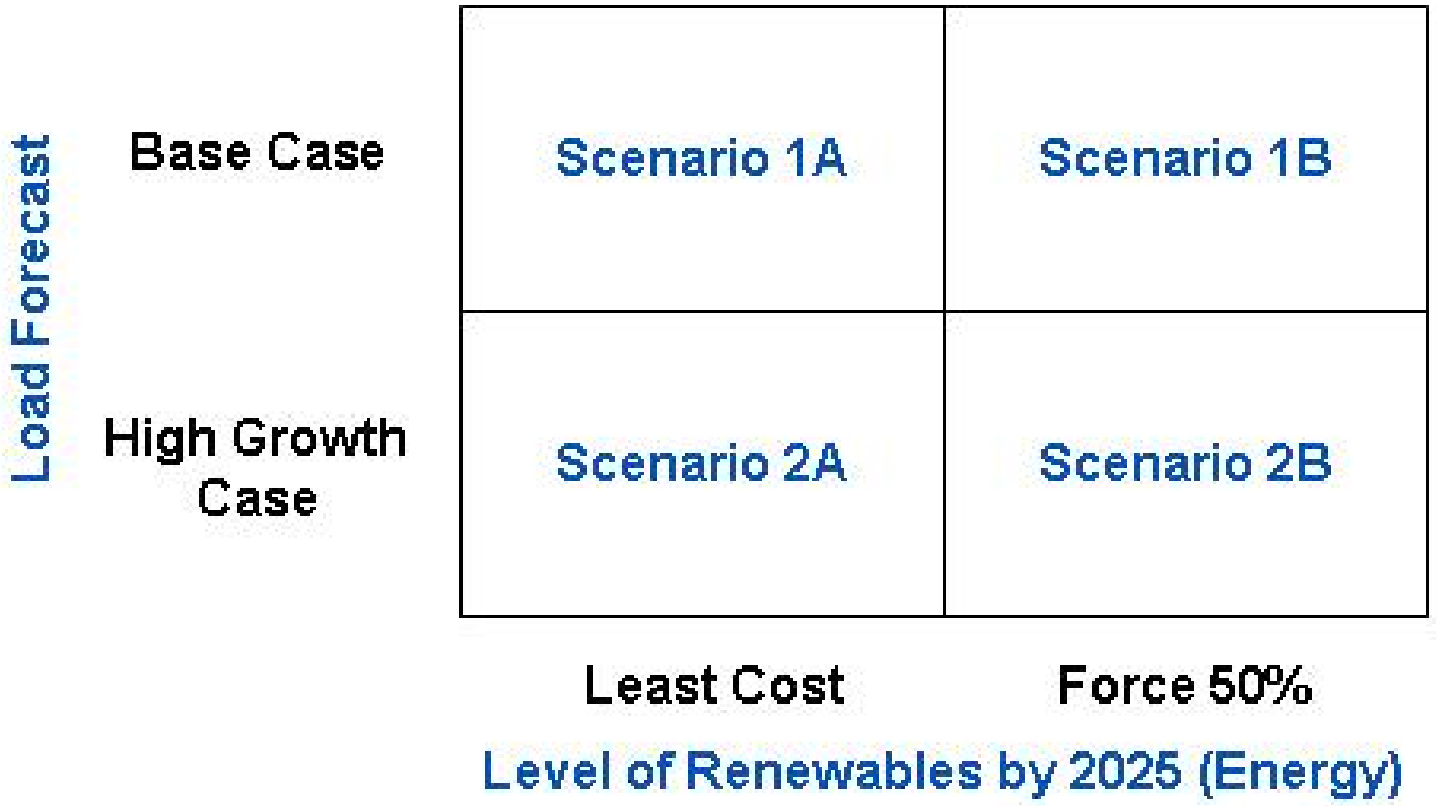
Stakeholder Involvement Process



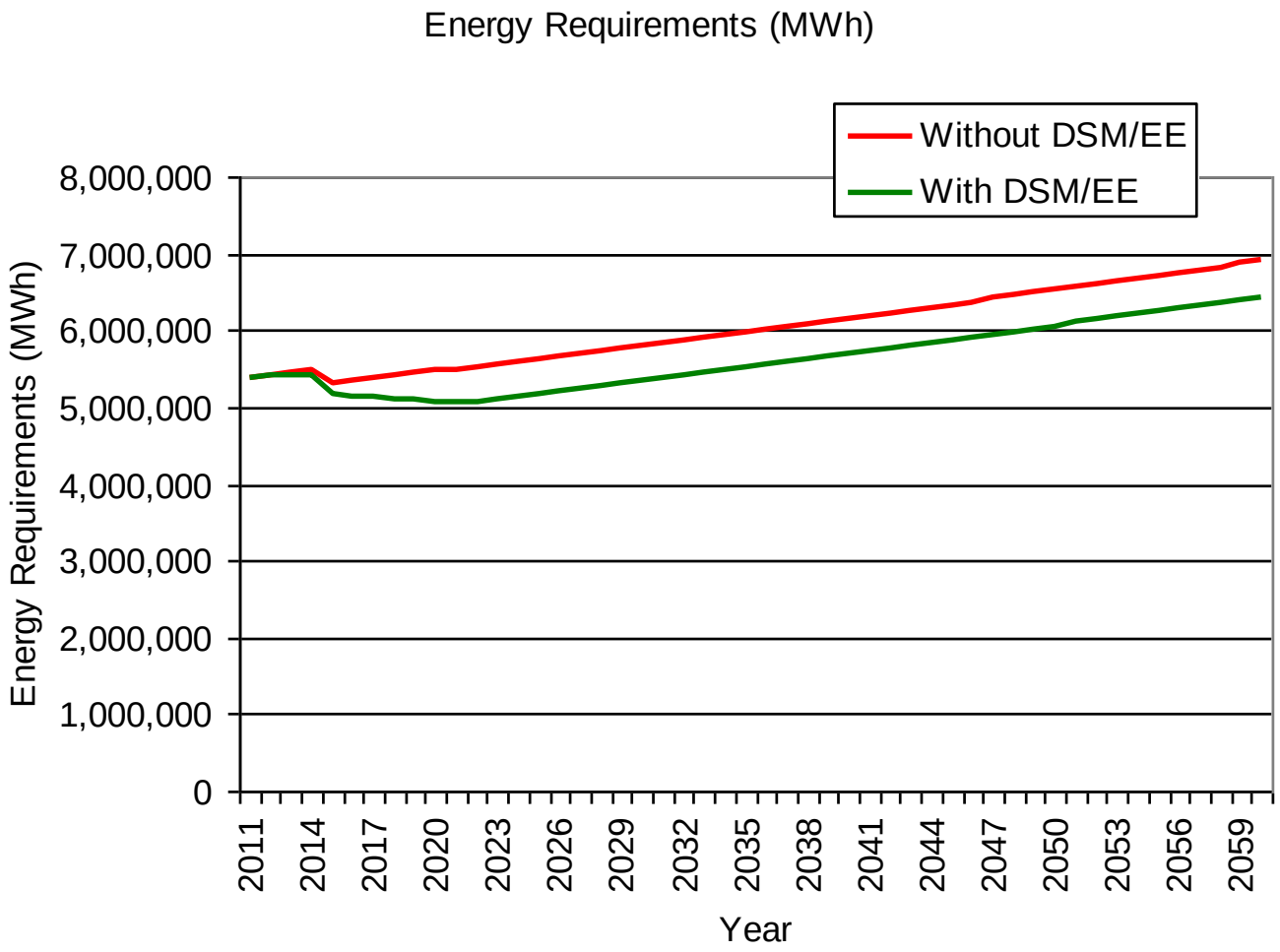
Key Drivers

- Resource-specific risks
- Gas availability and price
- Acceptability of large hydro and other renewables
- Potential CO_2 costs
- Limited transmission network
- Required financing
- Regional vs. individual utility focus

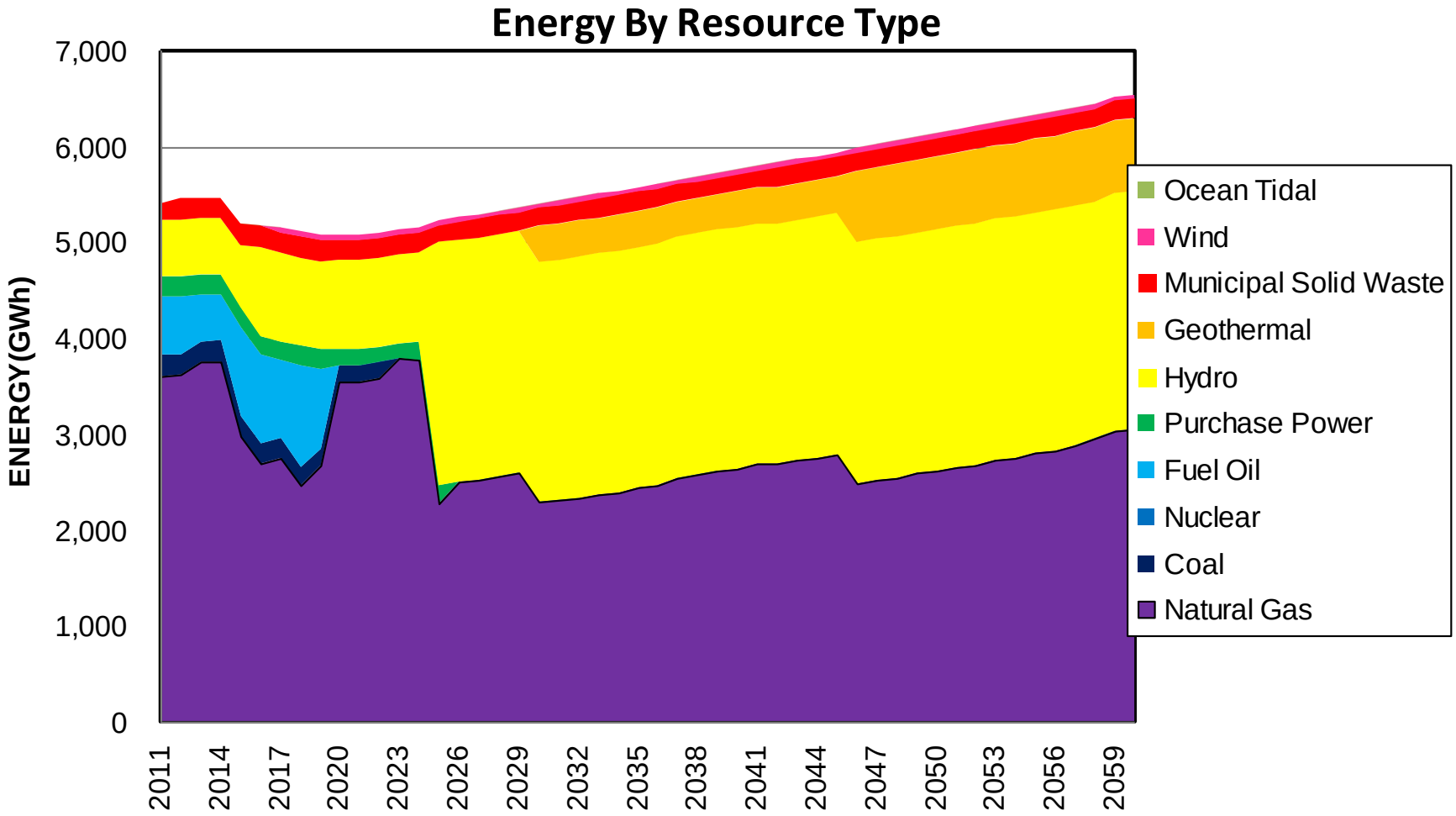
Evaluation Scenarios



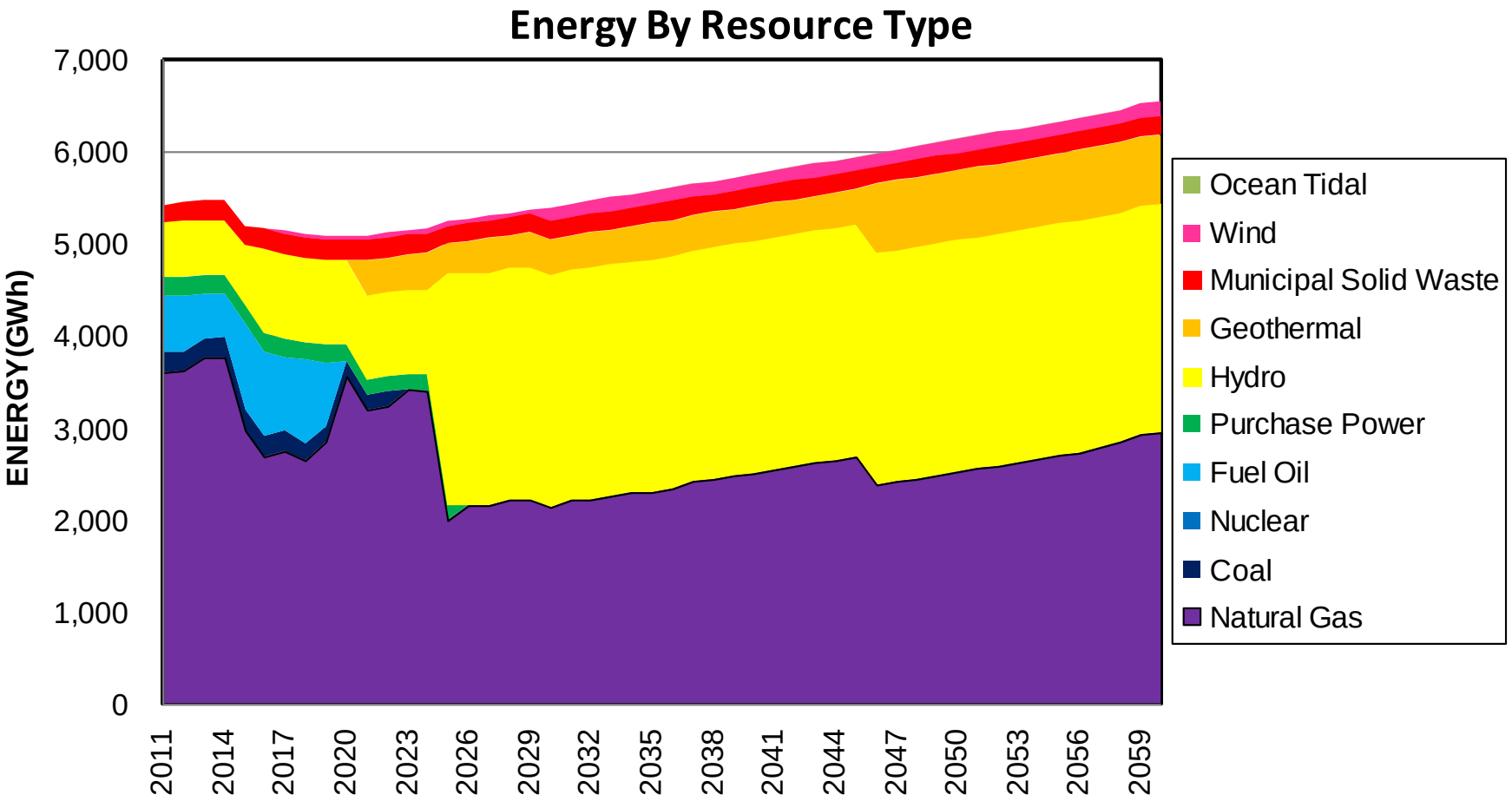
Results – DSM/EE Resources



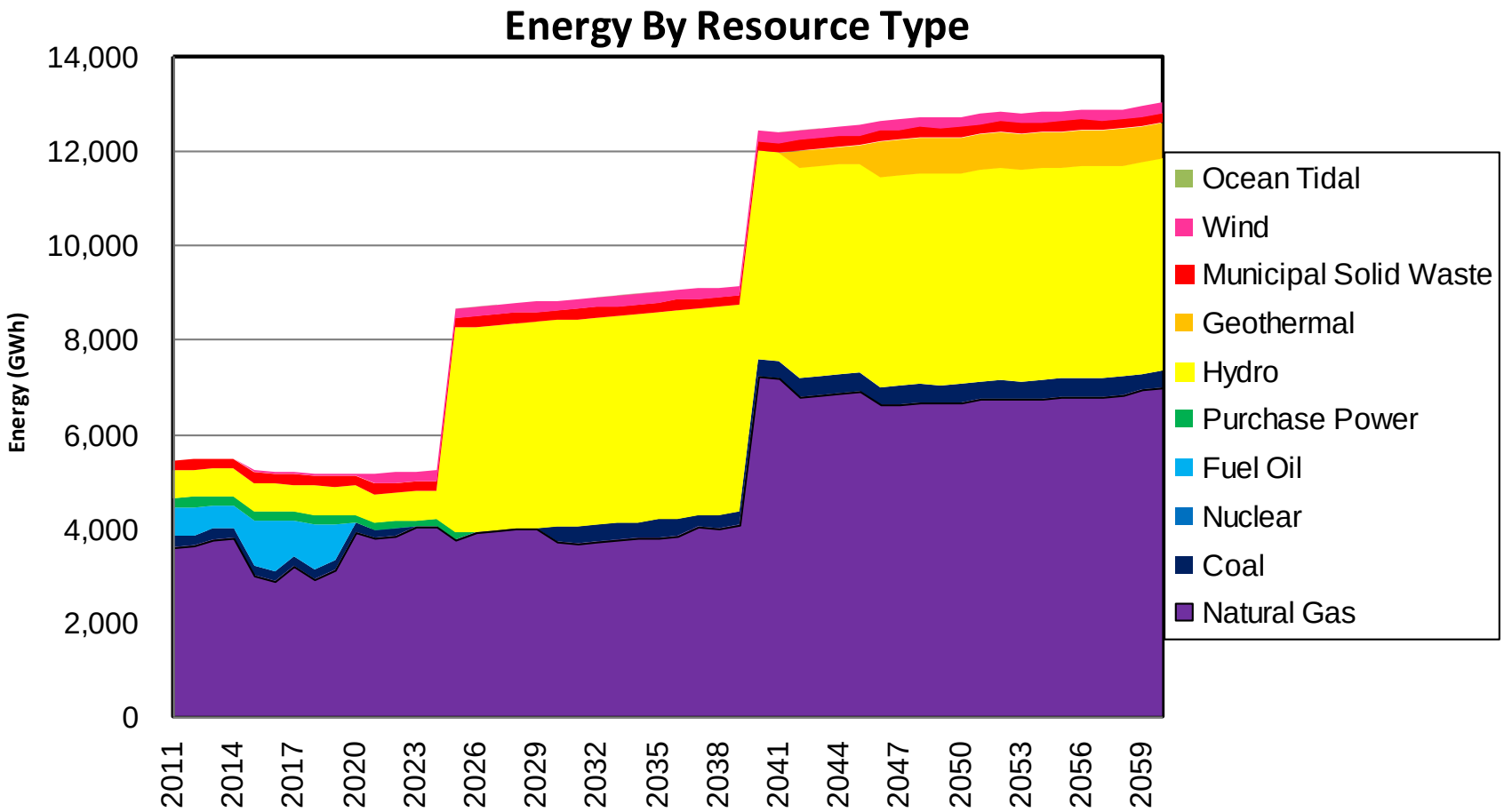
Results – Scenario 1A



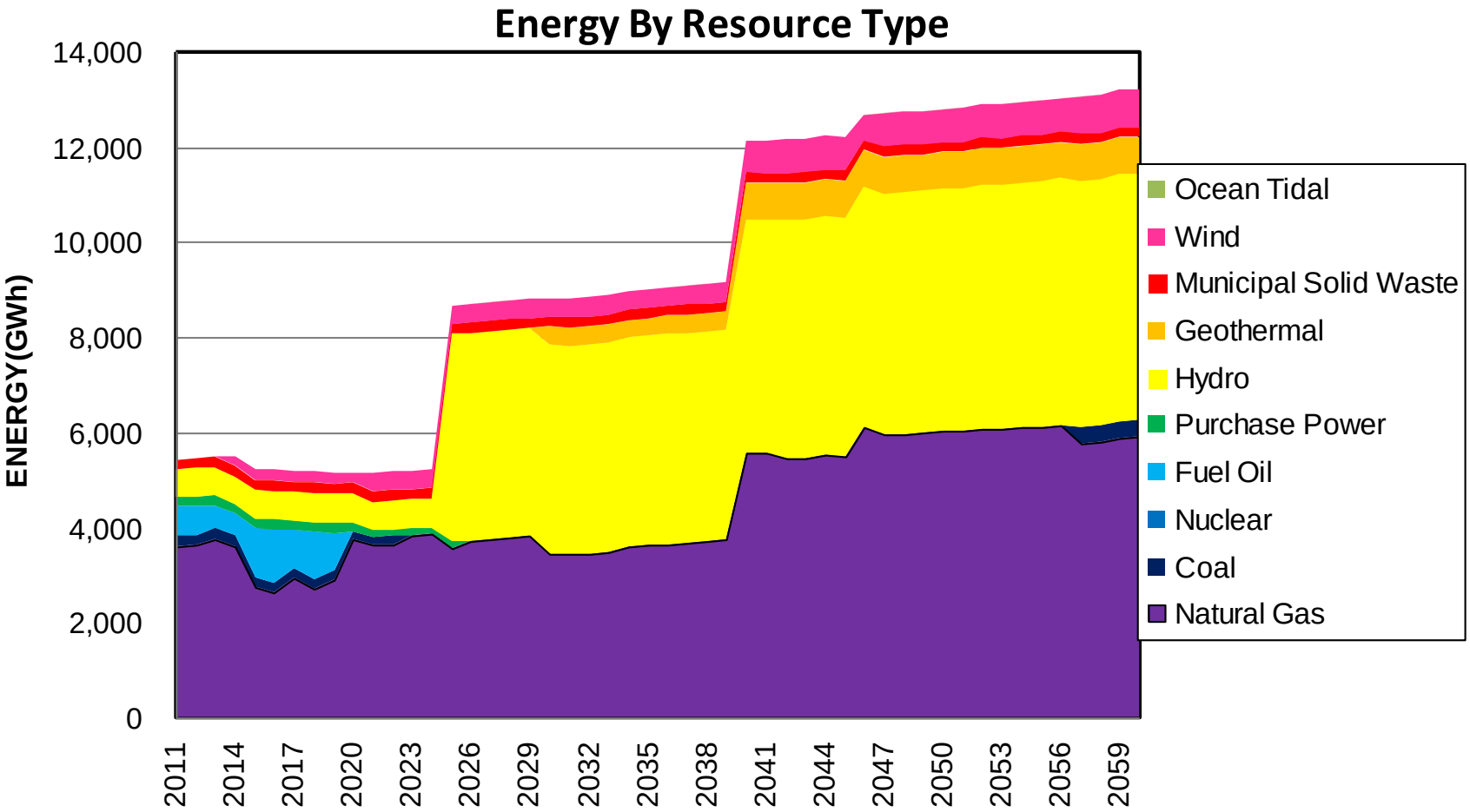
Results – Scenario 1B



Results – Scenario 2A



Results – Scenario 2B



Sensitivity Cases

- Scenario 1A Without DSM/EE Measures
- Scenario 1A With Committed Units Included
- Scenario 1A Without CO_2 Costs
- Scenario 1A With Higher Gas Prices
- Scenario 1A With Fire Island
- Scenario 1A Without Chakachamna
- Scenario 1A With Chakachamna Capital Costs Increased by 75%
- Scenario 1A With Susitna (Lower Low Watana Non-Expandable Option) Forced
- Scenario 1A With Susitna (Low Watana Non-Expandable Option) Forced
- Scenario 1A With Susitna (Low Watana Expandable Option) Forced
- Scenario 1A With Susitna (Watana Expansion Option) Forced
- Scenario 1A With Susitna (Watana Option) Forced
- Scenario 1A With Susitna (High Devil Canyon Option) Forced
- Scenario 1A With Modular Nuclear
- Scenario 1A With Tidal

Results – Economics

Case	Cumulative Present Value Cost ($000,000)	Average Cost (¢ per kWh)	Renewable Energy in 2025 (%)	Total Capital Investment ($000,000)
Scenarios				
Plan 1A	$12,925	4.60	49.17%	$10,035
Plan 1B	$12,916	4.59	54.78%	$10,014
Plan 2A	$20,978	4.29	53.57%	$18,226
Plan 2B	$21,507	4.40	55.55%	$22,175
Sensitivities				
1A Without DSM/EE Measures	$13,262	4.40	51.10%	$9,791
1A With Committed Units Included	$13,863	4.93	32.03%	$9,592
1A Without CO_2 Costs	$10,402	3.70	14.36%	$8,685
1A With Higher Gas Prices	$14,945	5.31	61.94%	$9,798
1A With Fire Island	$12,965	4.61	54.78%	$10,502
1A Without Chakachamna	$13,273	4.72	22.80%	$9,179
1A With Chakachamna Capital Costs Increased by 75%	$13,273	4.72	22.80%	$9,179
1A With Susitna (Lower Low Watana Non-Expandable Option) Forced	$15,209	5.41	54.70%	$13,166
1A With Susitna (Low Watana Non-Expandable Option) Forced	$14,898	5.30	60.18%	$14,742
1A With Susitna (Low Watana Expandable Option) Forced	$15,437	5.49	60.18%	$15,274
1A With Susitna (Low Watana Expansion Option) Forced	$15,943	5.67	61.58%	$15,902
1A With Susitna (Watana Option) Forced	$16,281	5.79	61.82%	$16,049
1A With Susitna (High Devil Canyon Option) Forced	$16,238	5.77	61.82%	$16,016
1A With Modular Nuclear	$12,591	4.48	49.05%	$9,864
1A With Tidal	$12,198	4.34	59.10%	$10,052

Results – Emissions

Case	CO_2 (million tons)	NO_x (million tons)	SO_2 (million tons)
Scenarios			
Plan 1A	176,205	222	36
Plan 1B	169,440	216	33
Plan 2A	287,321	281	240
Plan 2B	250,460	245	75
Sensitivities			
1A Without DSM/EE Measures	181,208	242	242
1A With Committed Units Included	219,645	351	273
1A Without CO_2 Costs	222,614	295	383
1A With Higher Gas Prices	166,406	248	268
1A With Fire Island	166,934	223	39
1A Without Chakachamna	219,110	223	35
1A With Chakachamna Capital Costs Increased by 75%	219,110	223	35
1A With Susitna (Lower Low Watana Non-Expandable Option) Forced	158,703	210	35
1A With Susitna (Low Watana Non-Expandable Option) Forced	127,589	207	38
1A With Susitna (Low Watana Expandable Option) Forced	127,589	207	38
1A With Susitna (Low Watana Expansion Option) Forced	140,912	208	38
1A With Susitna (Watana Option) Forced	138,140	209	39
1A With Susitna (High Devil Canyon Option) Forced	134,780	208	39
1A With Modular Nuclear	162,858	224	37
1A With Tidal	153,908	213	33

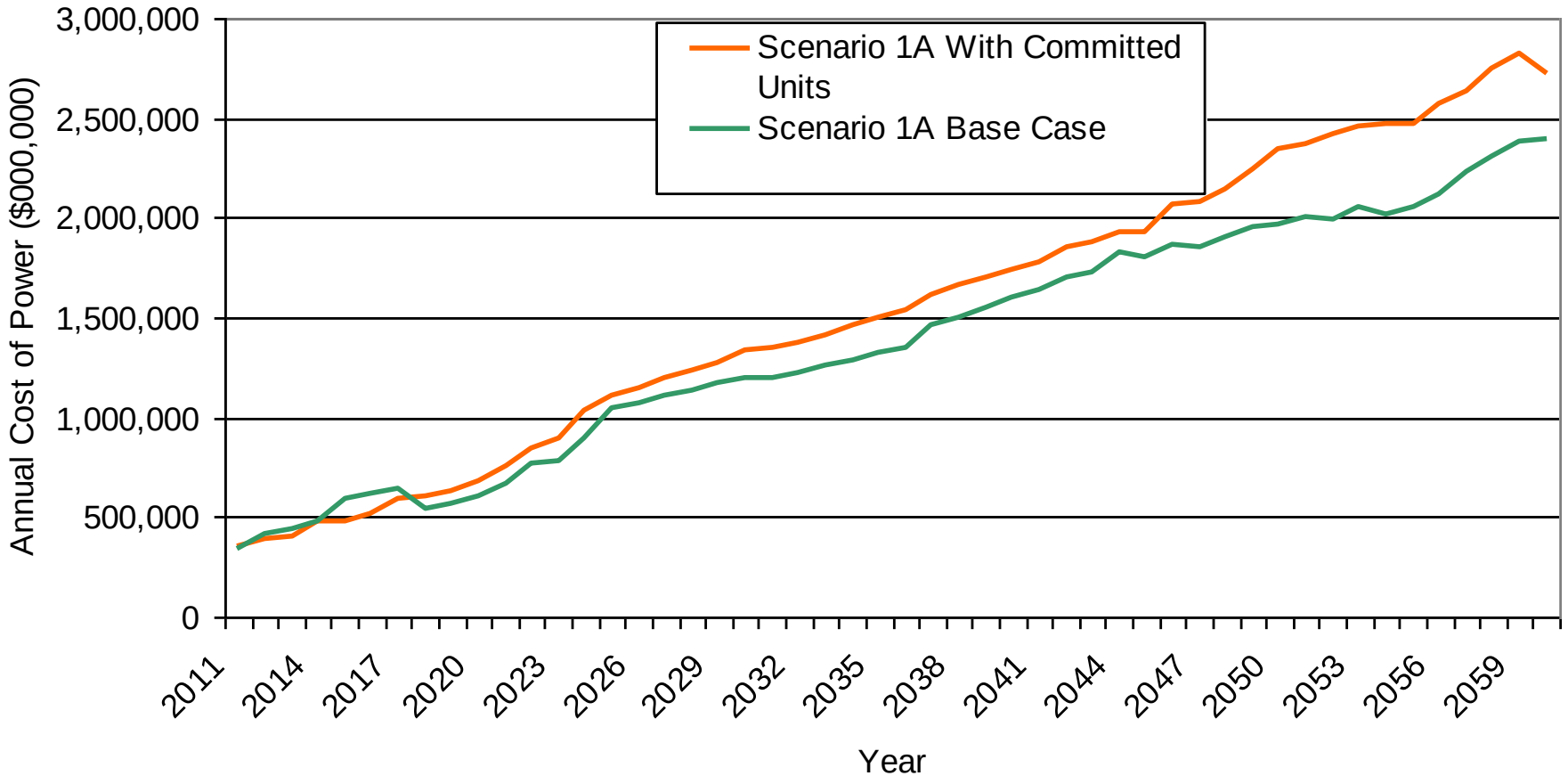
Conclusions – Preferred Resource Plan

- DSM/EE Programs (2011)
- Anchorage and GVEA MSW (2012)
- Fire Island Wind (2012)
- Southcentral Power Plant (2013)
- Glacier Fork Hydro (2015)
- Nikiski Wind (2017)
- Anchorage Simple Cycle Turbine (2018)
- GVEA Combined Cycle (2020)
- Parallel pursuit of Chakachamna/Susitna/Glacier Fork
- Multiple transmission projects

Conclusions – Other

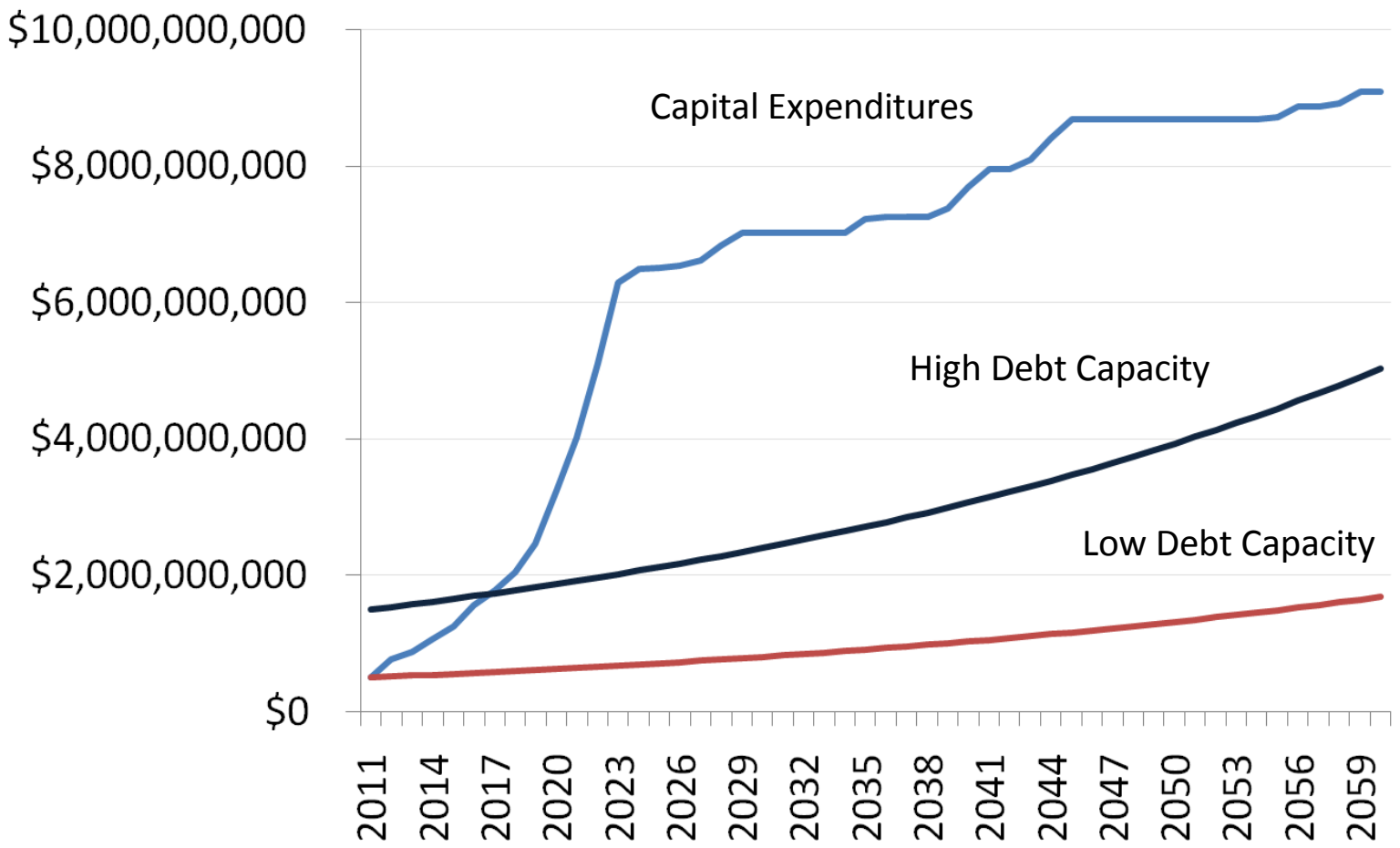
- Regional resource plan – historical cross-road
- Increased reliance on DSM/EE and renewables
- Robust transmission network
- Need for frequency regulation
- Spreading of risks
- Foundation for economic development
- Cost of renewables future if large hydro is not development
- Larger loads = lower unit costs

Conclusions – Regional or Individual Utility Future

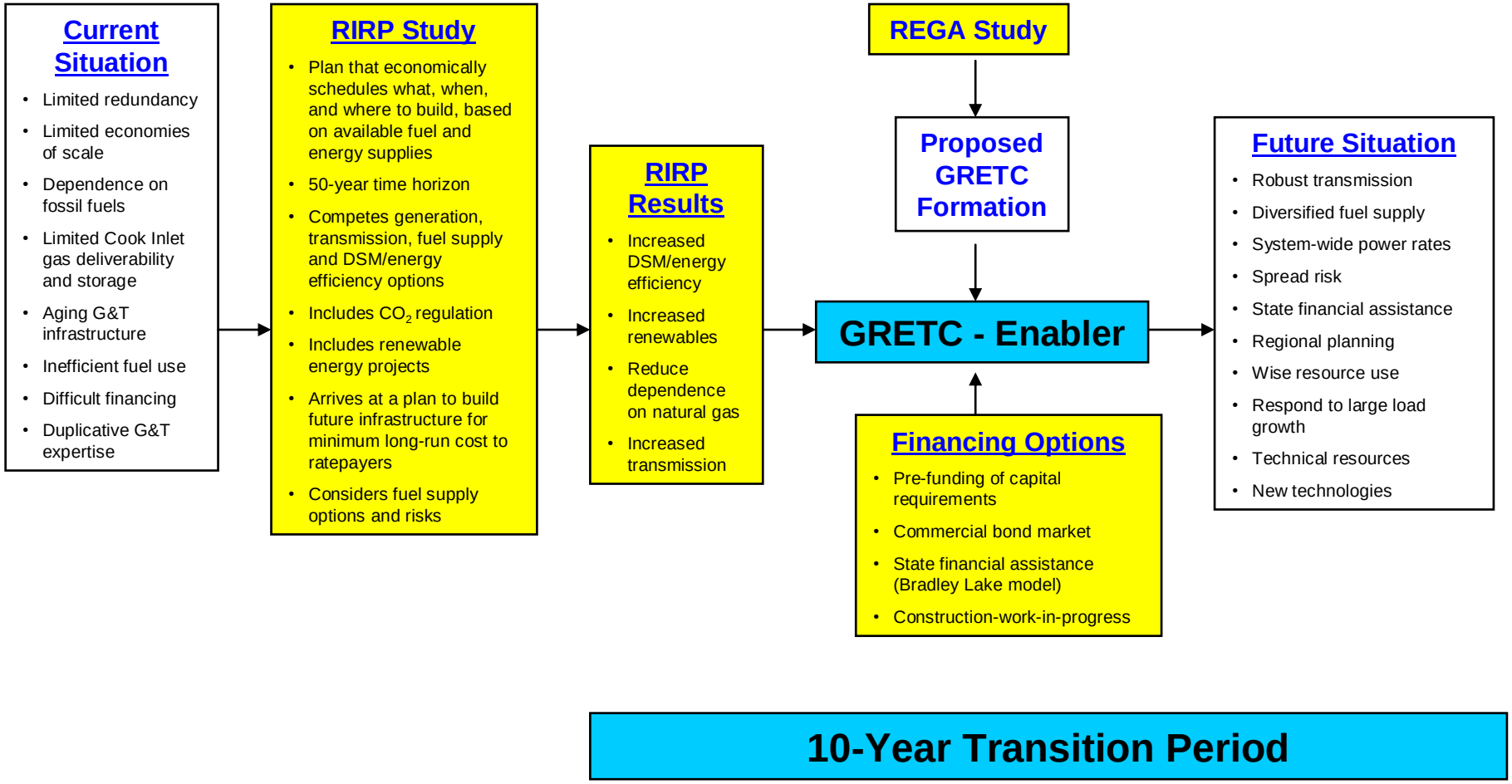


Conclusions – Financing the Future

RIRP Plan 1A Capital Expenditures and Debt Capacity of the Railbelt Utilities



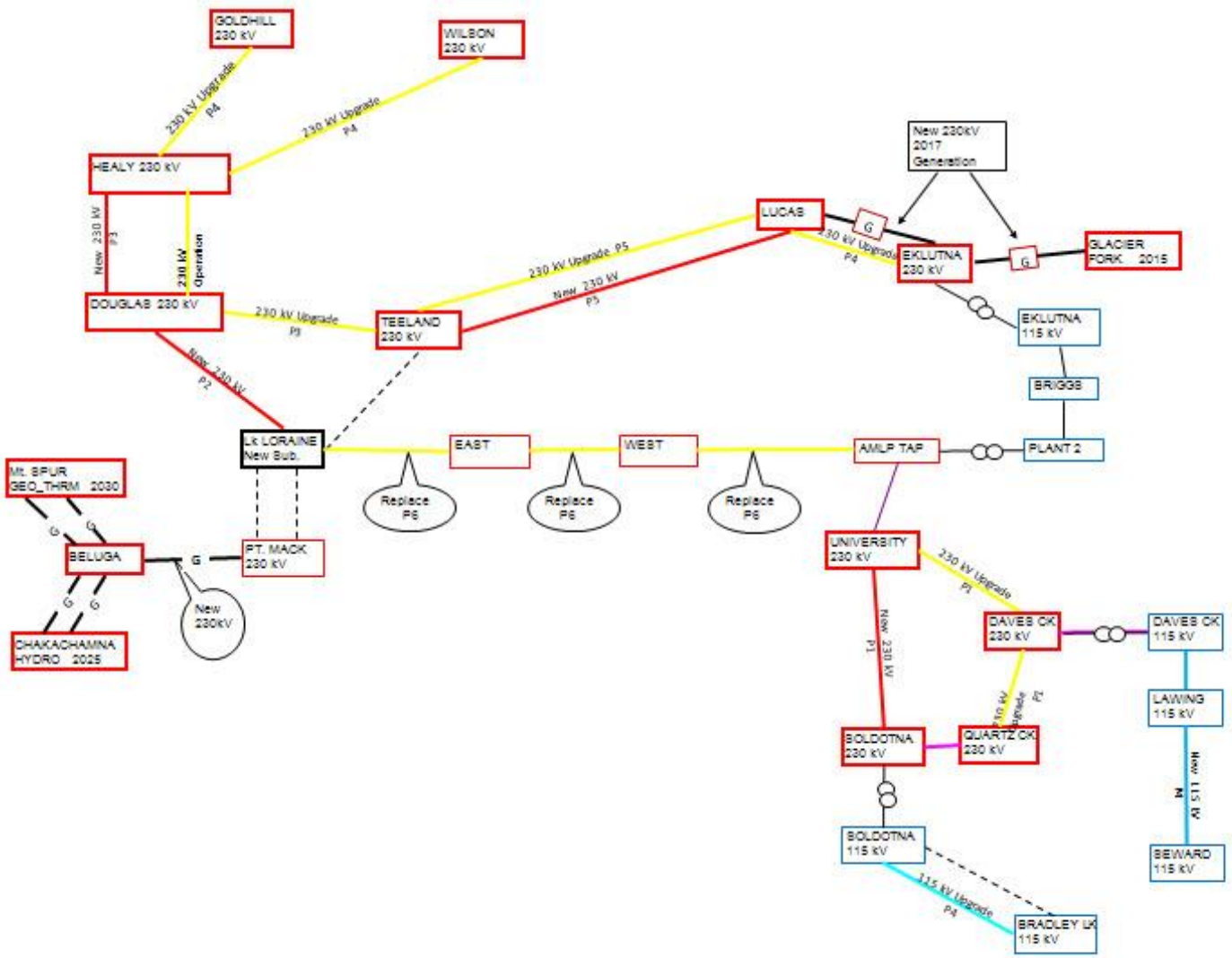
Conclusions – GRETC as the Enabler



Conclusions – Resource-Specific Risks

Resource	Relative Magnitude of Risk/Issue						
	Resource Potential Risks	Project Development and Operational Risks	Fuel Supply Risks	Environmental Risks	Transmission Constraint Risks	Financing Risks	Regulatory/ Legislative Risks
DSM/EE	Moderate	Limited	N/A	N/A	N/A	Limited - Moderate	Moderate
Generation Resources							
Natural Gas	Limited	Limited	Significant	Moderate	Limited	Moderate	Moderate
Coal	Limited	Moderate-Significant	Limited	Moderate - Significant	Limited - Significant	Moderate – Significant	Moderate
Modular Nuclear	Limited	Significant	Moderate	Significant	Limited	Significant	Significant
Large Hydro	Limited	Significant	N/A	Significant	Significant	Significant	Significant
Small Hydro	Moderate	Moderate	N/A	Moderate	Moderate	Limited - Moderate	Limited
Wind	Moderate	Moderate	N/A	Limited	Moderate	Limited - Moderate	Limited
Geothermal	Moderate	Moderate	N/A	Moderate	Moderate – Significant	Limited – Moderate	Limited
Solid Waste	Limited	Moderate-Significant	N/A	Significant	Moderate	Limited – Moderate	Limited-Moderate
Tidal	Limited	Significant	N/A	Significant	Moderate - Significant	Moderate – Significant	Moderate - Significant
Transmission	Limited	Significant	N/A	Moderate	N/A	Significant	Moderate - Significant

Conclusions – Transmission Projects



Recommendations

- Form GRETC
- Establish State energy policies
  - Large hydro
  - DSM/EE
  - RPS and pursuit of other renewables
  - System benefit charge
- Select preferred resource plan
- Public outreach program

Recommendations (continued)

- Address level/form of State assistance
- Address short-term and long-term gas supply issues
- Develop regional portfolio of DSM/EE programs and provide start-up funding
- Begin detailed engineering/permitting activities associated with selected generation and transmission projects
- Pursue Chakachamna, Susitna and Glacier Fork to determine if any of these projects can be built

Recommendations (continued)

- Form regional entity (if GRETC is not formed) to develop DSM/EE programs and renewable projects
- Pursue Federal funding for DSM/EE programs and renewable projects
- Streamline siting/permitting process for transmission projects
- Develop regional frequency regulation strategy
- Develop competitive power procurement process and standard power purchase agreement

What it Means?

10% / 8%

50%

$10 billion

$0.5 – $1.5 billion

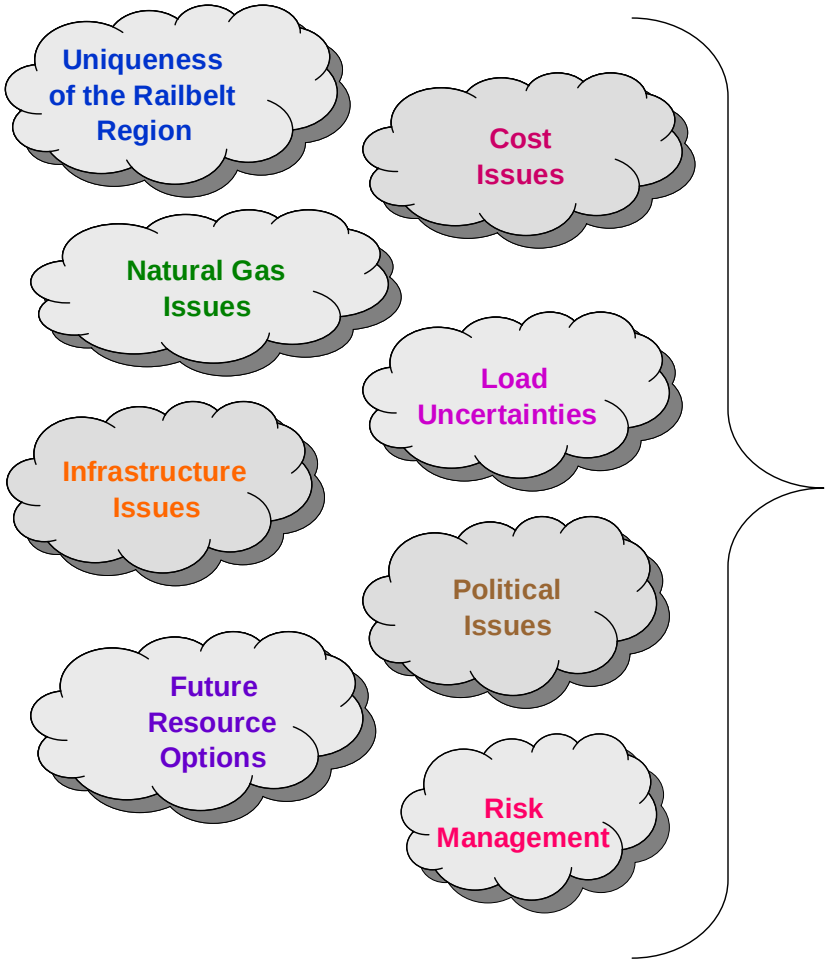
7.3%

Situational Assessment

History of Independent but Cooperative Decisions

- **Infrastructure Investments**
  - Alaska Intertie
  - Bradley Lake Hydro Project
- **Gas Supply**
  - ML&P's investment
  - Attractive historical prices
- **Innovative Solutions**
  - GVEA's BESS
- **Joint Operations and Contractual Arrangements**
  - Intertie Operating and Reliability Committees
  - Full requirements contracts
  - Economy sales

Summary of Issues



Future

Adopt New Direction

RAILBELT

Maintain Status Quo

Impact on Railbelt
Businesses and Consumers

- Power Costs
- Reliability
- Sustainability
- Risks

Methodology Considerations

Methodology Considerations

- Time horizon – 50 years
- Models used – Strategist® and PROMOD®
- Hydroelectric methodology
- Transmission analysis
- Financial analysis

Key Assumptions

General Assumptions

- RIRP conducted assuming GRETC in place
- Study period: 2011-2060

Objective Function:

2011 Cumulative Present Value Costs

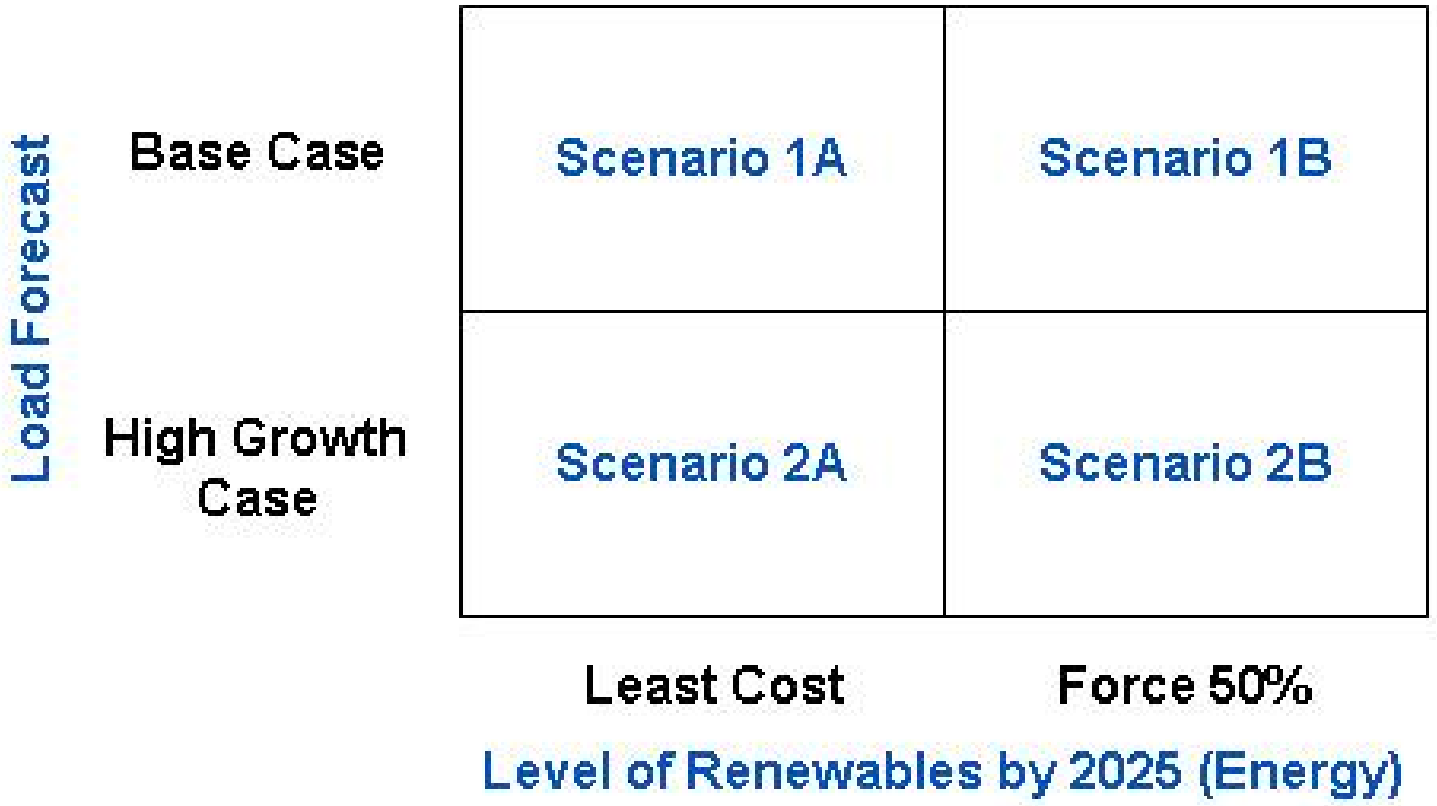
Costs Included

- Railbelt system fuel costs
- Railbelt system non-fuel O&M costs
- Railbelt system CO_2 emission allowance costs
- Capital costs for new Railbelt generation
- Capital costs for new Railbelt transmission

Costs Not Included

- Existing generation capital costs
- Existing transmission capital costs
- Distribution costs

Evaluation Scenarios



Significant Load Growth Opportunities

- Large new loads (mines, etc.)
- Conversion from gas to electric space and water heating
- Electric vehicles

Resources Considered

Demand-Side Management/Energy Efficiency (DSM/EE) Measure Categories	Conventional Generation Resources	Renewable Resources
Residential • Appliances • Water Heating • Lighting • Shell • Cooling/Heating **Commercial** • Water Heating • Office Loads • Motors • Lighting • Refrigeration • Cooling/Heating	**Simple Cycle Combustion Turbines** • LM6000 (48 MW) • LMS100 (96 MW) **Combined Cycle** • 1x1 6FA (154 MW) • 2X1 6FA (310 MW) **Coal Units** • Healy Clean Coal • Generic – 130 MW	**Hydroelectric Projects** • Susitna • Chakachamna • Glacier Fork • Generic Hydro – Kenai • Generic Hydro - MEA **Wind** • BQ Energy/Nikiski • Fire Island • Generic Wind – Kenai • Generic Wind - GVEA **Geothermal** • Mt. Spurr **Municipal Solid Waste** • Generic – Anchorage • Generic - GVEA
Other Resources Included in Sensitivity Cases		
• Modular Nuclear • Tidal		

Planning Reserve Margin

- 30 Percent for GRETC
- No capacity credit is given for wind

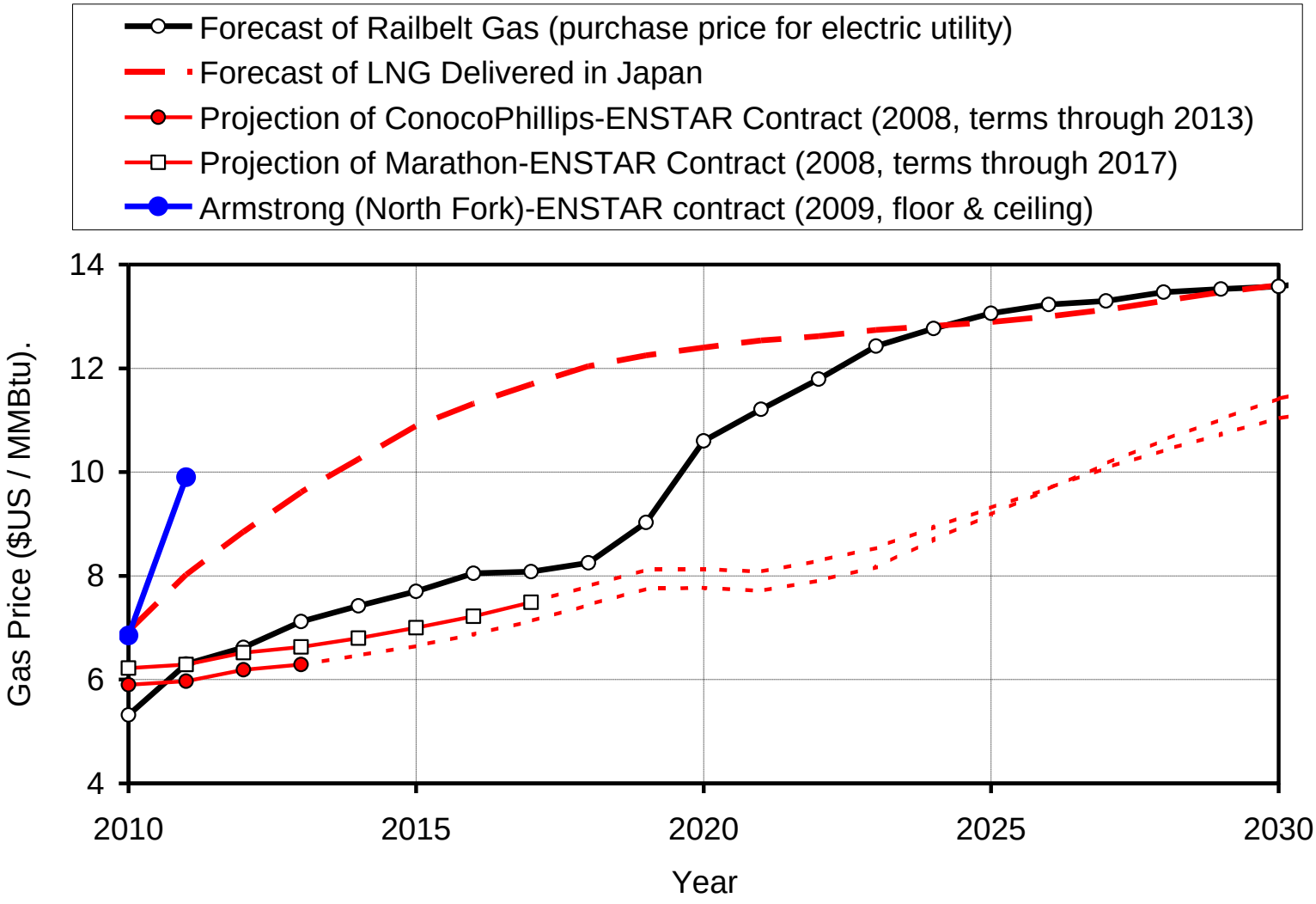
Operating Reserves

- Operating reserves – 150% times largest unit on the system times area's share
  - Area's share = area's largest unit / sum of all utility participants' largest units
- Spinning reserves – 100% times largest unit on the system times area's share
  - BESS included as 27 MW of spinning reserve in GVEA's area
  - SILOs not included

Assumed Transmission System Transfer Capability

- Alaska Intertie
  - Current – 75 MW south and north
  - 2024 – 130 MW south and north
- Southern Intertie
  - Current – 60 MW south, 75 MW north
  - 2016 – 110 MW south, 120 MW north

Natural Gas Prices



CO_2 Allowance Costs

Year	$/ton
2012	18.41
2020	39.70
2030	103.78
2040	213.91
2050	440.89
2060	564.38

Committed Units

Plant Name	Area	Capital Cost ($000)	Maximum Winter Capacity (MW)	Commercial Online Date
Southcentral Power Project	Anchorage	281,100	187	2013
ML&P 2500 Simple Cycle	Anchorage	43,200	33	2012
MLP LM6000 Combined Cycle	Anchorage	95,200	73	2014
Healy Clean Coal Project	GVEA	95,000	50	2011/2014
HEA Aeroderivative	HEA	(1)	34	2014
HEA Frame	HEA	(1)	42	2014
Nikiski Upgrade	HEA	(1)	77 (34 incremental)	2012
Eklutna Generation Station	MEA	269,900	180	2015
Seward Diesel #N1	City of Seward	7,200	2.9	2010
Seward Diesel #N2	City of Seward	1,100	2.5	2011

(1)HEA has requested that their cost estimates remain confidential while they are obtaining their bids.

Transmission - GRETC Concept

Transmission system to be upgraded over time to remove transmission constraints that currently prevent the coordinated operation of all the utilities as a single entity. This is projected to happen within ten 10 years.

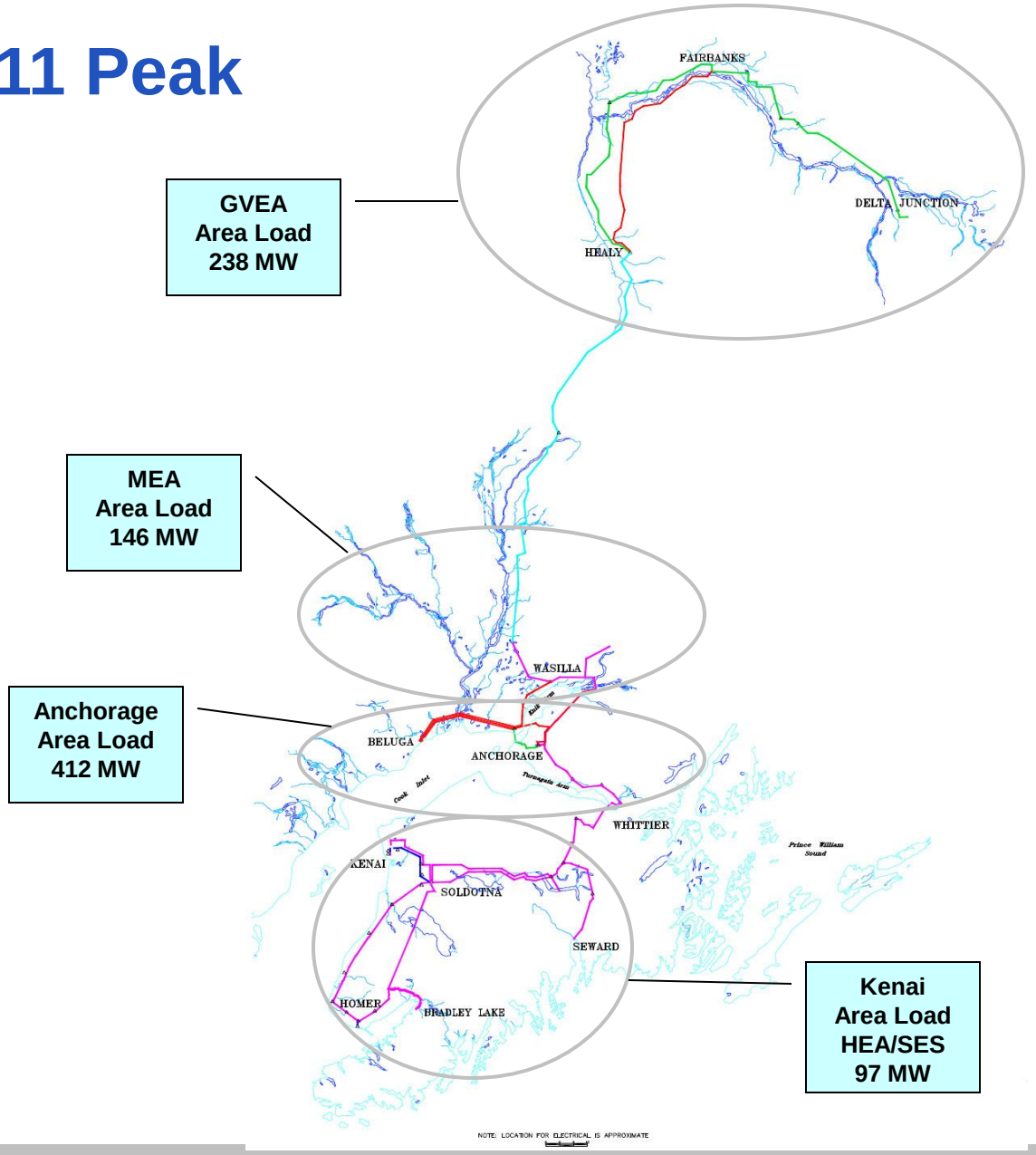
Starting Assumptions for Transmission Analysis

- Study to include all the utilities' assets 69 kV and above. These assets, over a transition period, flow into GRETC and form the basis for a phased upgrade of the system into a robust, reliable transmission system that can accommodate the economic operation of the interconnected system.
- Assumes that all utilities participate in GRETC with planning being conducted on a GRETC basis. The common goal will be the tight integration of the system operated by GRETC.

Railbelt Transmission Projects

- Projects classified in following categories:
  - Transmission projects to connect new generation projects to the grid (Generation Interconnections)
  - Transmission projects to upgrade the grid required by new generation projects (Generation Upgrades)
  - Replacement projects that need to be done because of age and condition (Replacement)
  - Upgrade projects to the grid to implement the GRETC concept, based on existing generation (GRETC)

Load Profile – 2011 Peak



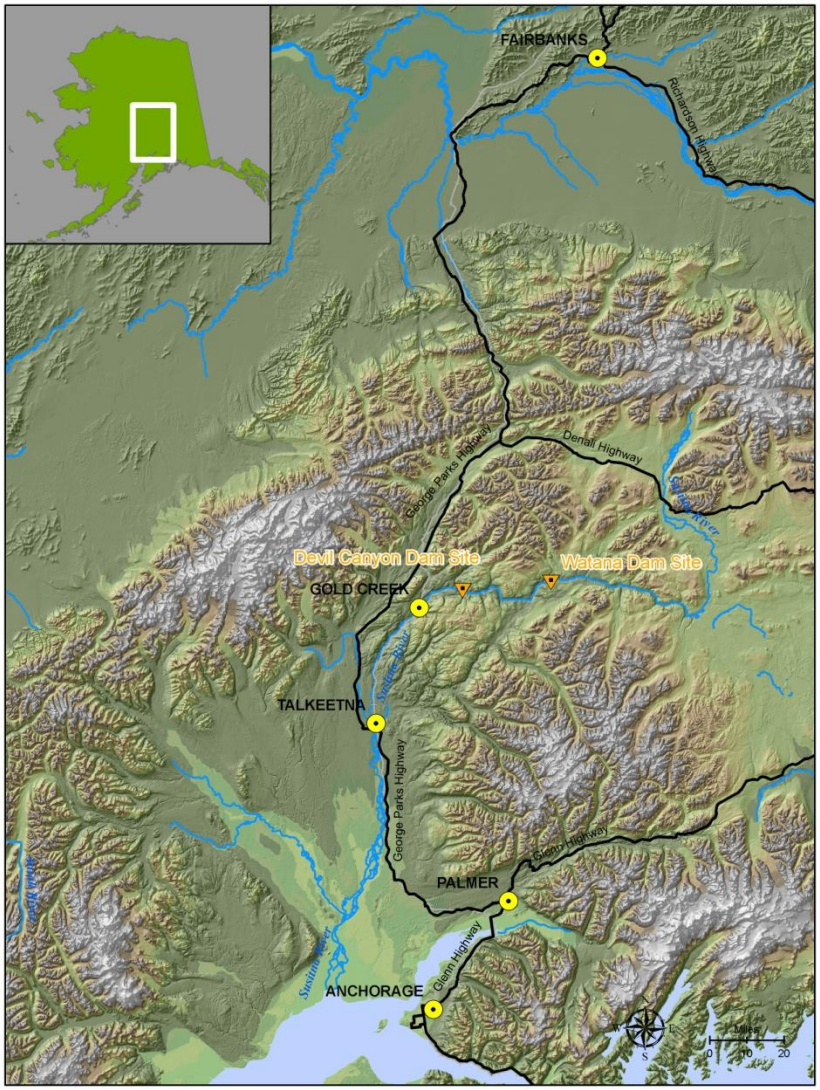
Recommended Transmission Projects

No.	Transmission Projects	Type	Cost ($000)	Priority
1	Soldotna – University	New Build (230kV)	$161,250	1
2	Soldotna – Quartz Creek	Upgrade (230kV)	$84,000	1
3	Quartz Creek – University	Upgrade (230kV)	$112,500	1
4	Lake Lorraine – Douglas	New Build (230kV)	$46,200	2
5	Douglas – Healy	Upgrade (230kV)	$12,000	2
6	Douglas – Healy	New Build (230kV)	$252,000	3
7	Beluga – Pt. Mackenzie	New Build (230kV)	$67,700	3
8	Douglas - Teeland	Upgrade (230kV)	$37,500	3
9	Healy – Gold Hill	Upgrade (230kV)	$145,500	4
10	Healy – Wilson	Upgrade (230kV)	$145,500	4
11	Soldotna – Bradley Lake	Upgrade (115kV)	$61,800	4
12	Daves Creek – Seward	New Build (115 kV)	$28,000	4
13	Eklutna – Lucas	New Build (230kV)	$13,300	5
14	Lucas – Teeland	Upgrade (230kV)	$26,100	5
15	Lucas – Teeland	New Build (230kV)	$26,100	5
16	Pt. Mackenzie – Plant 2	Replacement (230kV)	$32,200	6

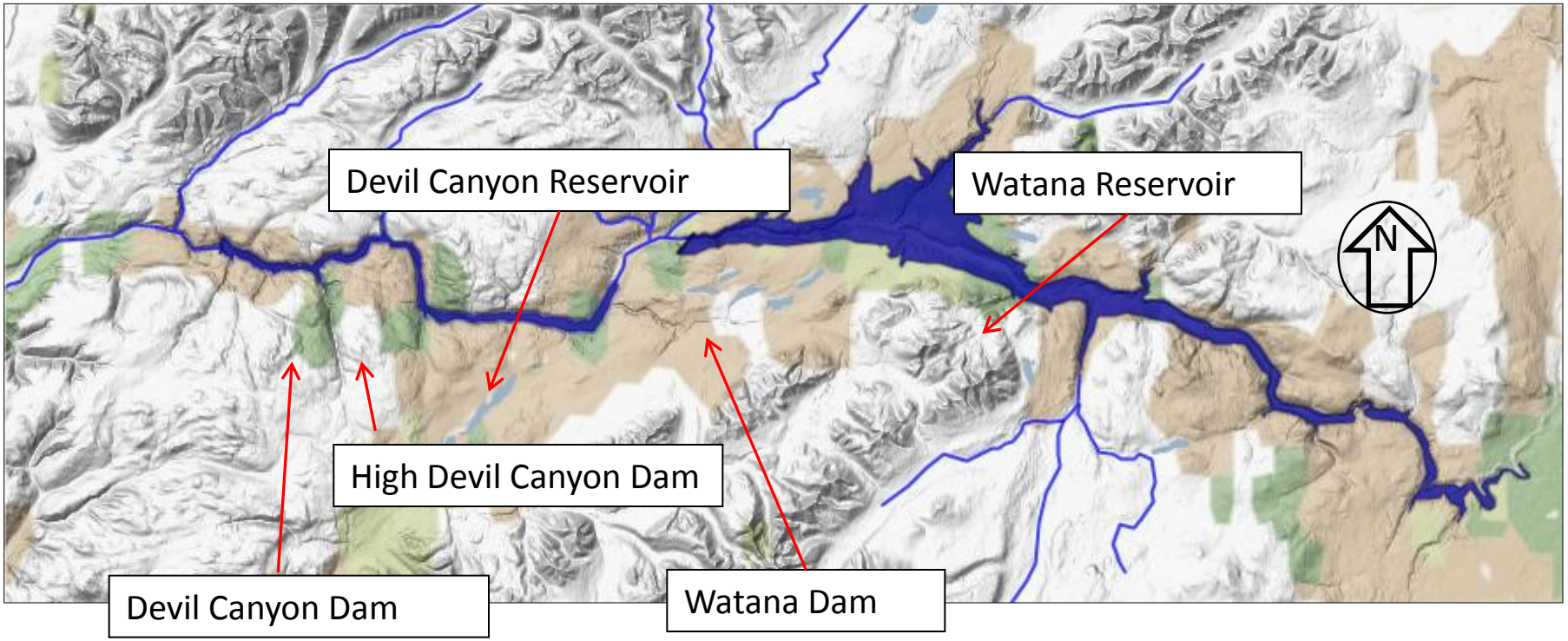
Susitna Analysis

Susitna Hydroelectric Project

Project Location



Potential Project Sites



Evolution of Susitna Project Studies

1983	**Submittal of FERC license application**
1985	**Revised FERC license**
	Phased project development
1986	**Project shelved**
	Reason was drop in price of fossil-fuel generated power
March 2008	**Interim Susitna Report**
	Re-evaluation of cost, energy, schedule and economics of 5 of the 1980s project alternatives
Fall 2009	**RIRP support**
	Development of alternative projects tailored to system loads and costs
Nov. 2009	**Final Susitna Report**
	Evaluation of cost, energy, and schedule of 9 project alternatives

Fall 2009 RIRP Work

- Identify lower cost alternatives
- Estimate energy and cost
- Determine firm capacity

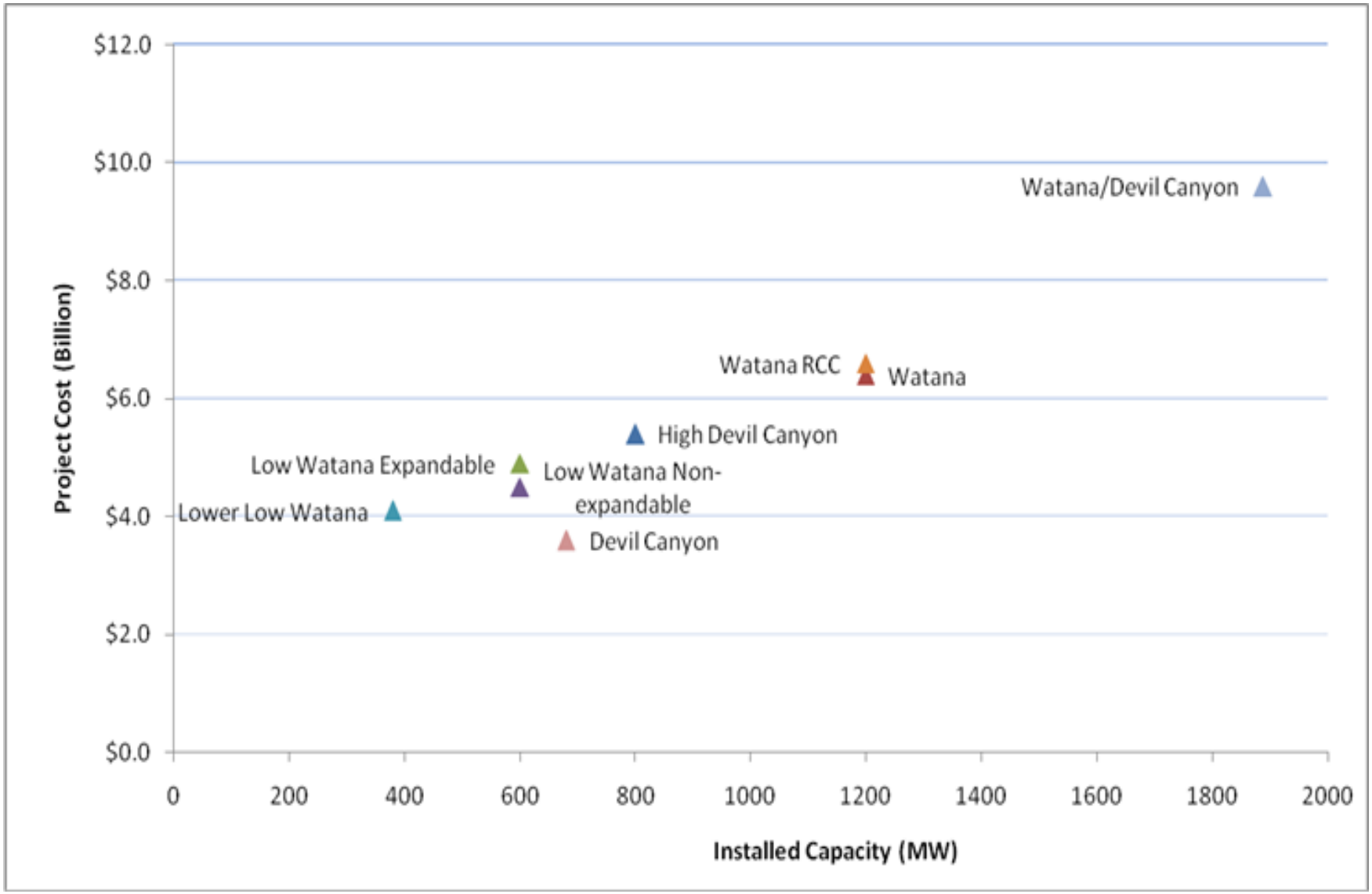
Firm Capacity

"the amount of power the project can generate on a continuous basis from Nov. 1 through April 30 with 98% reliability"

RIRP Project Configurations Studied
All Single Dam Configurations

- Lower Low Watana
  - 620’ high dam, 380 MW
- Low Watana (1985 Phase 1 development)
  - 685’ high dam, 600 MW
- Low Watana (non-expandable)
- Watana
  - 880’ high rockfill dam, 1,200 MW
- RCC Watana
  - 880’ high roller compacted concrete (RCC) dam, 1,200 MW
- High Devils Canyon
  - 855’ high RCC dam, 775 MW

Project Comparison

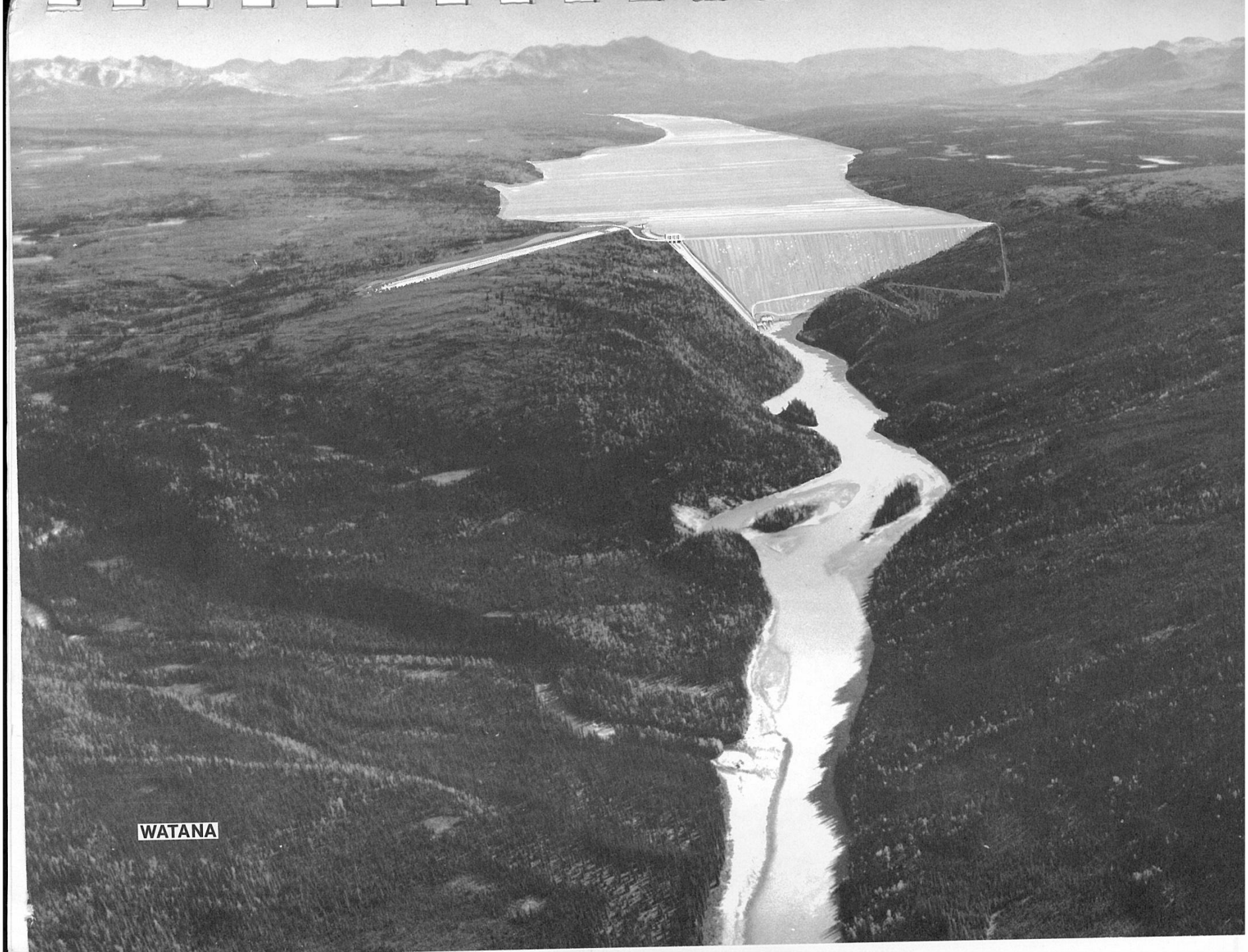


Study Results

Alternative	Dam Type	Ultimate Capacity (MW)	Firm Capacity, 98% (MW)	Construction Cost ($ Billion)	Energy GWh/yr)	Schedule (years from start of Licensing)
Lower Low Watana	Rockfill	380	170	$4.1	2,100	13-14
Low Watana Non-expandable	Rockfill	600	245	$4.5	2,600	14-15
Low Watana Expandable	Rockfill	600	245	$4.9	2,600	14-15
Watana	Rockfill	1,200	380	$6.4	3,600	15-16
Watana RCC	Roller Compacted Concrete	1,200	380	$6.6	3,600	14-15
Devil Canyon	Concrete Arch	680	75	$3.6	2,700	14-15
High Devil Canyon	Roller Compacted Concrete	800	345	$5.4	3,900	13-14
Watana/Devil Canyon	Rockfill/Concrete Arch	1,880	710	$9.6	7,200	15 - 20
Staged Watana/Devil Canyon	Rockfill/Concrete Arch	1,880	710	$10.0	7,200	15 - 24

Conclusions

- Of all the renewable resources in the Railbelt region, the Susitna projects are the most advanced and best understood
- Project is considered to be technically feasible
- Environmental and seismic risk is considered manageable

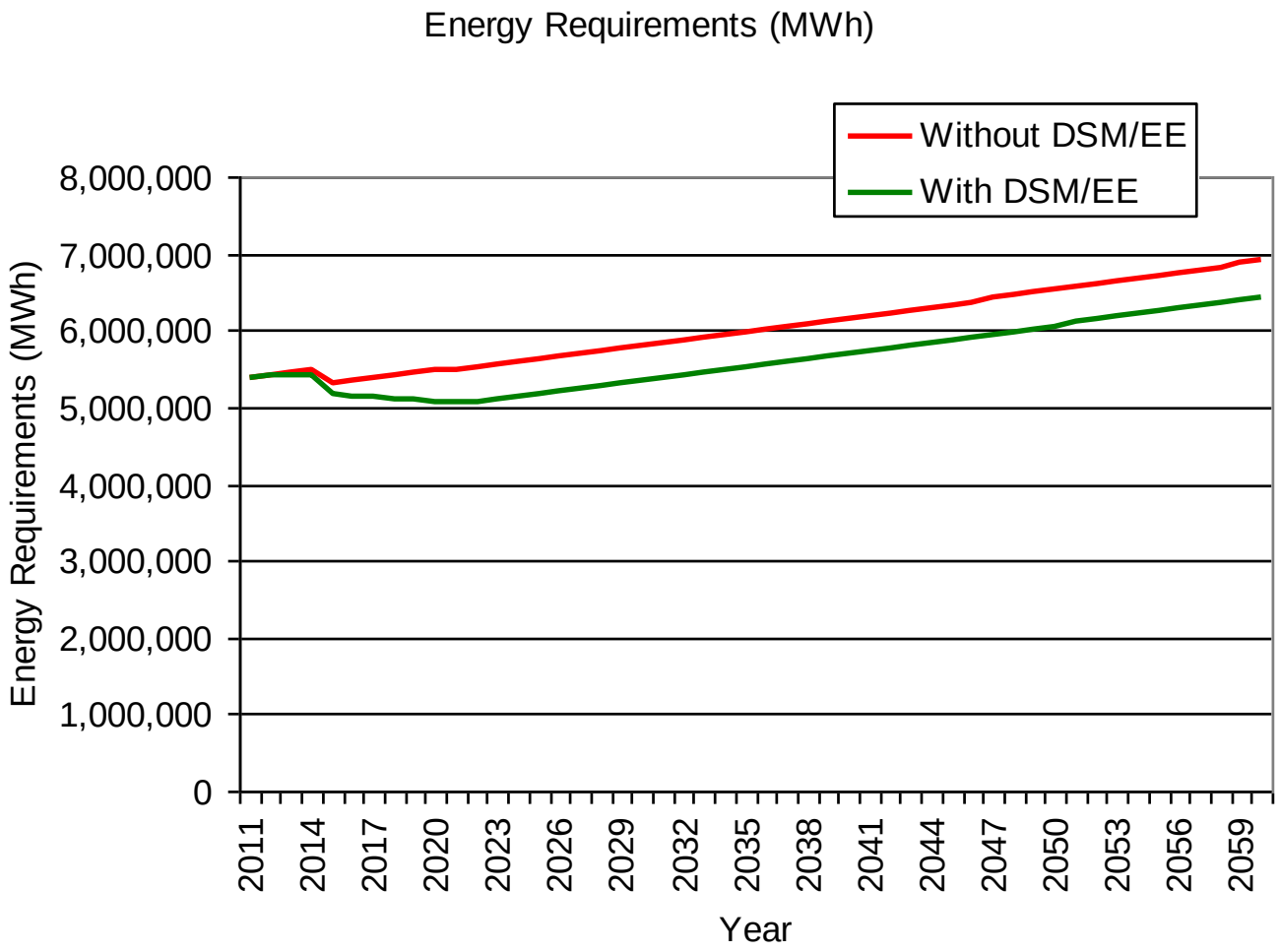

WATANA

Summary of Results

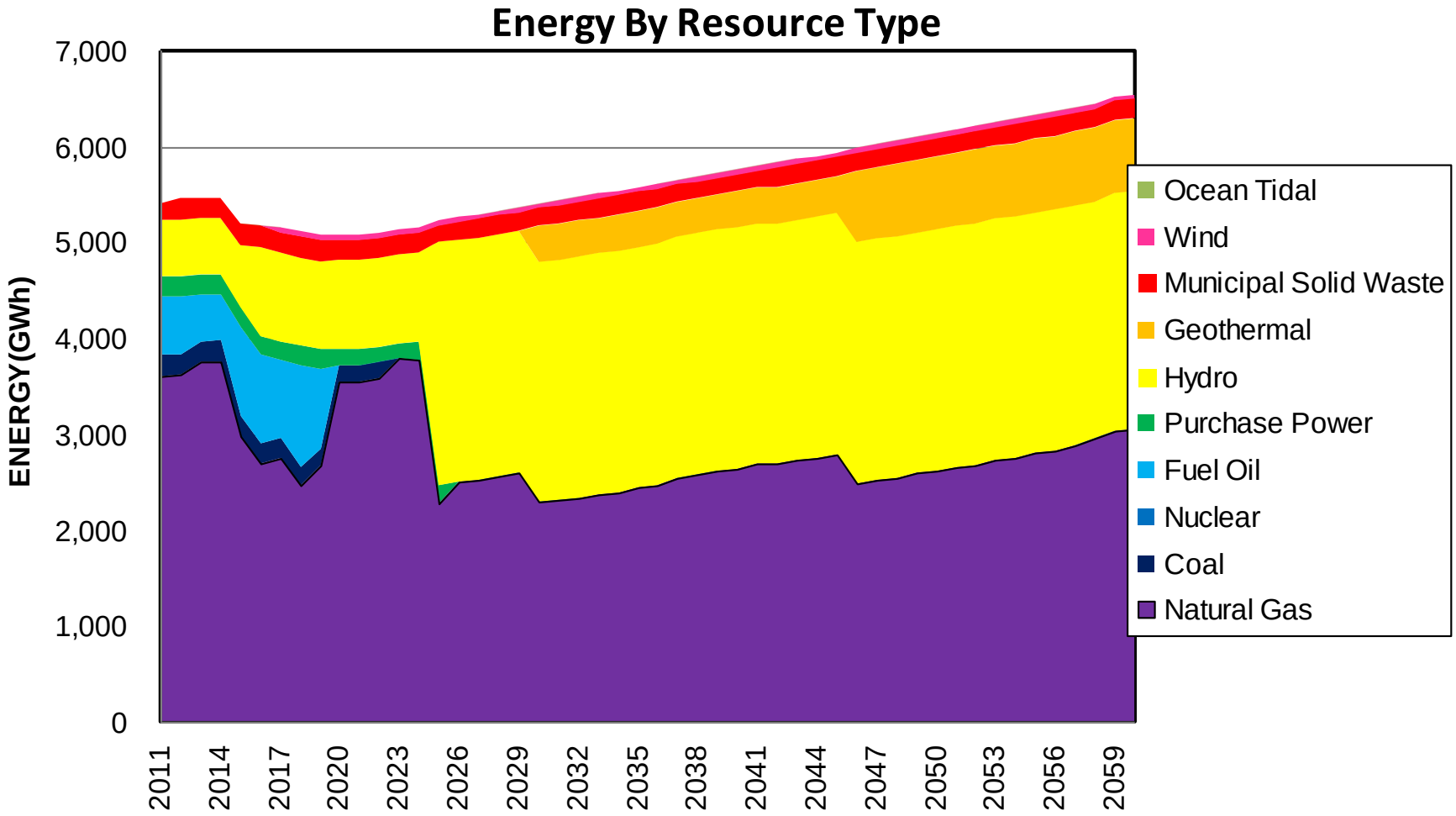
Limitations of RIRP

- Does not set State energy policy
- Directional
- Identified/generic/actual projects
- Agnostic to owner/developer of projects

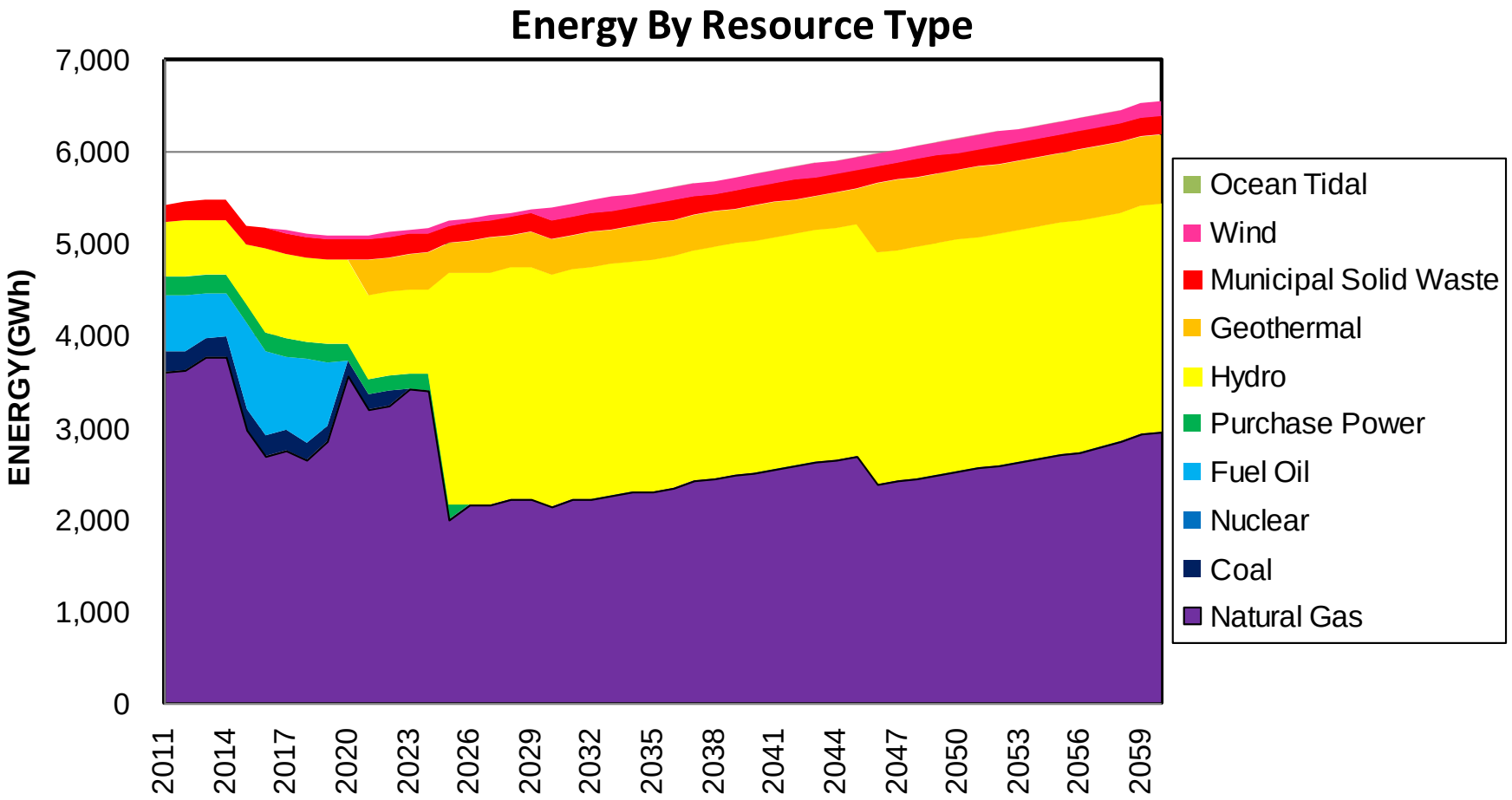
Results – DSM/EE Resources



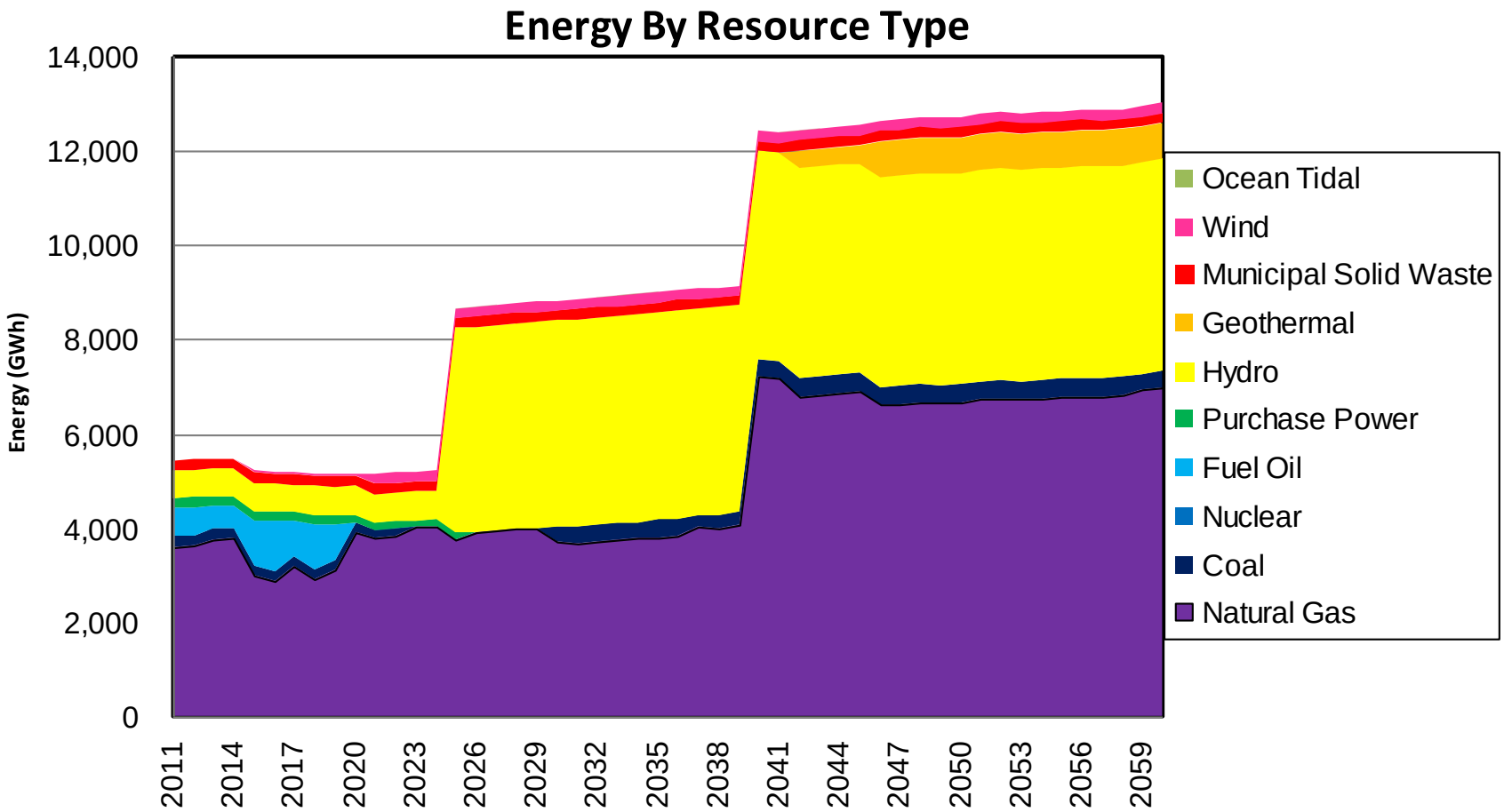
Results – Scenario 1A



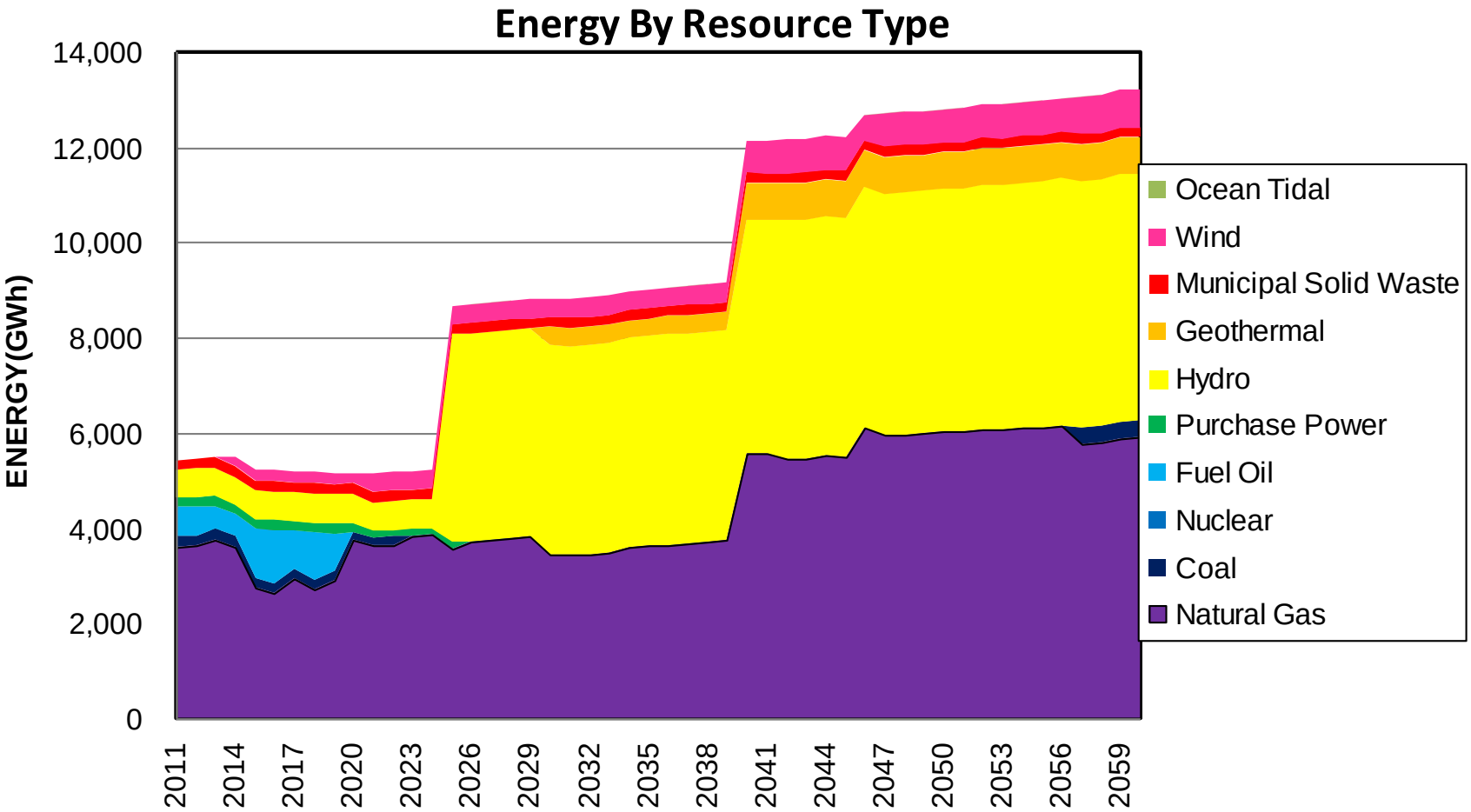
Results – Scenario 1B



Results – Scenario 2A



Results – Scenario 2B



Sensitivity Cases

- Scenario 1A Without DSM/EE Measures
- Scenario 1A With Committed Units Included
- Scenario 1A Without CO2 Costs
- Scenario 1A With Higher Gas Prices
- Scenario 1A With Fire Island
- Scenario 1A Without Chakachamna
- Scenario 1A With Chakachamna Capital Costs Increased by 75%
- Scenario 1A With Susitna (Lower Low Watana Non-Expandable Option) Forced
- Scenario 1A With Susitna (Low Watana Non-Expandable Option) Forced
- Scenario 1A With Susitna (Low Watana Expandable Option) Forced
- Scenario 1A With Susitna (Watana Expansion Option) Forced
- Scenario 1A With Susitna (Watana Option) Forced
- Scenario 1A With Susitna (High Devil Canyon Option) Forced
- Scenario 1A With Modular Nuclear
- Scenario 1A With Tidal

Results – Economics

Case	Cumulative Present Value Cost ($000,000)	Average Cost (¢ per kWh)	Renewable Energy in 2025 (%)	Total Capital Investment ($000,000)
Scenarios				
Plan 1A	$12,925	4.60	49.17%	$10,035
Plan 1B	$12,916	4.59	54.78%	$10,014
Plan 2A	$20,978	4.29	53.57%	$18,226
Plan 2B	$21,507	4.40	55.55%	$22,175
Sensitivities				
1A Without DSM/EE Measures	$13,262	4.40	51.10%	$9,791
1A With Committed Units Included	$13,863	4.93	32.03%	$9,592
1A Without CO_2 Costs	$10,402	3.70	14.36%	$8,685
1A With Higher Gas Prices	$14,945	5.31	61.94%	$9,798
1A With Fire Island	$12,965	4.61	54.78%	$10,502
1A Without Chakachamna	$13,273	4.72	22.80%	$9,179
1A With Chakachamna Capital Costs Increased by 75%	$13,273	4.72	22.80%	$9,179
1A With Susitna (Lower Low Watana Non-Expandable Option) Forced	$15,209	5.41	54.70%	$13,166
1A With Susitna (Low Watana Non-Expandable Option) Forced	$14,898	5.30	60.18%	$14,742
1A With Susitna (Low Watana Expandable Option) Forced	$15,437	5.49	60.18%	$15,274
1A With Susitna (Low Watana Expansion Option) Forced	$15,943	5.67	61.58%	$15,902
1A With Susitna (Watana Option) Forced	$16,281	5.79	61.82%	$16,049
1A With Susitna (High Devil Canyon Option) Forced	$16,238	5.77	61.82%	$16,016
1A With Modular Nuclear	$12,591	4.48	49.05%	$9,864
1A With Tidal	$12,198	4.34	59.10%	$10,052

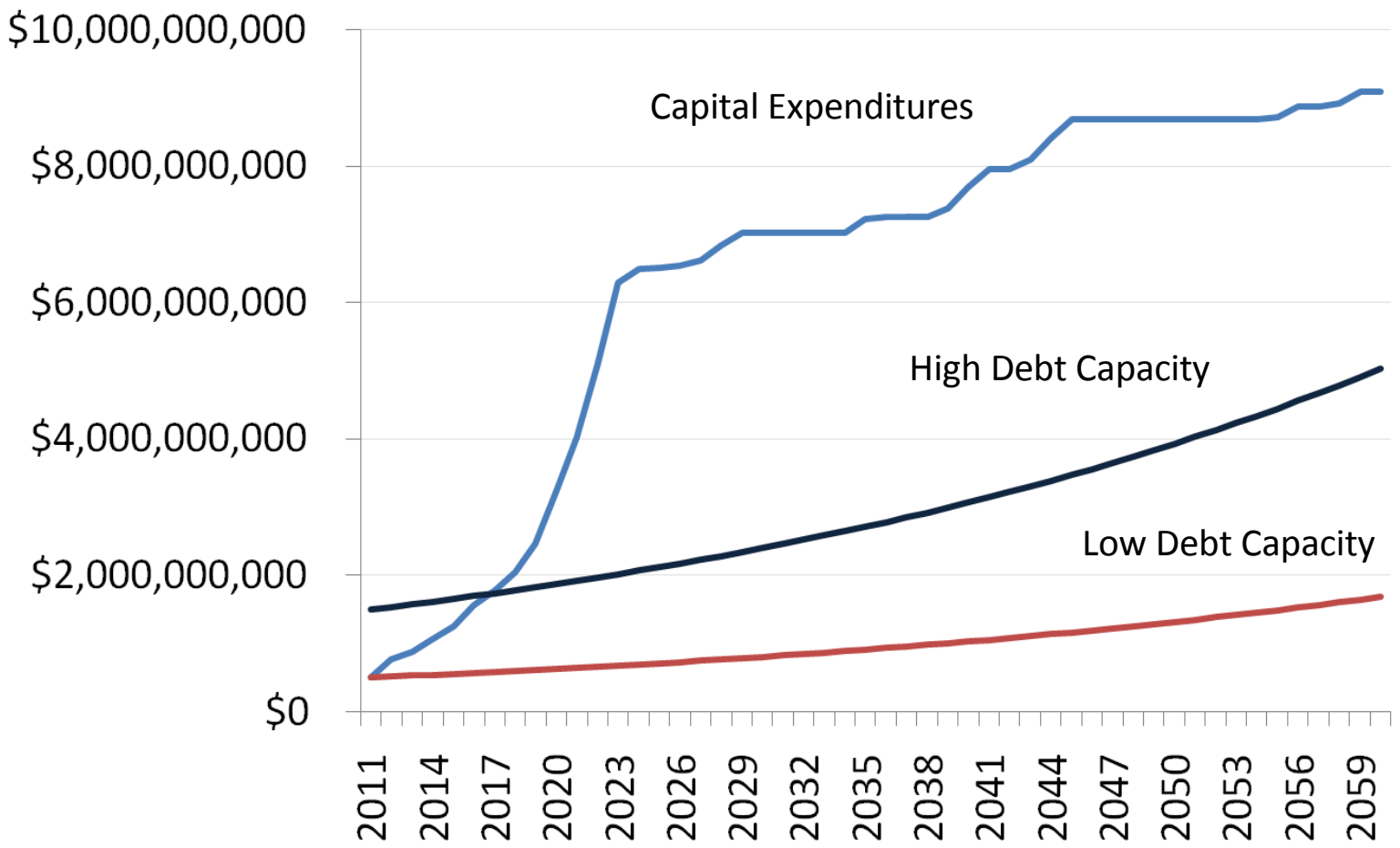
Results – Emissions

Case	CO_2 (million tons)	NO_x (million tons)	SO_2 (million tons)
Scenarios			
Plan 1A	176,205	222	36
Plan 1B	169,440	216	33
Plan 2A	287,321	281	240
Plan 2B	250,460	245	75
Sensitivities			
1A Without DSM/EE Measures	181,208	242	242
1A With Committed Units Included	219,645	351	273
1A Without CO_2 Costs	222,614	295	383
1A With Higher Gas Prices	166,406	248	268
1A With Fire Island	166,934	223	39
1A Without Chakachamna	219,110	223	35
1A With Chakachamna Capital Costs Increased by 75%	219,110	223	35
1A With Susitna (Lower Low Watana Non-Expandable Option) Forced	158,703	210	35
1A With Susitna (Low Watana Non-Expandable Option) Forced	127,589	207	38
1A With Susitna (Low Watana Expandable Option) Forced	127,589	207	38
1A With Susitna (Low Watana Expansion Option) Forced	140,912	208	38
1A With Susitna (Watana Option) Forced	138,140	209	39
1A With Susitna (High Devil Canyon Option) Forced	134,780	208	39
1A With Modular Nuclear	162,858	224	37
1A With Tidal	153,908	213	33

Financial Analysis

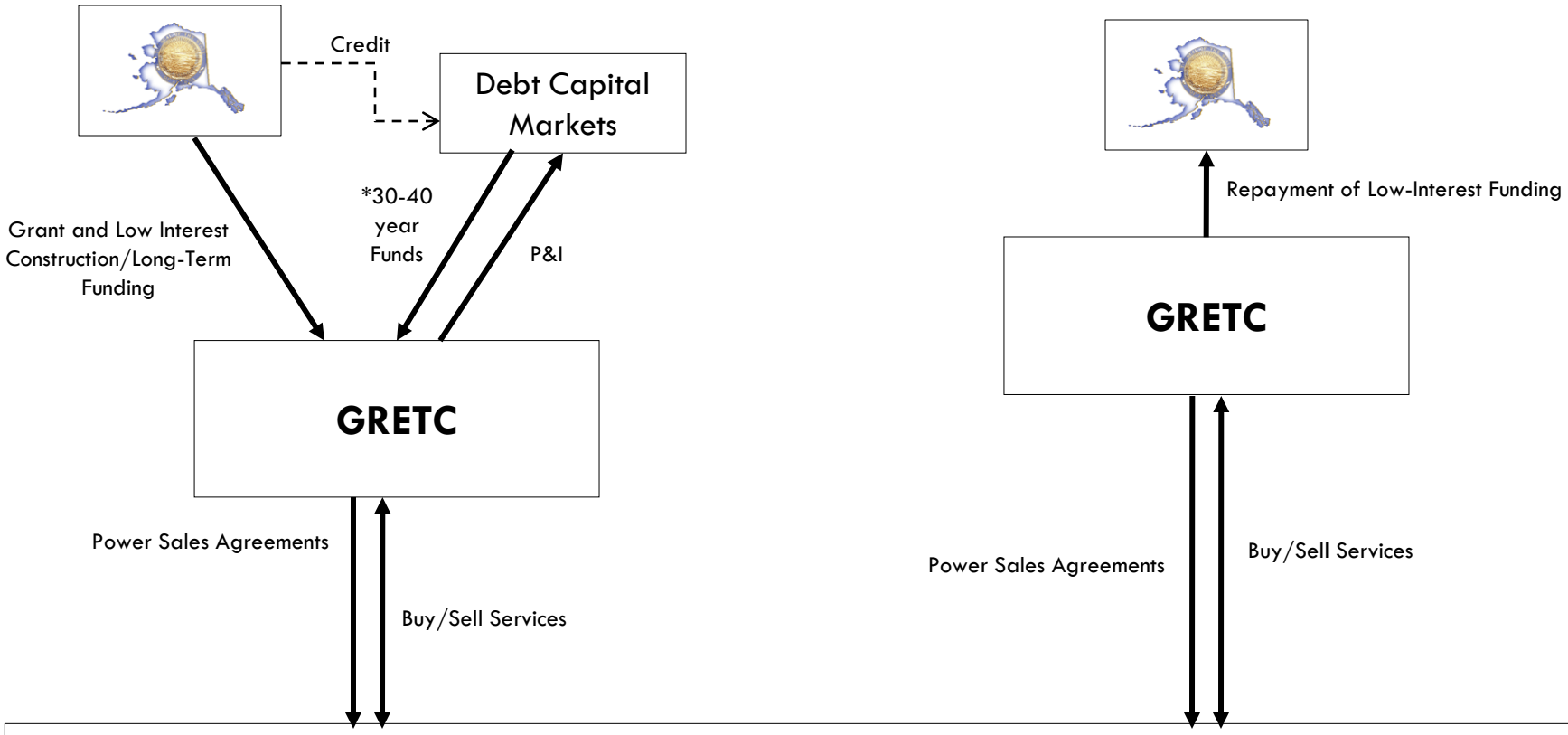
Debt Capacity vs. Capital Requirements

RIRP Plan 1A Capital Expenditures and Debt Capacity of the Railbelt Utilities



Greater Railbelt Energy & Transmission Company Funding Concept for Large/Long Useful Life Assets

1-40 Years Formation/Maturation → 41+ years Stability →

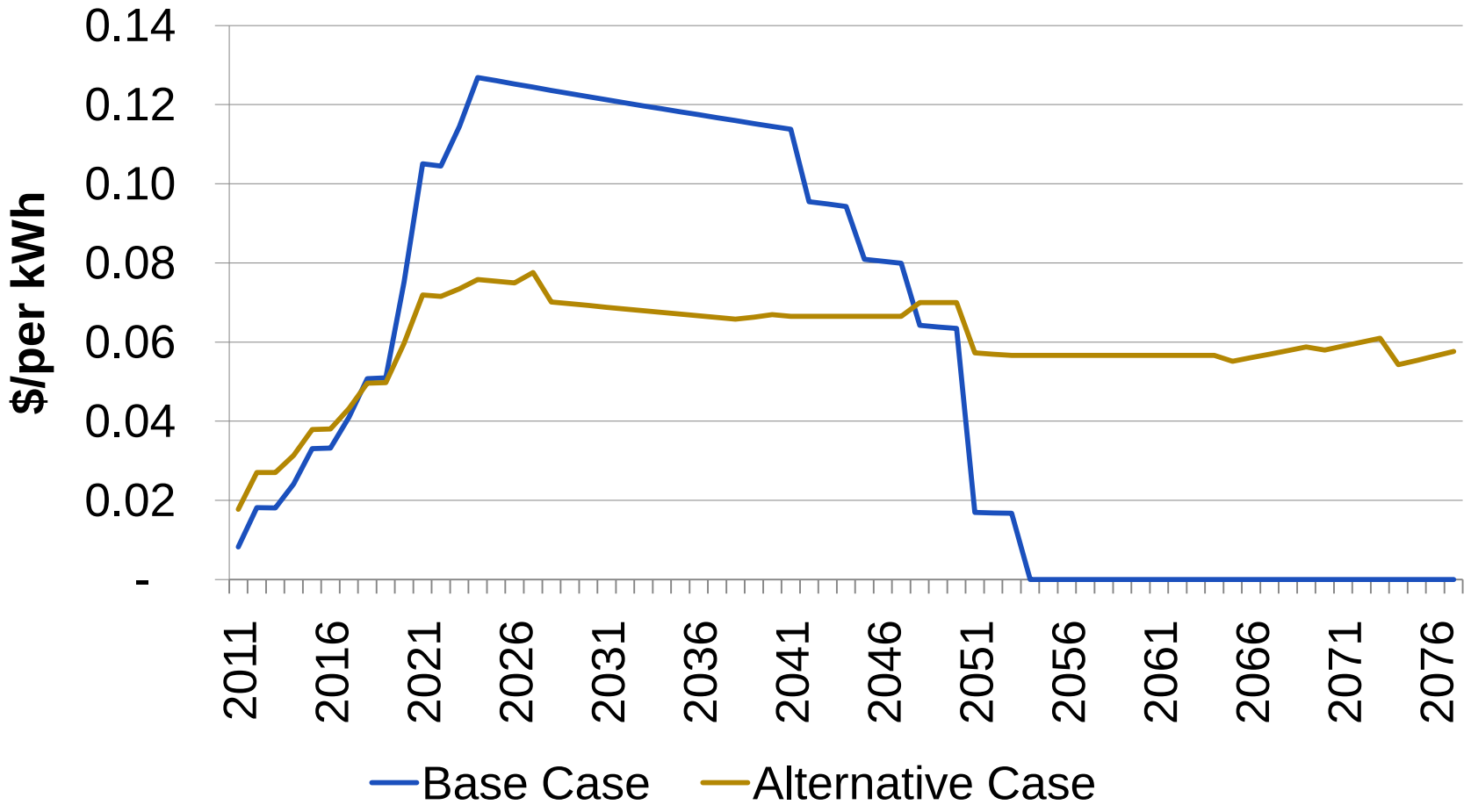


Strategies to Lower Capital Cost of RIRP to Ratepayers

- Ratepayer benefits charge
- “Pay-go” vs. borrowing for capital
- Construction Work in Progress
- State financial assistance
  - Repayment flexibility
  - Credit support/risk mitigation
  - Potential interest cost benefit

Fixed Rate Charge for Capital

Comparison of Capital Rates for Base Case Scenario and Alternative* Scenario



*Alternative scenario includes $0.01 Consumer Benefit Charge through 2027

Setting Stage for Funding GRETC

Capital Funding Sources

- State Funds
- Debt Capital Markets
- Rate Payer Benefits Charge
- Asset Transfers

GRETC

Utility Managed Corporation

HEA Homer Electric Association, Inc.
MEA
CHUGACH POWERING ALASKA'S FUTURE
75 SEVENTY-FIVE YEARS MLP ANCHORAGE, AK
GVEA
CITY OF SEWARD ALASKA

Steps Toward Funding

- Define GRETC Organizational Structure
- Identify State's Role in Funding
- Develop Phased Transition Plan
- Initiate Dialogue with RCA

Risks and Uncertainties

General Risks

- Organizational
- Fuel supply
- Inadequacy of transmission network
- Market development
- Financing and rate impacts
- Legislative and regulatory

Resource-Specific Risks - Summary

Resource	Relative Magnitude of Risk/Issue						
	Resource Potential Risks	Project Development and Operational Risks	Fuel Supply Risks	Environmental Risks	Transmission Constraint Risks	Financing Risks	Regulatory/ Legislative Risks
DSM/EE	Moderate	Limited	N/A	N/A	N/A	Limited - Moderate	Moderate
Generation Resources							
Natural Gas	Limited	Limited	Significant	Moderate	Limited	Moderate	Moderate
Coal	Limited	Moderate-Significant	Limited	Moderate - Significant	Limited - Significant	Moderate – Significant	Moderate
Modular Nuclear	Limited	Significant	Moderate	Significant	Limited	Significant	Significant
Large Hydro	Limited	Significant	N/A	Significant	Significant	Significant	Significant
Small Hydro	Moderate	Moderate	N/A	Moderate	Moderate	Limited - Moderate	Limited
Wind	Moderate	Moderate	N/A	Limited	Moderate	Limited - Moderate	Limited
Geothermal	Moderate	Moderate	N/A	Moderate	Moderate – Significant	Limited – Moderate	Limited
Solid Waste	Limited	Moderate-Significant	N/A	Significant	Moderate	Limited – Moderate	Limited-Moderate
Tidal	Limited	Significant	N/A	Significant	Moderate - Significant	Moderate – Significant	Moderate - Significant
Transmission	Limited	Significant	N/A	Moderate	N/A	Significant	Moderate - Significant

Resource-Specific Risks – Wind (Sample)

Resource: Generation – Wind		
Risk/Issue Category	**Description**	**Primary Actions to Address Risk/Issue**
Resource Potential	• Total economic resource potential is unknown • Resource potential may be constrained by Railbelt regional system regulation requirements	• Complete regional economic potential assessment, including the identification of the most attractive sites • Develop regional regulation strategy for non-dispatchable resources
Project Development	• Ineffectiveness and inefficiencies associated with six individual utilities developing wind projects • Lack of standard power purchase agreements for projects developed by IPPs	• Establish a regional entity (e.g., GRETC) or rely on IPPs to identify and develop wind projects • Develop regional standard power purchase agreements • Develop regional competitive power procurement process to encourage IPP development of projects
Fuel Supply	• Not applicable	• Not applicable
Environmental	• Site specific environmental issues	• Comprehensive evaluation of site specific environmental impacts at attractive sites
Transmission Constraints	• Location of new facilities can add to transmission constraints • Integration of non-dispatchable resources into Railbelt transmission grid poses challenges	• Expand Railbelt transmission network • Require that all proposed plant locations also include transmission infrastructure analyses and costs as part of any approval process • Develop regional strategy for the integration of non-dispatchable resources
Financing	• Cost per kW can be significant	• Aggressively pursue available Federal funding for renewable projects
Regulatory/Legislative	• Regional commitment to renewable resources is uncertain	• Establish State RPS targets • Develop State policies regarding RECs and Green Pricing

Implementation Action Plan (2010-2012)

Implementation Action Plan

- Form GRETC
- Establish State energy policies
  - Large hydro
  - DSM/EE
  - RPS and pursuit of other renewables
  - System benefit charge
- Select preferred resource plan
- Public outreach program

Implementation Action Plan (continued)

- Address level/form of State assistance
- Address short-term and long-term gas supply issues
- Develop regional portfolio of DSM/EE programs and provide start-up funding
- Begin detailed engineering/permitting activities associated with selected generation and transmission projects
- Pursue Chakachamna, Susitna and Glacier Fork to determine if any of these projects can be built

Implementation Action Plan (continued)

- Form regional entity (if GRETC is not formed) to develop DSM/EE programs and renewable projects
- Pursue Federal funding for DSM/EE programs and renewable projects
- Streamline siting/permitting process for transmission projects
- Develop regional frequency regulation strategy
- Develop competitive power procurement process and standard power purchase agreement

Questions and Answers

Concluding Comments