

“Kick the Oil Habit!”

Alaska Miner’s Association

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Golden Valley Electric Association**



GVEA's Strategies

- Conservation/Efficiency
- Wind
- LNG
- HCCP
- Natural Gas
- Susitna



Project comparison

Project	Per Proposals		
	Fire Island	Delta Wind Farm	Eva Creek
Size (MW)	10 (35 total)	25.6	24.6
Term (Years)	25	15	18
Capacity Factor (%)	31.6	27	36
MWH (Annual)	27,594	60,549	76,932
Price (\$/kWh)	\$.0816 with 2% annual escalation Average cost = \$0.108	\$0.125	\$0.079
Annual Cost of Power (70,000 MWH/yr)	\$8,308,656 (\$2,231,028/yr More)	\$9,616,500 (\$3,538,872/yr More)	\$6,077,628

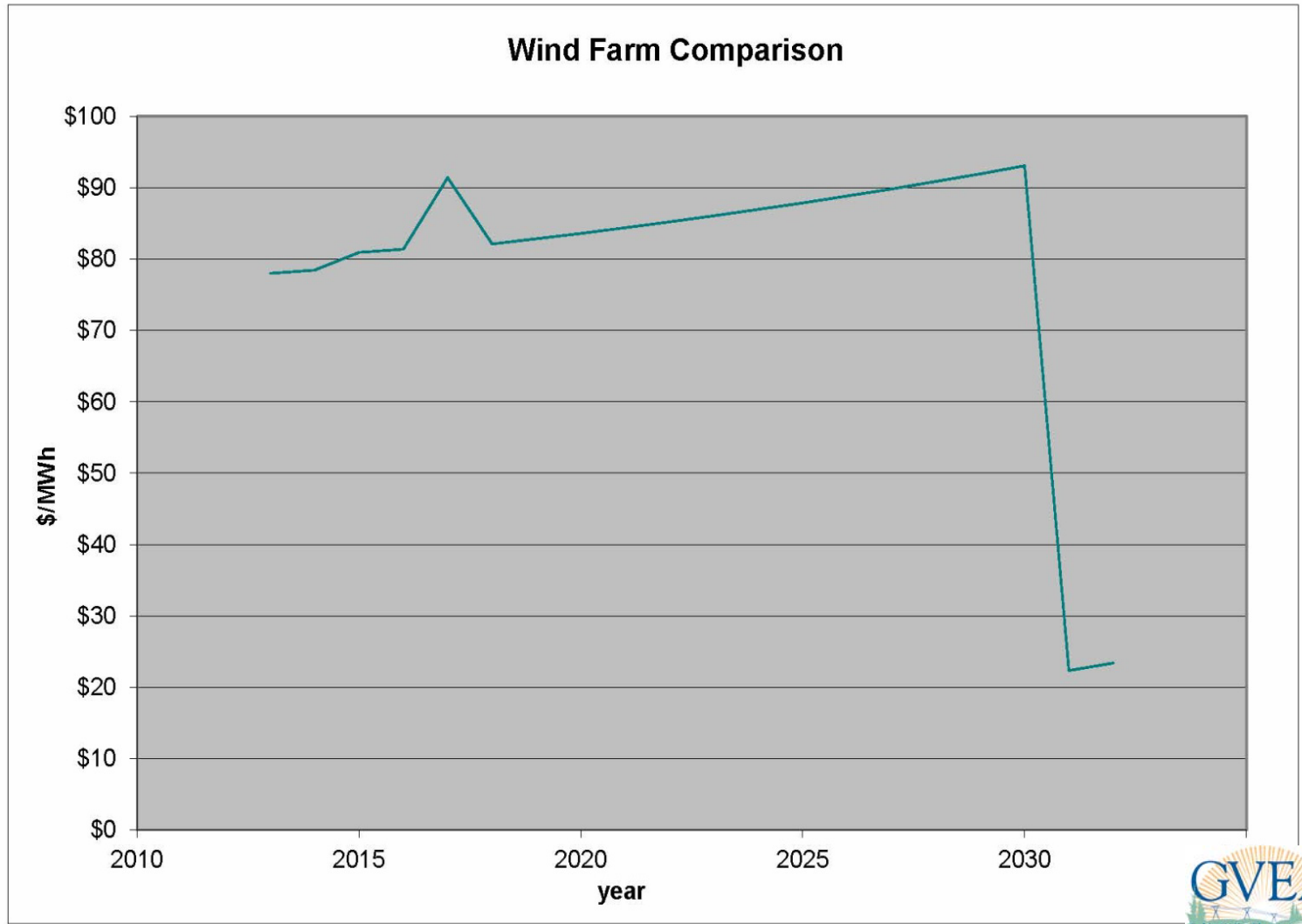
Fire Island/Chugach deal: 17.6 MW, 48,565 mWh, 25 yrs.,
\$.10785/kWh

Eva Creek Project Summary – 24.6MW

\$/MWh year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Avg
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
EC RE	\$78	\$78	\$81	\$81	\$91	\$82	\$83	\$84	\$84	\$85	\$86	\$87	\$88	\$89	\$90	\$91	\$92	\$93	\$22	\$23	\$79

Project Details

Turbines	\$37M
BOP	\$43M
GVEA	\$12M
Grants	(\$13M)
Total	\$79M
O&M	\$712K
Interest	2.1%
Pmt Yrs	18



Ability to regulate variable power

Historical GVEA generation mix

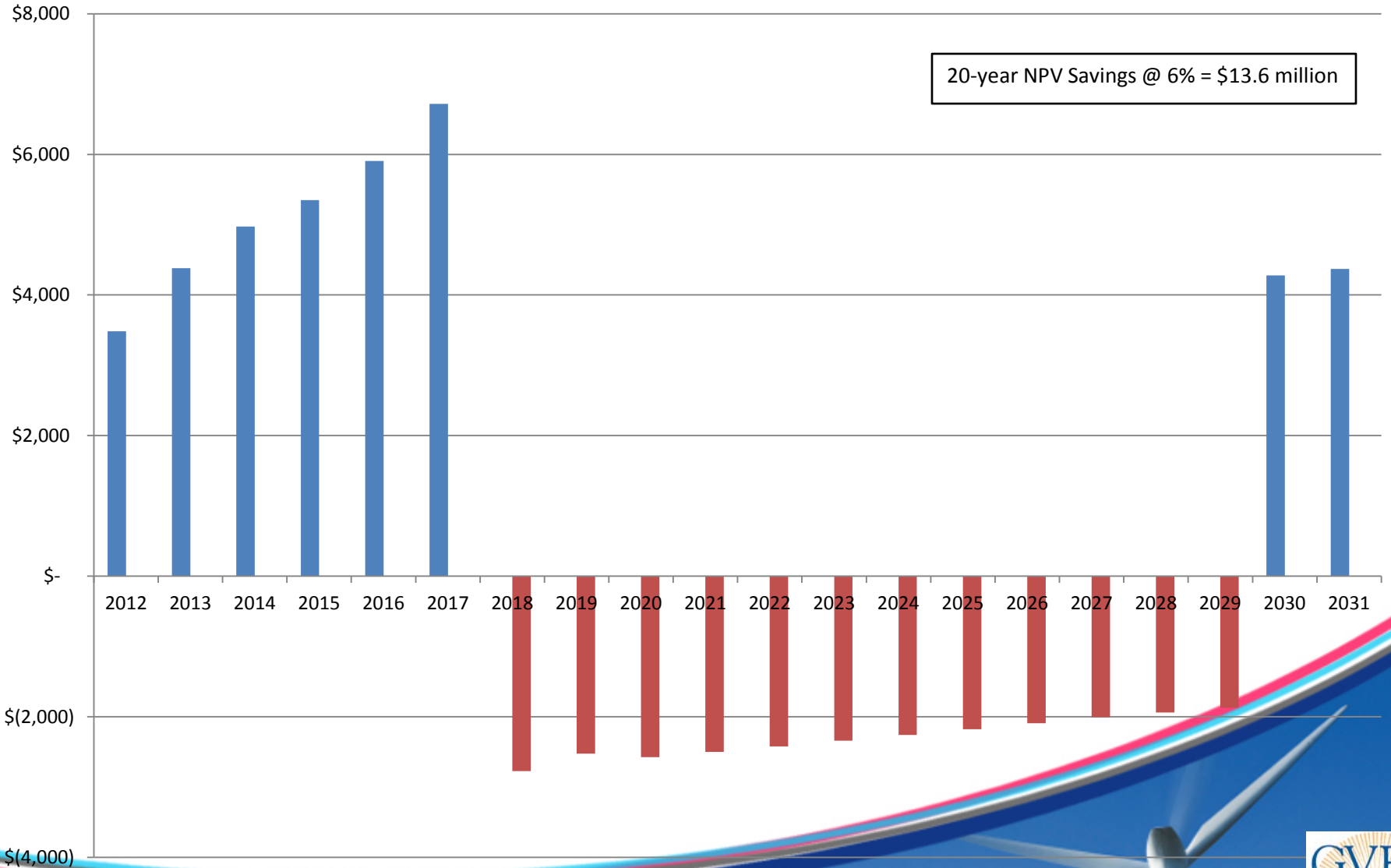
Unit min	Unit max		Typical mid day Unit Output (MW)		
			Summer	Fall	Winter
24	24	AE	24	24	23
18	28	Healy	28	26	28
10	55	NP1			
10	55	NP2			31
38	55	NP3&4	38	51	47
4	18	ZN1			
4	18	ZN2			
4	23	DPP			
0	75	Econ & BLH	63	60	58
		Load	153	161	187

Regulation Costs

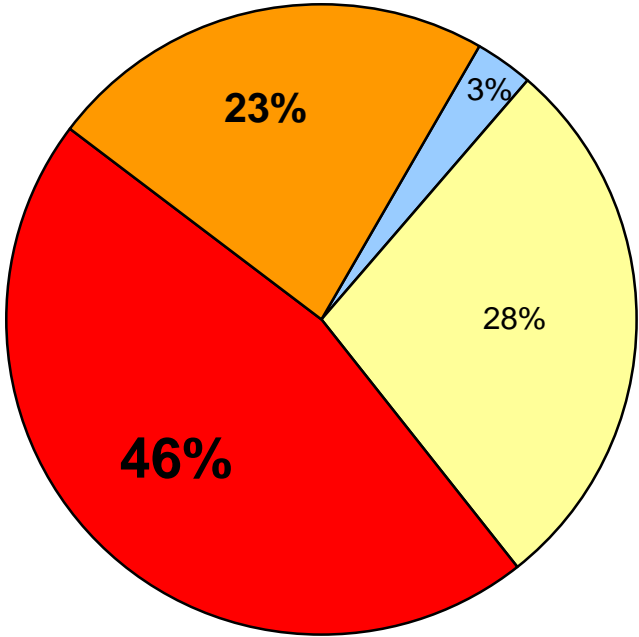
Annual Savings and Regulating Costs

25 MW Farm	Wind MWh	Difference	reg \$/MWh	Save bbl
2013 no wind	0			
2013 all wind	77,000	\$2,046,312	\$89.10	57,532
2013 firm wind	77,000	(\$4,814,570)		120,271
2013 spill wind	75,817	(\$1,576,357)	\$42.71	90,522
50 MW farm	Wind MWh	Difference	reg \$/MWh	Save bbl
2013 no wind	0			
2013 all wind	154,000	\$24,428,346	\$226.79	-114,353
2013 firm wind	154,000	(\$10,497,634)		240,296
2013 spill wind	133,370	\$576,827	\$83.04	157,460

Eva Creek Project Annual Savings *(thousands)*



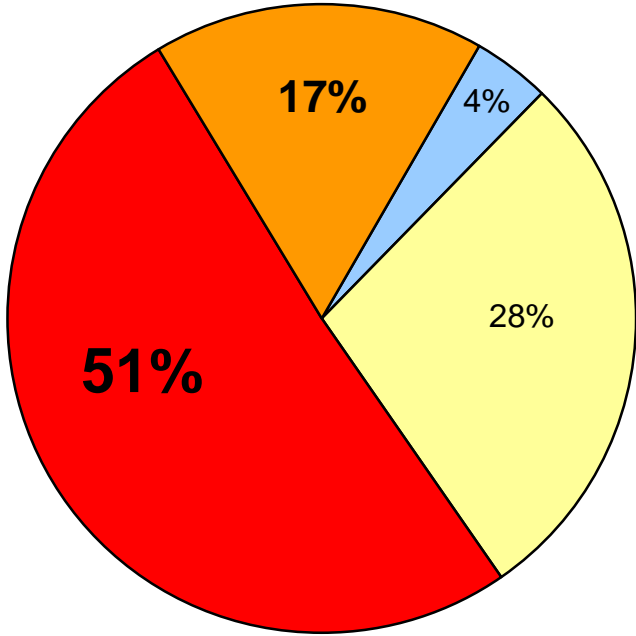
GVEA's Mantra – “Kick Our Oil Habit!”



2009

Oil 46% to 51%

Nat. Gas 23% to 17%

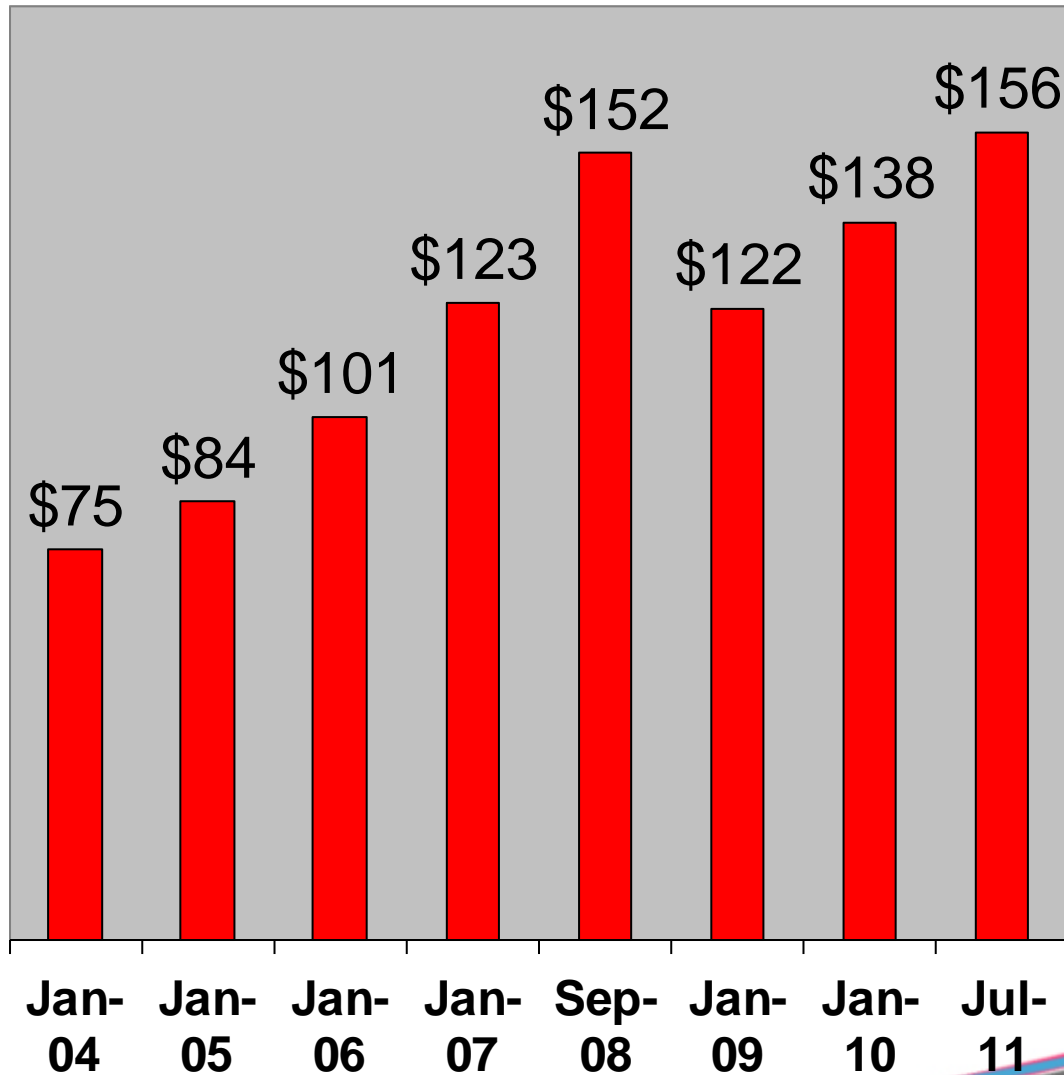


2010

Coal 28% to 28%

Hydro 3% to 4%

Residential Bills (700 kWh)



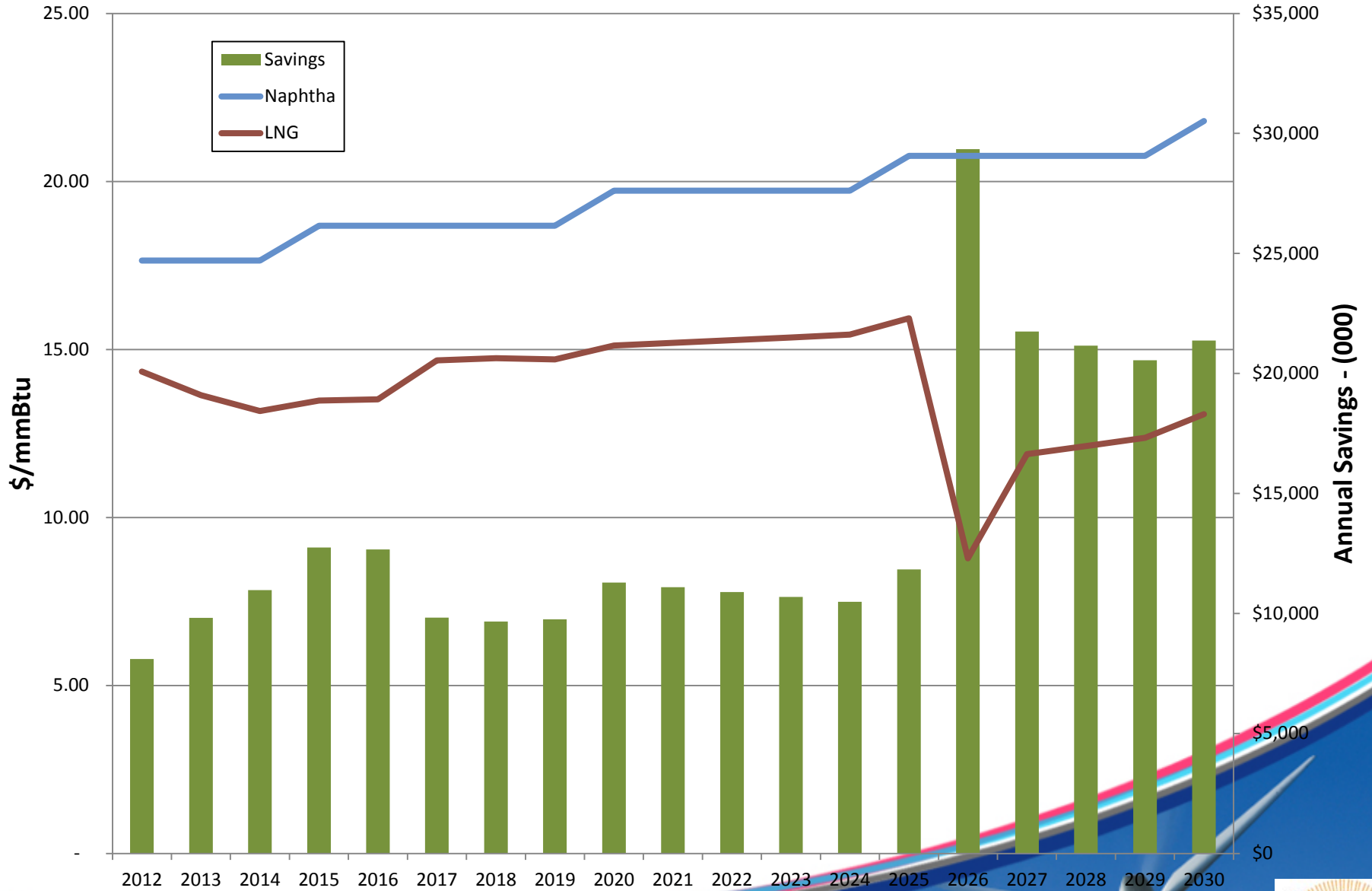
2004 - 2010

- 2004 - \$75
- 2005 - \$84
- 2006 - \$101
- 2007 - \$123
- 2008 - \$152
- 2009 - \$122
- 2010 - \$138
- 2011 - \$156
- Oil volatility!

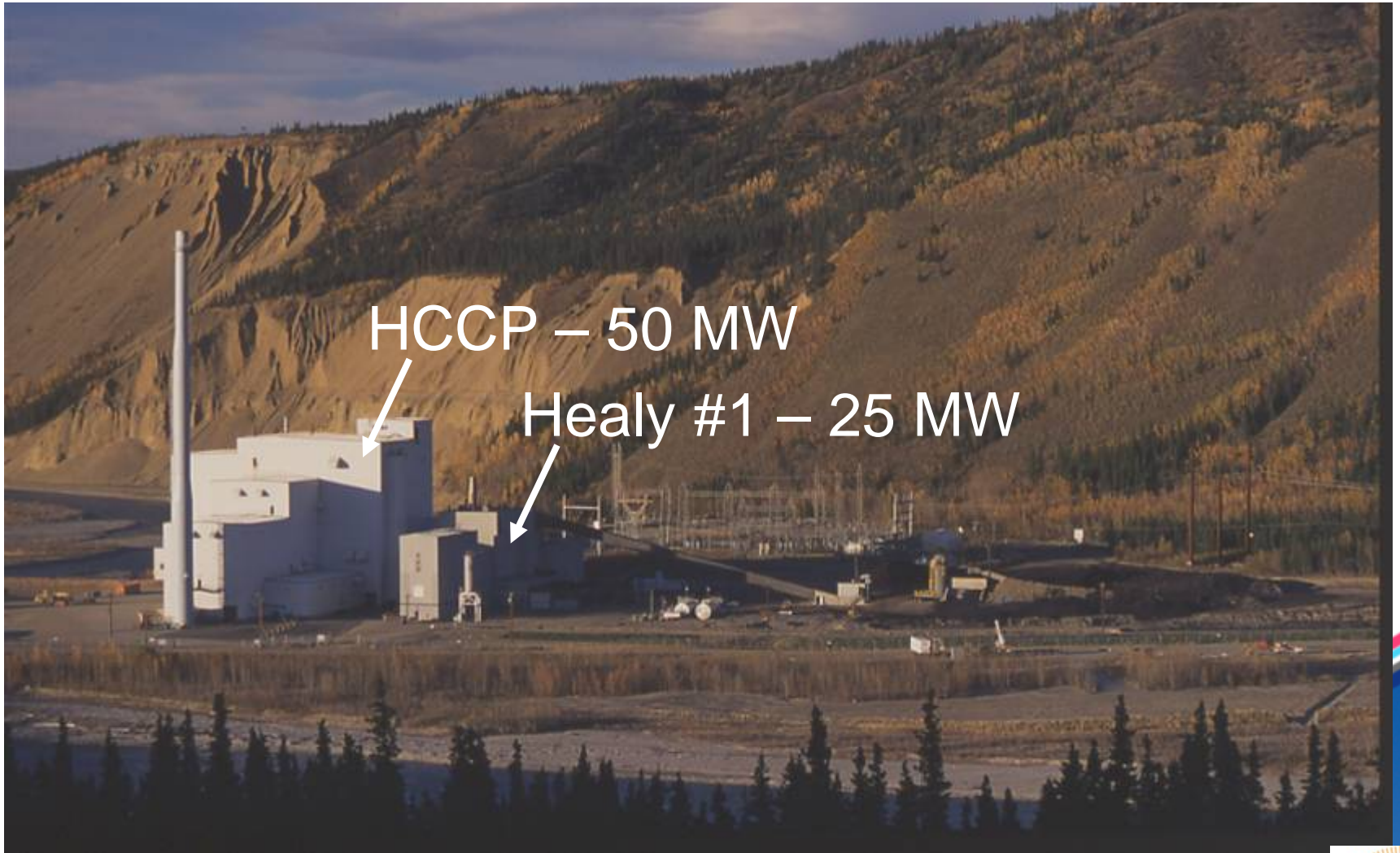
Natural Gas



Estimated LNG Savings vs. Naphtha (\$90bb/oil)



HCCP



HCCP – 50 MW

Healy #1 – 25 MW

"Kick the oil habit" by switching from Oil to LNG and Coal

Fuel	Gallons	BTU	Cost	\$/mmbtu
Naphtha	24,000,000	2,736,000,000,000	\$ 48,016,231	17.55
Diesel	13,000,000	1,846,000,000,000	\$ 28,526,127	15.45
	37,000,000	4,582,000,000,000	\$ 76,542,358	16.71
LNG		2,736,000,000,000	\$ 38,304,000	14.00
Coal		1,846,000,000,000	\$ 9,230,000	5.00
Total BTU		4,582,000,000,000	\$ 47,534,000	10.37
		Savings	\$ 29,008,358	38%
Total Fuel & Purchased Power			\$ 149,500,000	
			Savings \$ 29,008,358	
			\$ 120,491,642	24%

Questions?

