

Alaska's Sustainable Strategy for Energy Transmission & Supply

A.S.S.E.T.S

Committee Substitute for Sponsor Substitute for Senate Bill

HCS CS SS SB 25 (L&C)

Senator Lesil McGuire (District N)

April 12, 2012

Disclaimer

- * The following presentation contains slides which present estimates of capital spending based on projects identified in reports prepared for or by the Alaska Energy Authority. This presentation should not be considered an endorsement of any particular project, fuel source, or combination of projects identified by the authority and/or its contractors.

Agenda

- * Description of the problem A.S.S.E.T.S is intended to address:
 - * Highlights from selected reports: capital
 - * Highlights from selected reports: financing
- * Introduction to SB 25
 - * Sections of the bill.
 - * Powers and limitations for S.E.T.S
 - * AIDEA

The Problem

Significant capital investment will be required to develop the energy infrastructure Alaska needs.

Alaska Energy Pathway; Toward Energy Independence

AEA July 2010

Table 1. Capital Cost Rollup.

our into regions as defined by existing regional native corporations.

| Native Corporation | Capital Cost Rollup | | | | | | Capital Cost per Capita |
|--------------------------------|---------------------------|-----------------------------|--------------------------|-----------------------------|-----------------------------|-------------------------|-------------------------|
| | Immediate (0-10 Years) | Short-Term (1 - 3 Years) | Mid-Term (2-10 years) | Long-Term (5 - 15 Years) | Stretch-Goal (15+ years) | Capital Cost per Region | |
| Ahtna, Incorporated | \$9,883,000 | \$18,961,000 | \$41,925,000 | \$18,456,000 | \$14,698,000 | \$103,923,000 | \$34,710 |
| Aleut Corporation | \$24,104,000 | \$34,481,000 | \$359,690,000 | \$20,209,300 | \$0 | \$438,484,300 | \$59,918 |
| Arctic Slope Regional Corp. | \$22,252,000 | \$29,020,000 | \$0 | \$47,349,461 | \$0 | \$98,621,461 | \$14,636 |
| Bering Straits Native Corp. | \$30,862,000 | \$49,560,000 | \$158,950,000 | \$41,132,382 | \$0 | \$280,504,382 | \$29,952 |
| Bristol Bay Native Corporation | \$24,011,000 | \$65,871,000 | \$220,744,000 | \$63,078,468 | \$1,487,000 | \$375,171,468 | \$51,569 |
| Calista Corporation | \$81,189,800 | \$65,708,000 | \$180,031,000 | \$116,208,706 | \$1,277,000 | \$424,414,508 | \$17,283 |
| Chugach Alaska Corporation | \$23,126,000 | \$41,150,000 | \$37,817,000 | \$23,741,592 | \$0 | \$125,634,592 | \$17,894 |
| Doyon, Limited | \$23,079,600 | \$50,777,000 | \$104,062,500 | \$30,258,596 | \$18,142,447 | \$226,320,143 | \$32,349 |
| Koniag, Incorporated | \$30,268,100 | \$28,451,000 | \$63,861,000 | \$902,449 | \$3,068,760 | \$126,549,309 | \$13,789 |
| NANA Regional Corporation | \$23,487,000 | \$29,185,000 | \$46,339,847 | \$53,286,779 | \$3,807,000 | \$155,915,626 | \$21,858 |
| Seasite Corporation | \$222,371,300 | \$98,123,000 | \$162,172,408 | \$57,809,096 | \$2,505,248 | \$542,981,052 | \$8,040 |
| Rural Region Totals | \$514,631,800 | \$511,297,000 | \$1,355,392,755 | \$472,432,829 | \$44,785,455 | \$2,698,519,839 | \$27,453 |
| Railbelt Region | \$1,485,000,000 | \$940,000,000 | \$2,631,000,000 | \$2,959,000,000 | \$760,000,000 | \$7,290,000,000 | \$16,200 |
| Statewide Totals | \$1,999,631,800 | \$1,451,297,000 | \$3,988,392,755 | \$3,431,432,829 | \$804,785,455 | \$10,188,519,839 | \$43,653 |

- Projected “immediate” (0-10 years) capital spending of **\$1.999 billion** for energy projects statewide (p. 25).

Source: <http://www.akenergyauthority.org/alaska-energy-plan.html>

Railbelt Integrated Resource Plan (RIRP)

AEA February 2010

Table 1-4
Summary of Results – Economics

| Case | Cumulative Present Value Cost (\$000,000) | Average Wholesale Power Cost (¢ per kWh) | Renewable Energy in 2025 (%) | Total Capital Investment (\$000,000) |
|--|---|--|------------------------------|--------------------------------------|
| Scenarios | | | | |
| Scenario 1A | \$13,625 | 17.26 | 62.32% | \$9,087 |
| Scenario 1B | \$13,625 | 17.26 | 62.32% | \$9,087 |
| Scenario 2A | \$20,162 | 19.75 | 42.64% | \$14,111 |
| Scenario 2B | \$21,109 | 20.68 | 65.83% | \$18,805 |
| Sensitivities | | | | |
| 1A/1B Without DSM/EE Measures | \$14,507 | 17.40 | 67.10% | \$8,603 |
| 1A/1B With Double DSM | \$12,546 | 15.89 | 65.15% | \$8,861 |
| 1A/1B With Committed Units Included | \$14,109 | 17.87 | 46.84% | \$8,090 |
| 1A/1B Without CO2 Costs | \$11,206 | 14.20 | 49.07% | \$8,381 |
| 1A/1B With Higher Gas Prices | \$14,064 | 17.82 | 61.95% | \$9,248 |
| 1A/1B Without Chakachamna | \$14,332 | 18.16 | 38.06% | \$7,719 |
| 1A/1B With Chakachamna Capital Costs Increased by 75% | \$14,332 | 18.16 | 38.06% | \$7,719 |
| 1A/1B With Susitna (Lower Low Watana Non-Expandable Option) Forced | \$15,228 | 19.29 | 61.01% | \$12,421 |
| 1A/1B With Susitna (Low Watana Non-Expandable Option) Forced | \$15,040 | 19.05 | 63.01% | \$15,057 |
| 1A/1B With Susitna (Low Watana Expandable Option) Forced | \$15,346 | 19.44 | 63.01% | \$15,588 |
| 1A/1B With Susitna (Low Watana Expansion Option) Forced | \$14,854 | 18.82 | 66.90% | \$14,069 |
| 1A/1B With Susitna (Watana Option) Forced | \$15,683 | 19.87 | 70.97% | \$13,211 |
| 1A/1B With Susitna (High Devil Canyon Option) Forced | \$14,795 | 18.74 | 66.92% | \$11,633 |
| 1A/1B With Modular Nuclear | \$13,841 | 17.53 | 60.51% | \$9,105 |
| 1A/1B With Tidal | \$13,712 | 17.37 | 65.52% | \$9,679 |
| 1A/1B With Lower Coal Fuel and Lower Coal Capital Costs | \$13,625 | 17.26 | 62.32% | \$9,087 |
| 1A/1B With Tax Credits for Renewables | \$12,954 | 16.41 | 67.56% | \$9,256 |

Table 1-6
Summary of Proposed Transmission Projects

| Project No. | Transmission Projects | Type | Cost (\$000) |
|-------------|--|---------------------|--------------|
| A | Bernice Lake – International | New Build (230 kV) | 227,500 |
| B | Soldotna – Quartz Creek | R&R (230 kV) | 126,500 |
| C | Quartz Creek – University | R&R (230 kV) | 165,000 |
| D | Douglas – Teeland | R&R (230 kV) | 62,500 |
| E | Lake Lorraine – Douglas | New Build (230 kV) | 80,000 |
| F | Douglas – Healy | Upgrade (230 kV) | 30,000 |
| G | Douglas – Healy | New Build (230 kV) | 252,000 |
| H | Eklutna – Fossil Creek | Upgrade (230 kV) | 65,000 |
| I | Healy – Gold Hill | R&R (230 kV) | 180,500 |
| J | Healy – Wilson | Upgrade (230 kV) | 32,000 |
| K | Soldotna – Diamond Ridge | R&R (115 kV) | 66,000 |
| L | Lawndale – Seward | Upgrade (115 kV) | 15,450 |
| M | Eklutna – Lucas | R&R (115 kV/230 kV) | 12,300 |
| N | Lucas – Teeland | R&R (230 kV) | 51,100 |
| O | Fossil Creek – Plant 2 | Upgrade (230 kV) | 13,650 |
| P | Pt. Mackenzie – Plant 2 | R&R (230 kV) | 32,400 |
| Q | Bernice Lake – Soldotna | Rebuild (115 kV) | 24,000 |
| R | Bernice Lake – Beaver Creek - Soldotna | Rebuild (115 kV) | 24,000 |
| S | Susitna Transmission Additions | New Build (230 kV) | 57,000 |

- Projected capital spending estimates range from **\$13.625 billion to \$21.109 billion** (p. 1-17, 1-19)

Source:

<http://www.akenergyauthority.org/regionallintegratedresourceplan.html>

Southeast Integrated Resource Plan (SEIRP)

AEA December 2011

Table 1-2 Refined Screened Potential Hydro Project List

| PROJECT NAME | LOCATION | CATEGORY | CAPACITY (MW) | CAPITAL COST | | ANNUAL ENERGY (MWH) |
|------------------------------|-----------------|----------------------|---------------|---------------|---------------|---------------------|
| | | | | (\$ MILLIONS) | \$/KWH | |
| SEAPA | | | | | | |
| Anita - Kunk Lake | Wrangell | Storage | 8.60 | 90.54-135.82 | 10,528-15,793 | 28,100 |
| Cascade Creek | Petersburg | Storage | 70.00 | 146.35-219.53 | 2,091-3,136 | 202,300 |
| Connell Lake | Ketchikan | Storage | 1.70 | 5.40-10.80 | 3,176-6,353 | 10,600 |
| Lake Shelokum | Wrangell | Storage | 10.00 | 39.00-91.00 | 3,900-9,100 | 40,000 |
| Mahoney Lake | Ketchikan | Storage | 9.60 | 34.50-51.76 | 3,594-5,392 | 46,066 |
| Orchard Lake | Meyers Chuck | Storage | 10.00 | 34.20-79.80 | 3,420-7,980 | 56,000 |
| Ruth Lake | Petersburg | Storage | 20.00 | 84.54-126.82 | 4,227-6,341 | 70,700 |
| Scenery Creek | Petersburg | Storage | 30.00 | 128.98-193.48 | 4,299-6,449 | 128,700 |
| Sunrise Lake | Wrangell | Storage | 4.00 | 16.64-24.96 | 4,160-6,240 | 13,500 |
| Thoms Lake | Wrangell | Storage | 7.50 | 110.11-135.17 | 14,681-18,023 | 24,200 |
| Triangle Lake | Metlakatla | Storage | 3.50 | 12.63-18.95 | 3,609-5,414 | 13,100 |
| Tyee New Dam Construction | Wrangell | Storage | 1.40 | 36.60-85.4 | 26,143-61,000 | 9,100 |
| Tyee New Third Turbine | Wrangell | Storage | 10.00 | 13.20-30.80 | 1,320-3,080 | - |
| Virginia Lake | Wrangell | Storage | 12.00 | 103.21-154.81 | 8,601-12,901 | 43,800 |
| Baranoff Island | | | | | | |
| Takatz Lake | Sitka | Storage | 27.70 | 117.04-175.56 | 4,225-6,338 | 106,900 |
| Chichagof Island | | | | | | |
| Crooked Creek and Jim's Lake | Elfin Cove | Storage/Run-of-River | 0.16 | 1.48-2.22 | 9,250-13,875 | 666 |
| Indian River | Tenakee Springs | Run-of-river | 0.25 | 2.02-3.02 | 8,080-12,080 | 916 |
| Water Supply Creek | Hoonah | Run-of-river | 0.40 | 5.49-8.23 | 13,725-20,575 | 1,480 |

| PROJECT NAME | LOCATION | CATEGORY | CAPACITY (MW) | CAPITAL COST | | ANNUAL ENERGY (MWH) |
|-------------------------|----------------|--------------|---------------|---------------|--------------|---------------------|
| | | | | (\$ MILLIONS) | \$/KWH | |
| Juneau Area | | | | | | |
| Lake Dorothy Expansion | Juneau | Storage | 28.00 | 71.40-166.60 | 2,550-5,950 | 96,000 |
| Sweetheart Lake | Juneau | Storage | 30.00 | 82.82-124.08 | 2,761-4,136 | 136,000 |
| Upper Lynn Canal | | | | | | |
| Connelly Lake | Haines | Storage | 12.00 | 36.80-55.20 | 3,067-4,600 | 39,762 |
| Schubee Lake | Skagway | Storage | 4.90 | 36.00-54.00 | 7,347-11,020 | 25,000 |
| Walker Lake | Chilkat Valley | Run-of-river | 1.00 | 6.08-9.12 | 6,080-9,120 | 2,750 |
| West Creek | Skagway | Storage | 25.00 | 112.00-168.00 | 4,480-6,720 | 76,600 |

- The low end capital cost estimates contained in the refined screened potential hydro project table (p. 1-15,16) identify **\$1.327 billion** in potential expenditures.
- The capital cost estimates in the results of transmission interconnection economic evaluation table (p. 1-19) identify **\$1.424 billion** in potential expenditures.
- The SEIRP results of integrated cases – regional summary table (p. 1-37) estimates capital spending for the optimal hydro/transmission case at **\$1.407 billion**.

Source:

<http://www.akenergyauthority.org/southeastIRP.html>

Summary: Capital Estimates

- * Alaska Energy Pathway (AEA 2010) near term:
 - * \$1.999 billion.
- * Railbelt Integrated Resource Plan (AEA 2010) long term:
 - * \$13.625 - \$21.109 billion.
- * Southeast Integrated Resource Plan (AEA 2011) long term:
 - * \$1.407 billion
- * ***Takeaway: there will be substantial spending on energy infrastructure in Alaska over the next five to ten years.***

Financing: Legislative Intent



LAWS OF ALASKA

2011

FIRST SPECIAL SESSION

Source
[HCS CSSB 46\(FIN\)](#)

Chapter No. _____

AN ACT

Making and amending appropriations, including capital appropriations, savings deposits in the form of appropriations to the statutory budget reserve fund, and other appropriations; making appropriations to capitalize funds; and providing for an effective date.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

THE ACT FOLLOWS ON PAGE 1

“It is the intent of the legislature that the state’s capital investment into energy generation projects not exceed 50% of the total investment required to fully complete those projects.”

Page 136, Chapter 5 SSLA 11

Financing

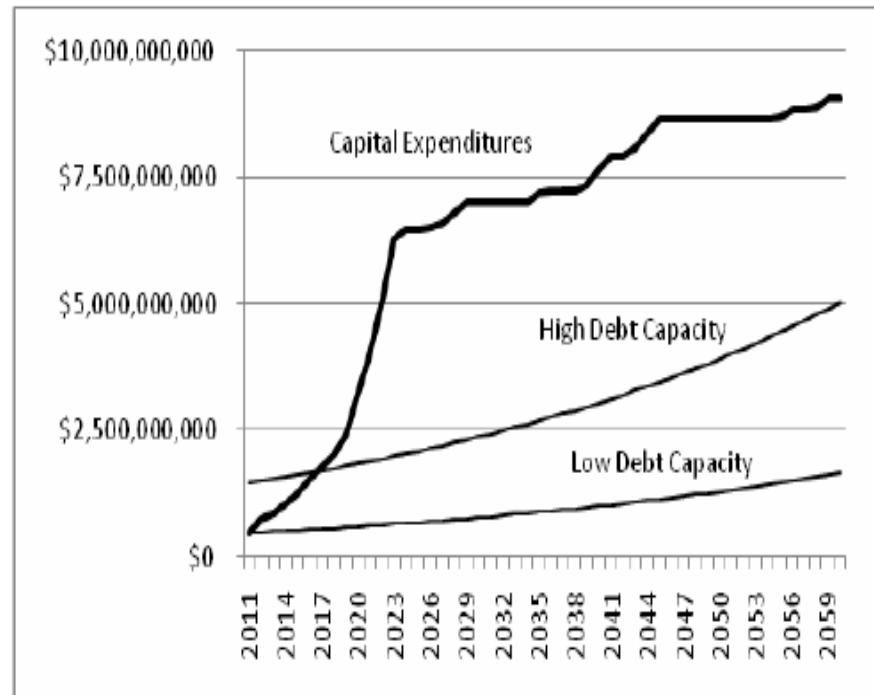
Alaska Energy Pathway: AEA July 2010

“The largest identified challenge is how to finance projects that have been identified as economic. There is a financial gap between the projected capital expenditures and the debt capacity of the Railbelt utilities. This gap is apparent in Figure 1, excerpted from the Railbelt IRP document. The debt capacity curve indicates a low capacity of \$1 billion and a high capacity of \$2.5 billion. These debt capacities leave a Financing Gap from \$4.5 billion to \$6.5 billion for the Railbelt electric infrastructure alone.

There are three options to close the financial gap:

1. Reduce capital expenditures by reducing the number and size of projects.
2. Increase debt capacity by building a healthy economic base, obtaining favorable financing terms such as loan guarantees, low interest rates or grant assistance.
3. Obtain grant funding from state, federal or other outside sources.”

Figure 1-9
Required Cumulative Capital Investment (Scenarios 1A/1B) Relative to Railbelt Utility Debt Capacity



Source: SNW Report included in Appendix C.

Source: <http://www.akenergyauthority.org/alaska-energy-plan.html>

Financing: continued

Southeast Integrated Resource Plan: Appendix B AEA July 2010

Selected Inputs into the model:

- * Project Cost: \$250,000,000
- * Long Term Debt: \$306,890,758
- * Interest Rate: 5.5%
- * Generation: 25 MW
- * Capacity Factor: 65%
- * Project Life: 50 years

| Debt Service | Operation Year 1 |
|--------------------------------------|------------------|
| Interest Accrual in Operation Year | \$16,822,278 |
| Principal Payments in Operation Year | \$4,181,330 |
| | |
| Total Principal & Interest Payments | \$21,003,614 |
| Debt Service as % of Revenue | 78.1% |

| Debt Service (Principal & Interest) | | | | | |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|
| Interest Accrual In Operation Year | 16,822,278 | 16,580,143 | 16,343,008 | 16,083,150 | 15,808,804 |
| Principal Payments In Operation Year | 4,181,330 | 4,414,472 | 4,600,000 | 4,820,404 | 5,104,810 |
| Total Unit 1 Debt Service Payments | 21,003,614 | 21,003,614 | 21,003,614 | 21,003,614 | 21,003,614 |
| Total Principal & Interest Payments | 21,003,614 | 21,003,614 | 21,003,614 | 21,003,614 | 21,003,614 |
| Cash Flow net Debt Service | 4,200,723 | 6,203 | 6,389 | 6,581 | 6,778 |



Source: Southeast Integrated Resource Plan; Appendix B: http://www.akenergyauthority.org/SEIRP/12-23-2011_Vol3_SoutheastAlaskaIRP.pdf

Summary: Financing

- * The legislature has expressed the intent that state funding for generation projects not exceed 50% of the total investment required for the projects; necessitating financing.
- * AK Energy Pathway: “*The largest identified challenge is how to finance projects that have been identified as economic.*”
- * Financing costs represent a significant portion of the revenues of any energy project.
- * ***Takeaway: financing is an important part of project development and a challenge in Alaska.***

Senate Bill 25: A.S.S.E.T.S

Alaska's Sustainable Strategy for Energy Transmission and Supply

1. Sections

1. Makes conforming changes to AIDEA's mission by including **energy** in the legislative findings of AIDEA's enabling statutes AS 44.88.010(a) [section 2].
2. Creates a new *Sustainable Energy Transmission and Supply* (SETS) development program and fund within the Alaska Industrial Development and Export Authority (AIDEA) [sections 12 & 13]
3. Sets the interest rates for loans/investments from the fund [sections 6-10]
4. Allows for an incentive interest rate for “renewable energy development” in addition to the existing rural and economic development criteria [section 11].
5. Makes changes to AIDEA's loan participation program AS 44.88.155(d) [section 4].

SB 25: Powers and Limitations of SETS

1. Section 10 creates a new *Sustainable Energy Transmission and Supply (SETS)* development program and fund within the Alaska Industrial Development and Export Authority (AIDEA). Some of the powers granted to AIDEA are to use the SETS fund to:
 1. To finance qualified projects, insure project obligations, guarantee loans or bonds and establish reserves.; and
 2. Defer principal payments or capitalize interest on project financing; and
 3. Enter into project financing agreements; and
 4. Finance projects up to a term of 30 years or 50 years for a hydroelectric or transmission project; but
 5. AIDEA must obtain legislative approval if it finances:
 1. More than one-third of the capital cost of an energy project; or
 2. Guarantees a loan that exceeds \$20 million.

Why AIDEA?

AIDEA's obligations are not obligations of the State.

Sec. 44.88.120. Nonliability on bonds.

- * (a) Neither the members of the authority nor a person executing the bonds are liable personally on the bonds or are subject to personal liability or accountability by reason of the issuance of the bonds.
- * (b) The bonds issued by the authority **do not constitute an indebtedness or other liability of the state** or of a political subdivision of the state, except the authority, but shall be payable solely from the income and receipts or other funds or property of the authority. The authority **may not pledge the faith or credit of the state or of a political subdivision of the state**, except the authority, to the payment of a bond and the issuance of a bond by the authority does not directly or indirectly or contingently obligate the state or a political subdivision of the state to apply money from, or levy or pledge any form of taxation whatever to the payment of the bond.

AIDEA pays a dividend.



Source: AIDEA Annual Report 2011



Since inception, AIDEA has paid \$324,500,000 in dividends to the state of Alaska and has net assets of nearly \$1 billion. AIDEA was capitalized with the transfer of \$384,500,000 in general funds and loans beginning in 1981.

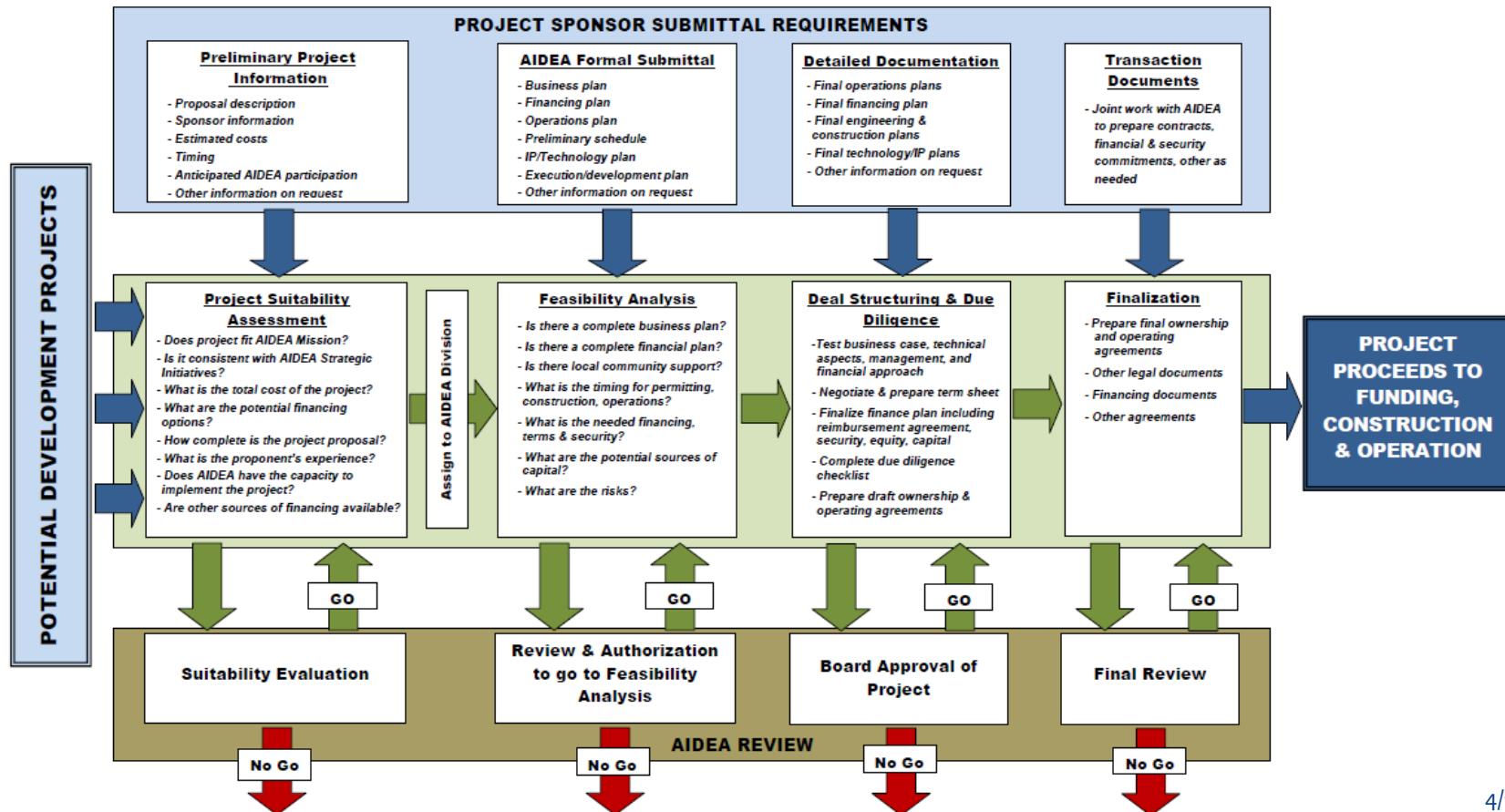
AIDEA has a strong credit rating.

The most recent ratings report for AIDEA (Standard and Poor's, December 13, 2010) reaffirmed AIDEA's "AA-" rating due to:

1. "A pledged portfolio of private activity economic development loans;
2. A currently low loan delinquency rate;
3. Projected cash flows and debt service coverage that meet Standard and Poor's requirements for the 'AA' category for state revolving fund programs;
4. Strong legal covenants, including an additional bonds test requiring either in excess of 1.50x annual debt service, or the maintenance of unrestricted surplus equal to \$200 million or principal outstanding and never less than \$100 million; and
5. Covenants to maintain what we view as good liquidity in the authority's unrestricted cash equivalents balance."

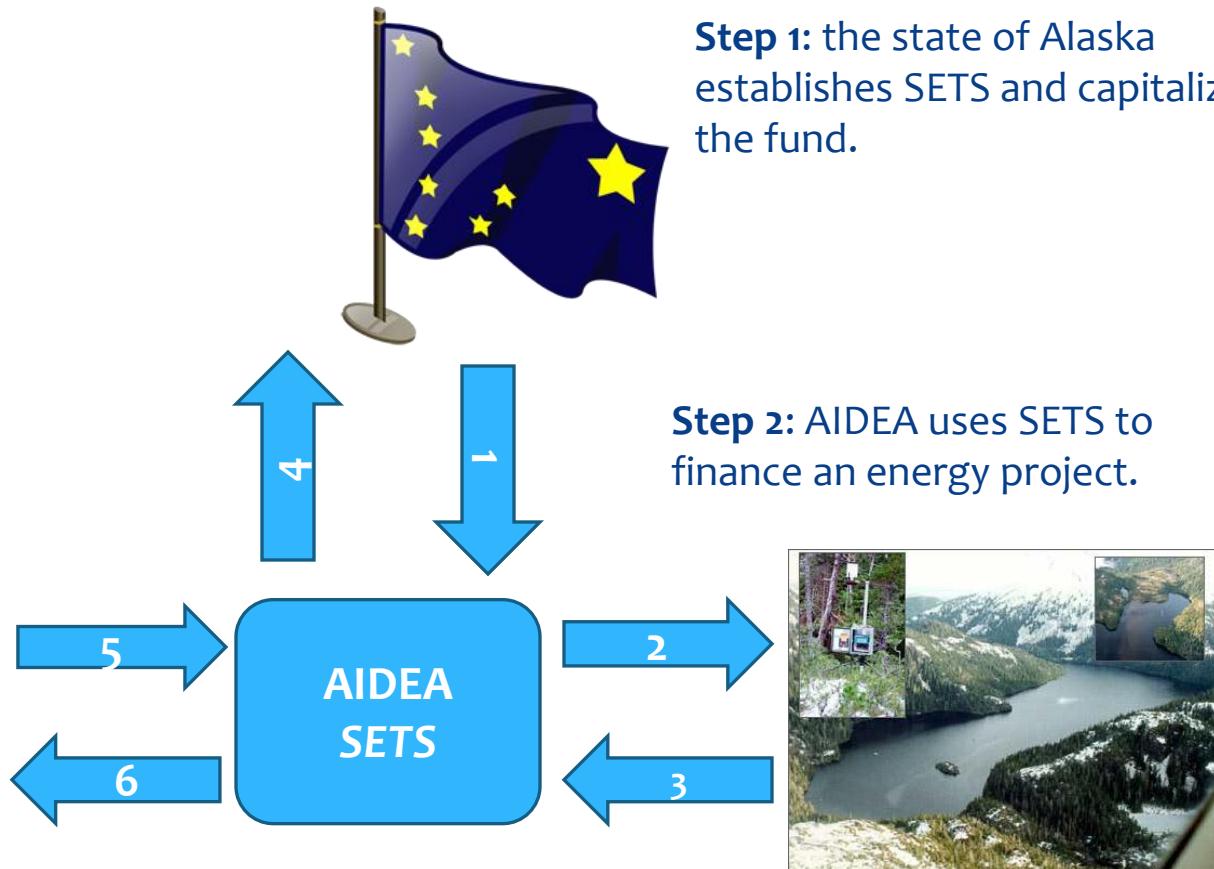
AIDEA has a developed process for evaluating and initiating financing decisions.

AIDEA DEVELOPMENT RELATED PROJECT INTAKE, ANALYSIS & DECISION MAKING PROCESS



How SETS will work within AIDEA

Step 5 & 6: AIDEA can access the financial markets to make more credit available through SETS.



Summary

1. Senate Bill 25 creates a sustainable strategy for energy transmission and supply by putting some of Alaska's financial assets to work within the state in order to fund energy projects.
2. The strategy is sustainable because each investment is an asset that will generate revenues for AIDEA and the state and earnings that can be reinvested in future projects.
3. Senate Bill 25 is not the answer to Alaska's energy challenges. The high costs, vast distances and small populations will often require direct state participation in energy projects for generations to come.
4. However, Senate Bill 25 does provide a tool that will help facilitate the development of energy projects in Alaska and is complimentary to the work the legislature and the Governor have done to date to address the energy needs of Alaska.

Questions?

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