

Chugach Electric Association

**Southern Intertie
Economics for
The Chugach System**

Board of Directors

November 20, 2002

Southern Intertie Economics

Assumptions

- **40-year life**
- **Analyzed from a Chugach System point of view**
 - **Retail**
 - **Wholesale (HEA, MEA & SES)**
- **Wholesale sales continue for life of project**
- **State grant of \$70 million***

* Includes interest earnings and less spending to date

Southern Intertie Economics

What is Included in the Evaluation?

Benefits

- Production
- Deferred 115 kV rebuild
- Wheeling revenue
- ~~Capacity deferred~~
- ~~Reliability~~
- ~~Reduction in existing 115 kV O&M~~
- ~~Reduction in existing 115 kV outage cost~~

Costs

- Initial construction
- O&M
- Submarine cable replacement

Southern Intertie Economics
Chugach System Economics

**Net Present Value
of the Southern Intertie**

Range

\$14 M



\$22 M

**Chugach only
Participant**

**All Railbelt
Utilities
Participate**

**Evaluation of
Chugach as Only
Participant**

**\$14 M NPV
Benefit**

Southern Intertie Economics – Chugach Only Participant

Chugach Benefits and Costs

Net Present Value - In Millions

Direct Benefits:

- | | |
|----------------------------------|------|
| 1. Production Fuel Cost Savings | \$43 |
| 2. Deferred 115 Rebuild Savings* | \$11 |
| 3. Additional Wheeling Revenue | \$2 |

Total Direct Benefits	\$56
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Less Total Costs (Net of Grant)	\$42
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Net Present Value	\$14
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* 115 is the existing 115 kV Anchorage to Kenai Transmission line

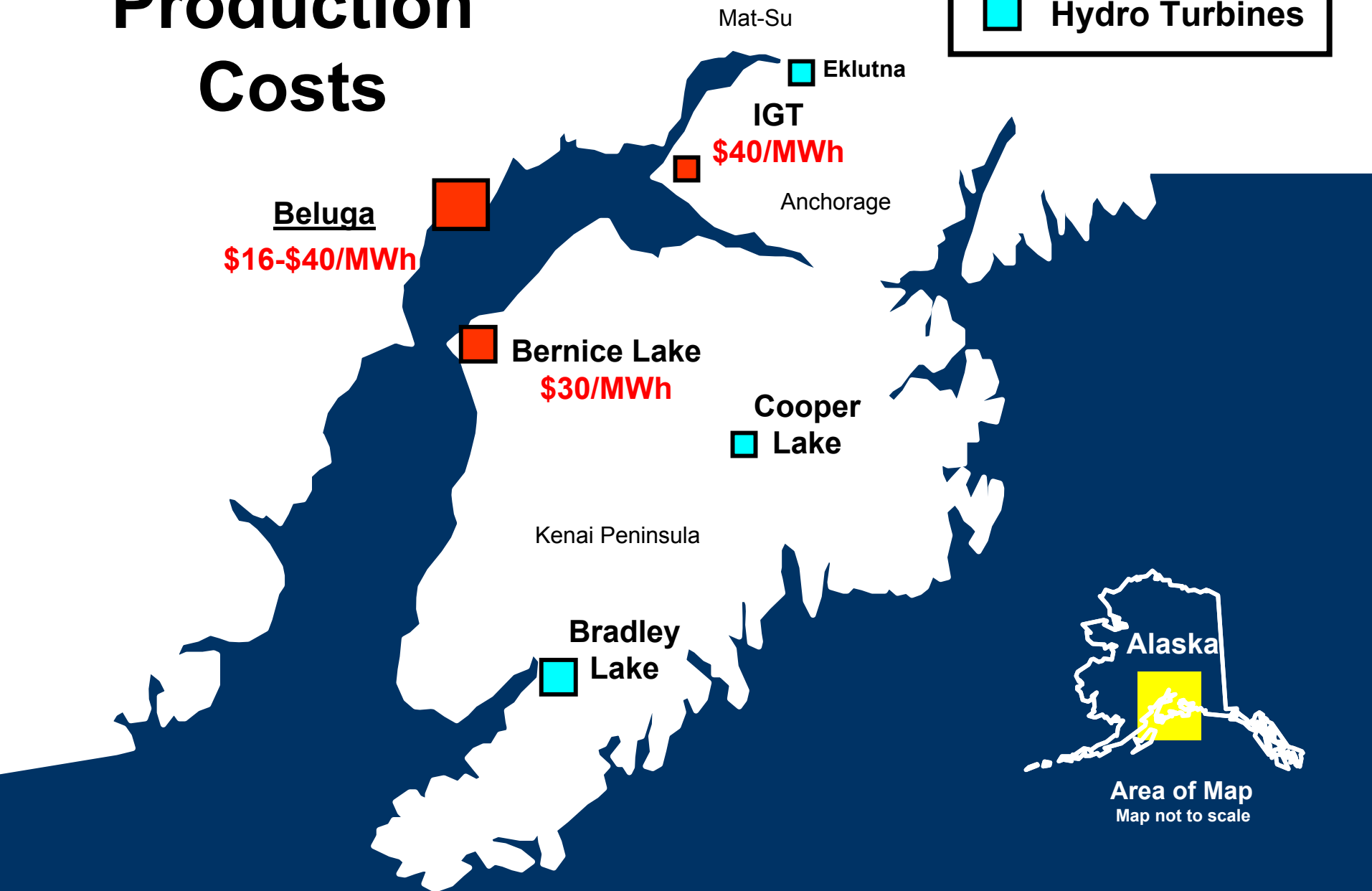
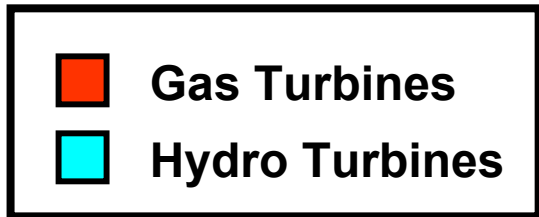
Southern Intertie Economics – Chugach Only Participant

Benefit #1

Power Production = \$43 M NPV Savings
(Lower fuel cost)

- **Gas turbines cost from \$16-\$40/MWh**
- **Value of hydro energy is equal to cost of generation it replaces**
- **With the Southern Intertie, Chugach saves money by using cheaper Kenai generation instead of running more expensive units**

Approximate Production Costs



Southern Intertie Economics – Chugach Only Participant

Benefit #2

**Defer Existing 115 kV Line Rebuild
\$11 M NPV Savings**

Without Southern Intertie
\$5.0 M/Year starting in 2004 for PV of \$33.6 million

'03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14 '15 '16 '17

Southern Intertie Economics – Chugach Only Participant

Benefit #2

**Defer Existing 115 kV Line Rebuild
\$11 M NPV Savings**

Without Southern Intertie
\$5.0 M/Year - PV of \$33.6 million

With Southern Intertie
\$4.5 M/Year - PV of \$22.2 million

'03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14 '15 '16 '17

Southern Intertie Economics – Chugach Only Participant

Benefit #2

Why does it cost less to defer the 115 Rebuild?

- **Allows more flexibility in scheduling outages**
- **Requires less overtime**

Southern Intertie Economics – Chugach Only Participant

Benefit #3

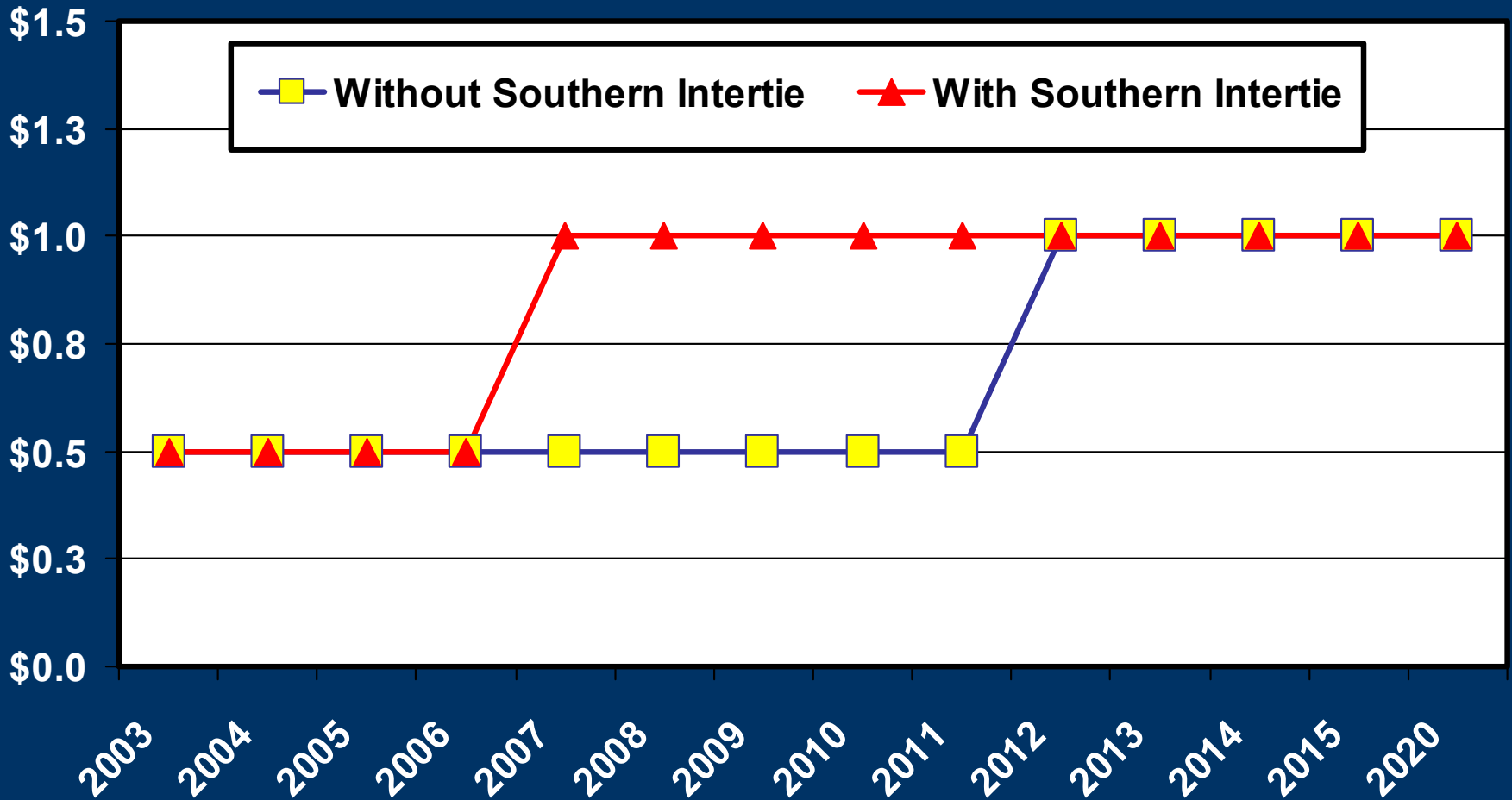
Wheeling Revenue

Amount that Chugach charges other utilities to transport their energy over Chugach's transmission lines

Southern Intertie Economics – Chugach Only Participant

Benefit #3

Chugach would receive more wheeling revenue
from 2007-2011 = \$2M NPV



Southern Intertie Economics – Chugach Only Participant

Costs

Total Present Value Costs of Southern Intertie

\$42.0 Million NPV Cost

Consist of Three Main Costs:

- 1. Initial construction cost (less grant)**
- 2. Submarine Cable Replacement**
- 3. Operating & Maintenance Costs**

Southern Intertie Economics – Chugach Only Participant

Cost #1

Southern Intertie Initial Construction Costs

	<u>Estimates</u>
Tesoro Route	\$100 M
Less Grant	\$70 M
Chugach's Share	\$30 M

Southern Intertie Economics – Chugach Only Participant

Cost #2 and #3

Submarine Cable Replacement

Submarine Cable Replacement every 23 years	\$40.0 M
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O&M Costs

Operating and Maintenance Costs	\$400,000/year
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Southern Intertie Economics – Chugach Only Participant

Benefit and Cost Summary

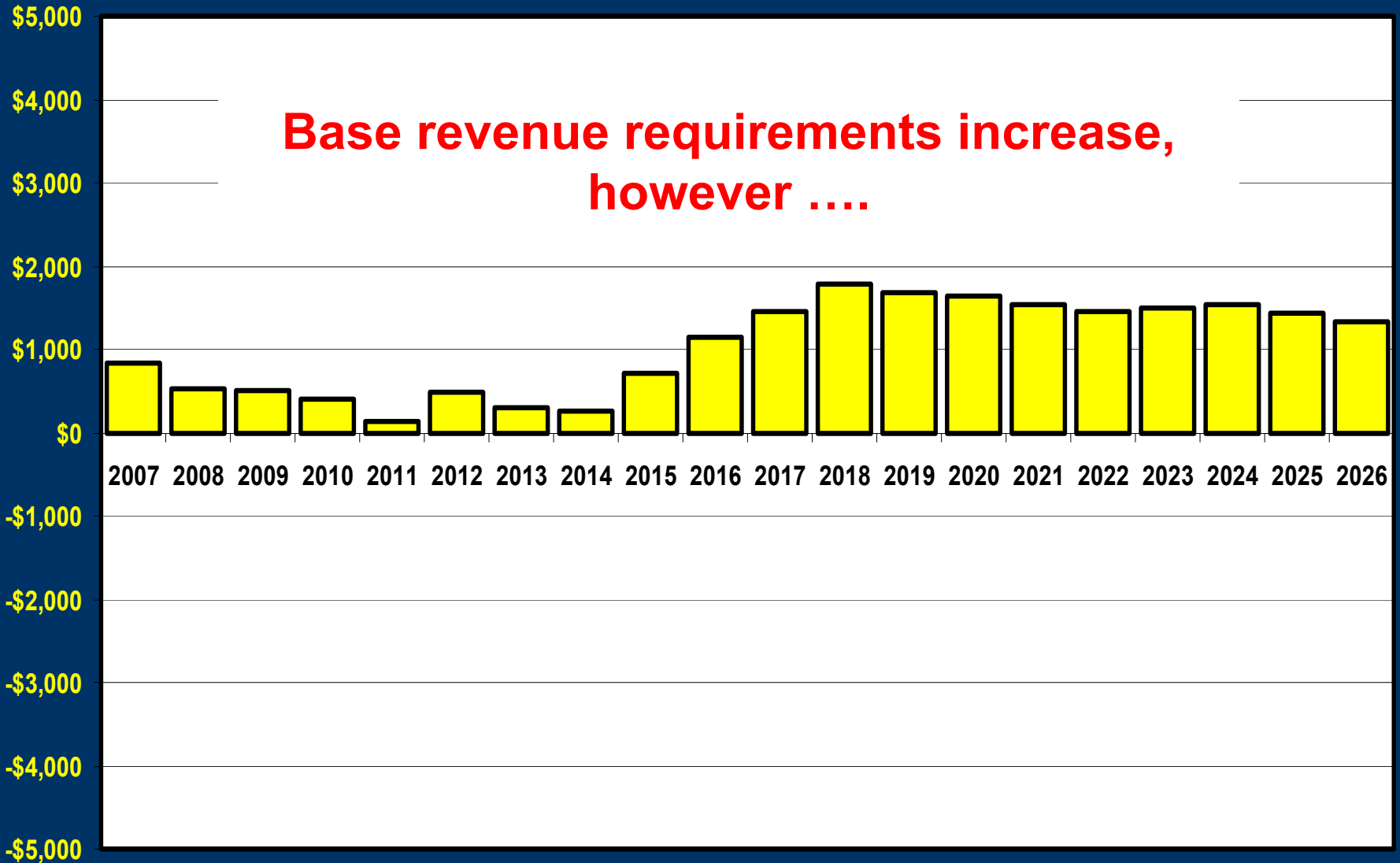
Net Present Value

Total Benefits	\$56 M
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Total Costs	\$42 M
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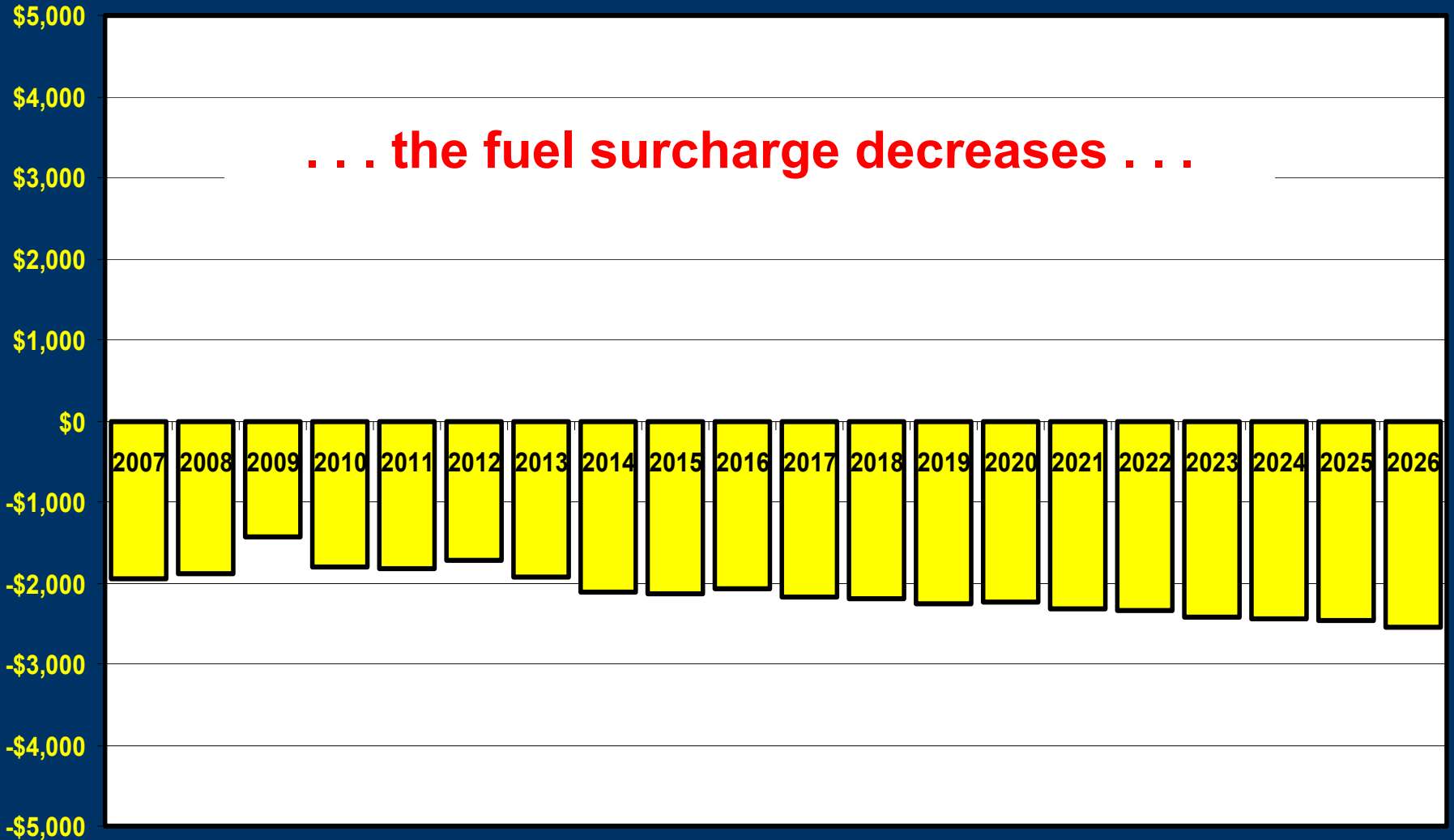
Difference - NPV	\$14 M
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Southern Intertie Economics – Chugach Only Participant
Change in Base Retail Revenue - \$000



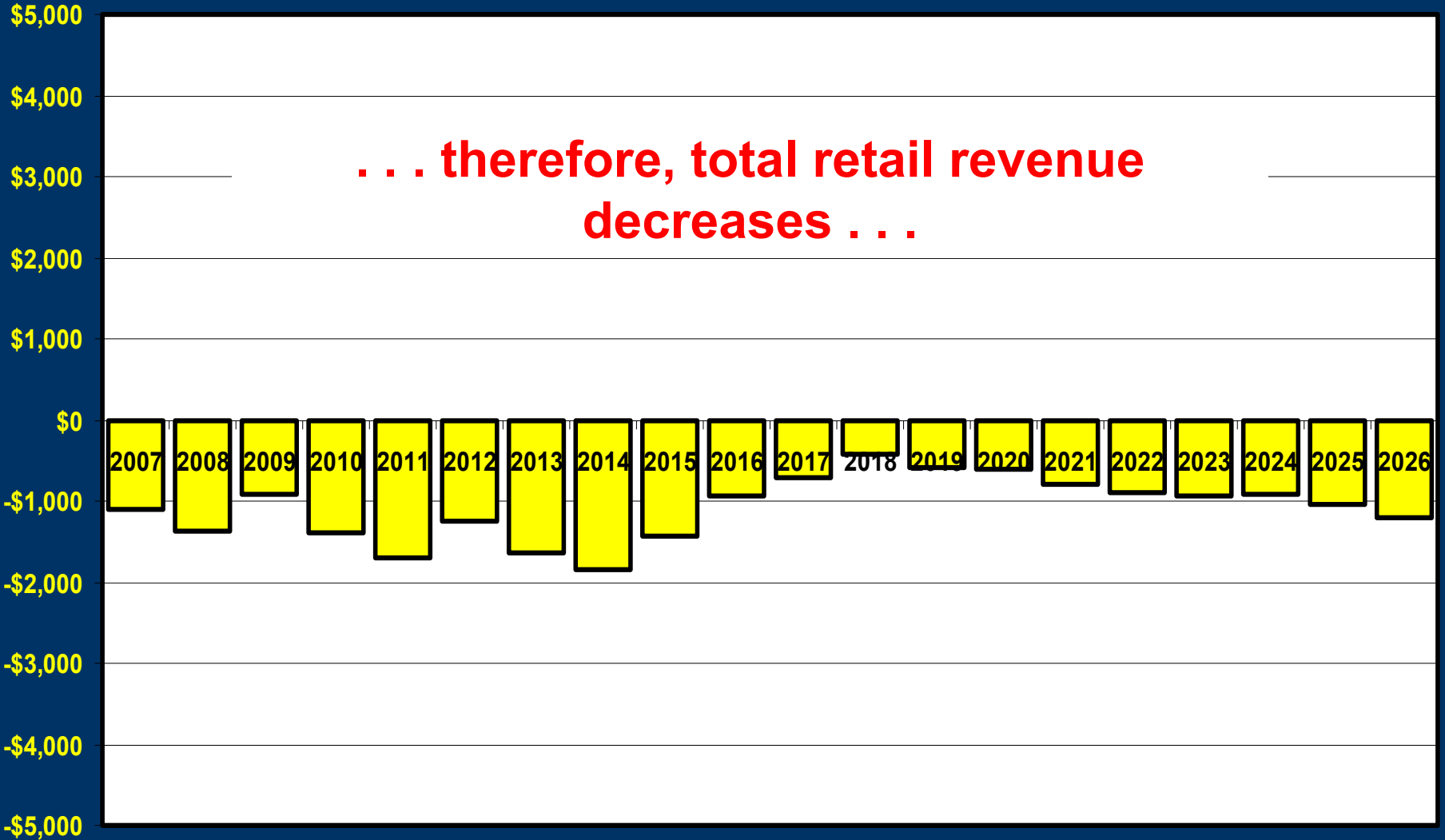
Southern Intertie Economics – Chugach Only Participant

Change in Fuel Surcharge Revenue



Southern Intertie Economics – Chugach Only Participant

Net Change Retail Revenue



Southern Intertie Economics – Chugach Only Participant

Chugach Monthly Residential Bill

**Chugach monthly residential
bill will be about 60¢ less**



Southern Intertie Economics – Chugach Only Participant

Financial Ratios 2006-2026

Chugach's Financial Planning Criteria is met:

- **Equity Ratio $\geq 25\%$**
- **MFI/I ≥ 1.25**

Southern Intertie Economics – Chugach Only Participant

Sensitivities

**Net Present Value of Southern Intertie with
a 10% Change in Costs:**

**Construction
Costs**



Southern Intertie Economics – Chugach Only Participant

Sensitivities

**Net Present Value of Southern Intertie with
a 10% Change in Costs:**

Production Costs



Southern Intertie Economics – Chugach Only Participant

Sensitivities

**Net Present Value of Southern Intertie with
a 10% Change in Costs:**

Construction and Production Costs



Southern Intertie Economics – Chugach Only Participant

Risk

Submarine Cable

Assumptions

- **\$40 million replacement cost**
- **23 year replacement life***

* Based on Chugach's 1999 Depreciation Study

Southern Intertie Strategy Recommendation

- **Chugach participate as defined in the Intertie Participants Agreement**
- **Encourage other Railbelt utilities to participate**