

GOLDEN VALLEY ELECTRIC ASSN. UNDERSTANDING ENERGY IN THE INTERIOR



Cory Borgeson
GVEA President & CEO

February 12, 2015
Special House Energy Committee
Representatives Vazquez and Colver, Co-Chairs



Interior Alaska

- Serving nearly 100,000 residents
 - 5,973 square miles
 - 3,177 miles of power lines
 - Fairbanks, Delta Junction, Nenana, Healy, Cantwell
- Like an island as far as electricity goes...
 - one long extension cord - 80 MW Intertie to Anchorage
- Temperatures can range from -50°F in the winter to 80s in the summer



GVEA at a Glance

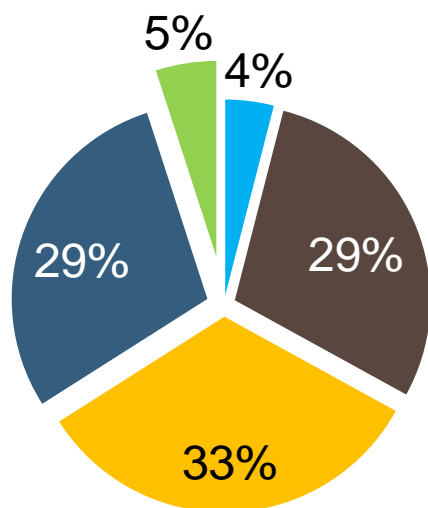
- Owned by 34,364 members
- 99.98 percent reliability during 2014
 - Average member experienced less than 2.8 hours without power
 - BESS responded to 78 events, preventing ~ 263,489 member outages
- 296 MW Generation Capacity
- 201.6 MW peak load @ 6pm on January 12 @ -34°F
- 2014 Retail Sales: 1.22 billion kWh



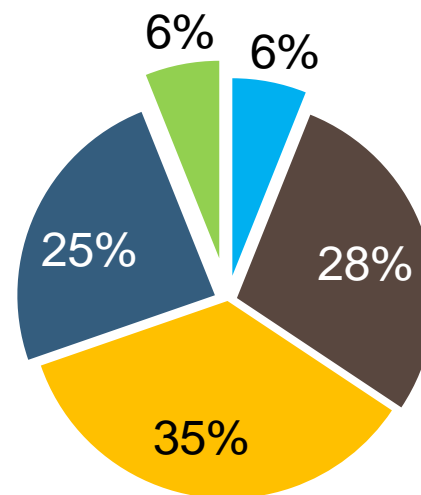
Where Our Power Comes From

GVEA Fuel Supply

2013



2014



- Hydro
- Coal
- Natural Gas
- Oil
- Wind



GVEA Generation

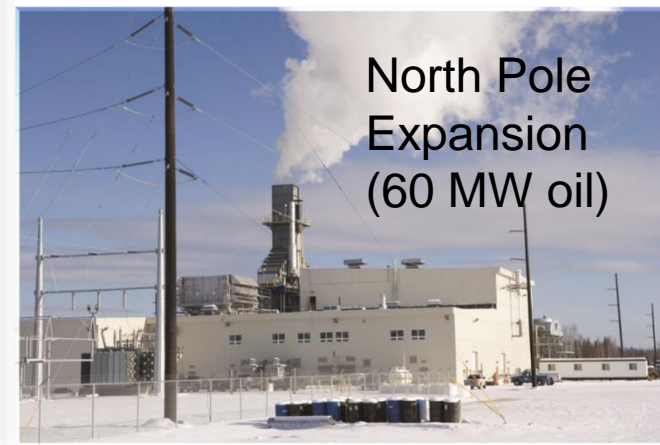


Healy Unit 1
(28 MW coal)

Zehnder
(41 MW oil)



Eva Creek
Wind – 25 MW



North Pole
Expansion
(60 MW oil)

North Pole
(120 MW oil)



Delta (27 MW oil)



GVEA Green Power Sources



Bradley Lake Hydro - IPP

120 MW

Commercial power since 1991

Owned by AEA

Operated by HEA

Output shared between GVEA, CEA, HEA, MEA – GVEA portion 20%



Eva Creek Wind - 2 Years of Success

Commercial Power January 2013

Largest wind project in Alaska, owned by GVEA

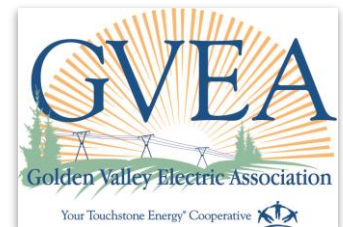
12 turbines

24.6 MW capacity

| | |
|----------------|----------------|
| 2013 Jan - Dec | 71,008,700 kWh |
|----------------|----------------|

| | |
|----------------|---------------------------------|
| 2014 Jan - Dec | 72,610,522 kWh...2.25% increase |
|----------------|---------------------------------|

Avg. Net Capacity Factor 33%



GVEA Green Power Sources Continued



SNAP Producers – Independent Power Producers (IPP)

SNAP Traditional since 2005 ----- 34 producers

SNAP Plus (net-metering) since 2010 --- 53 producers

- Solar – 87%
- Wind – 13%

SNAP Purchasers as of today - 412



Delta Wind - IPP

Currently, 2 MW & GVEA purchases all power generated

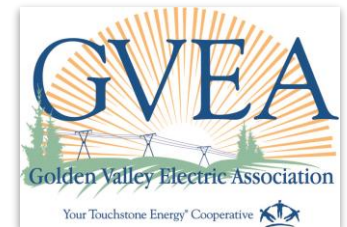


Power Purchases

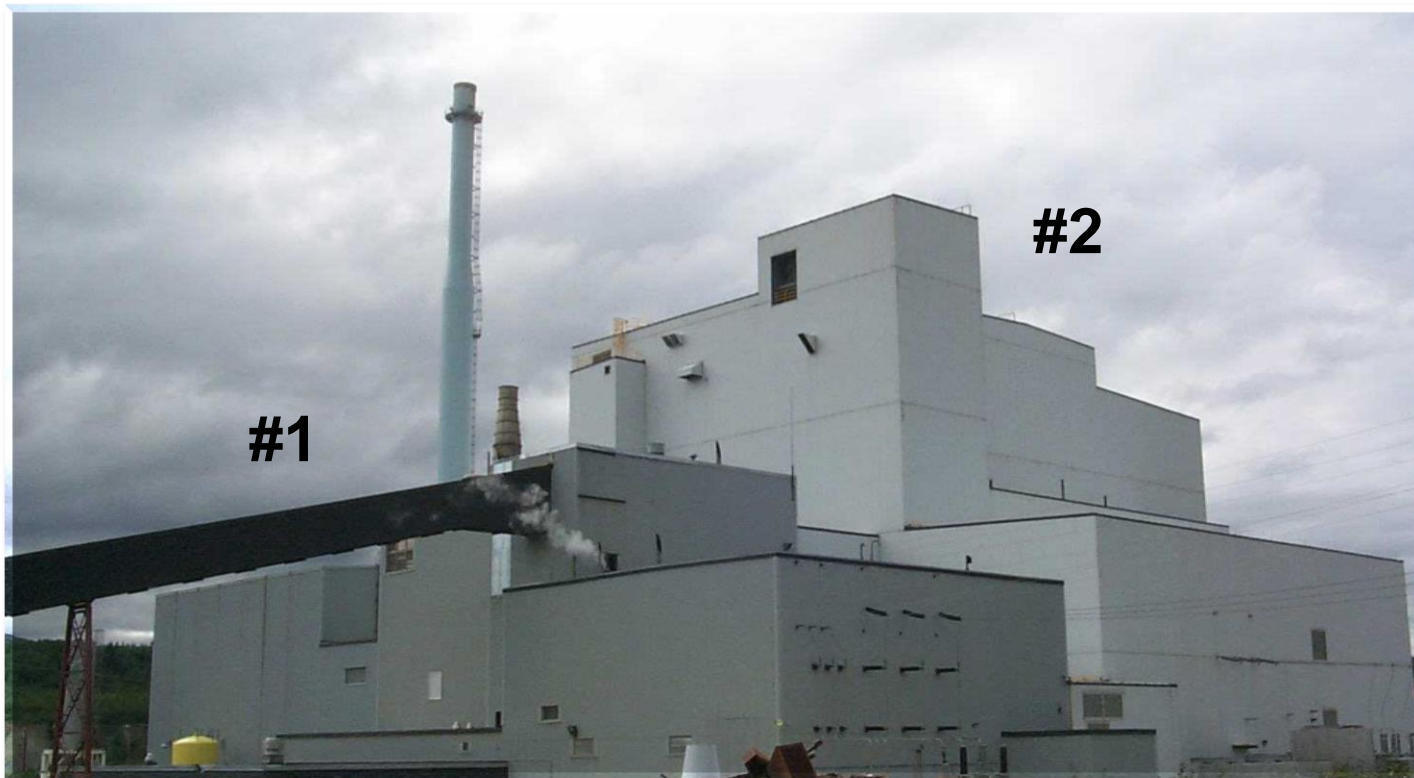
25 MW Aurora Energy (coal) - IPP



60 MW Chugach / MEA (natural gas)
Intertie limited to 75 / 80 MW



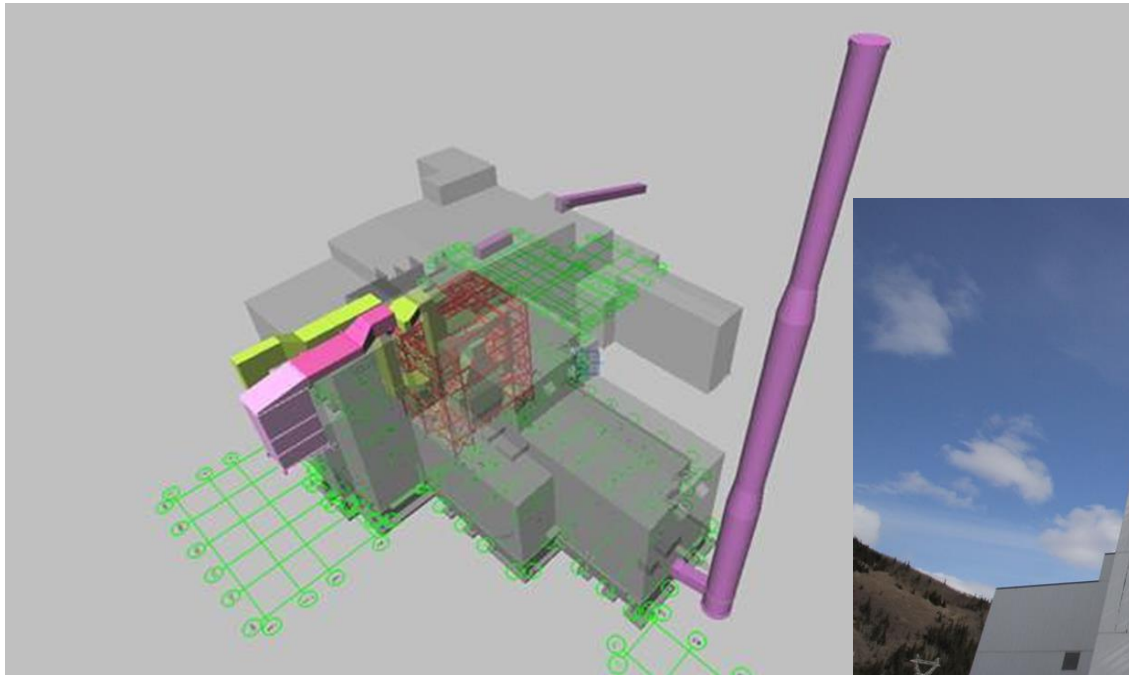
Healy Unit #1 and Unit #2



50 MW plant adjacent to Healy Unit 1, 28 MW
Coal is reliable, abundant fuel & will stabilize rates



SCR Addition Unit #2

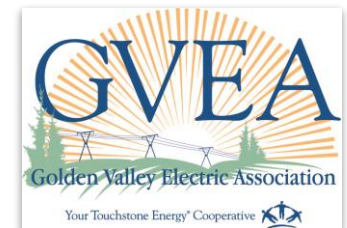


May 2014 construction & retrofit work began

First-fire Oil – May 26, 2015

First-fire Coal – July 28, 2015

Work is on schedule, within budget & no lost-time accidents



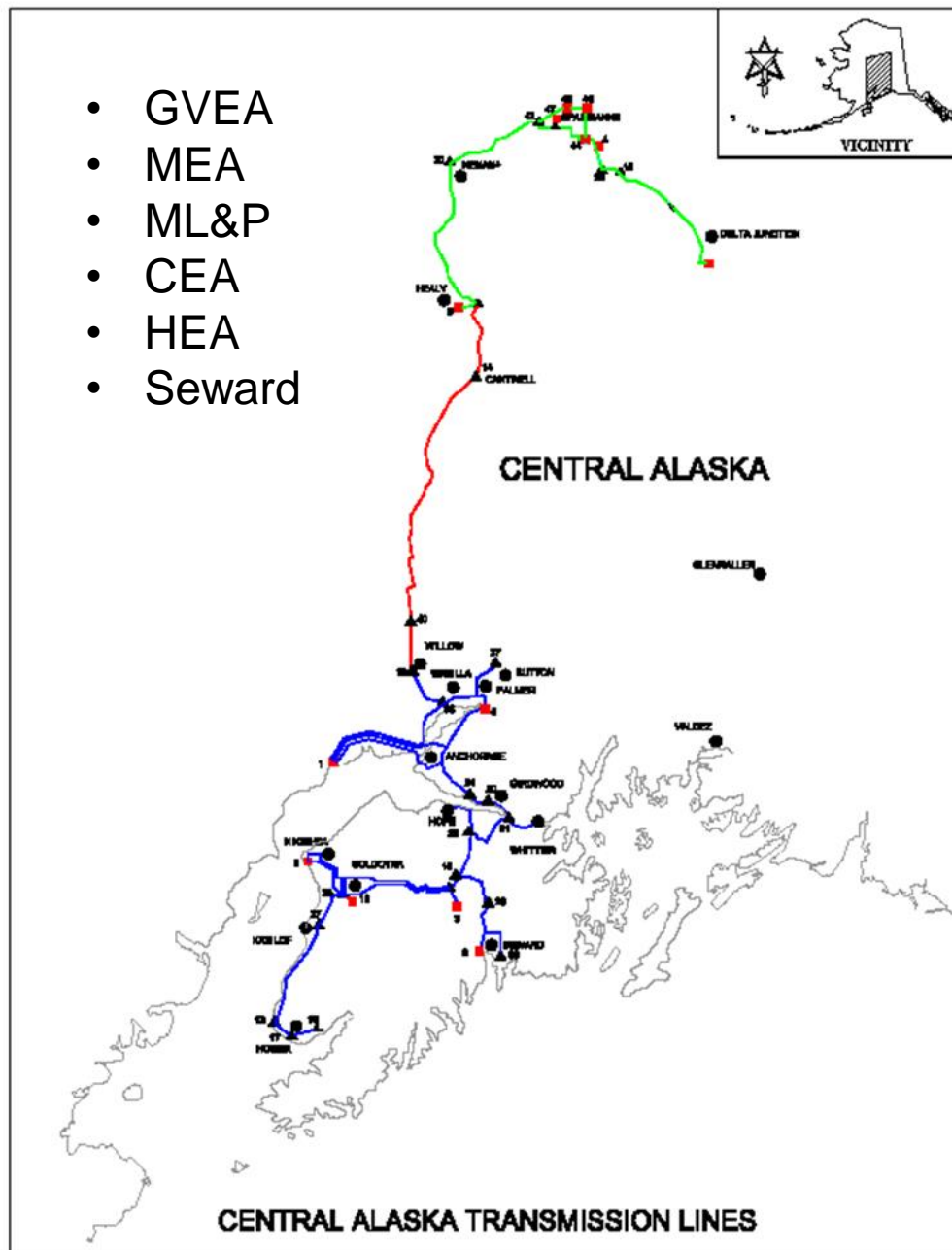
GVEA Dispatch Center



Dispatching Power...by the minute



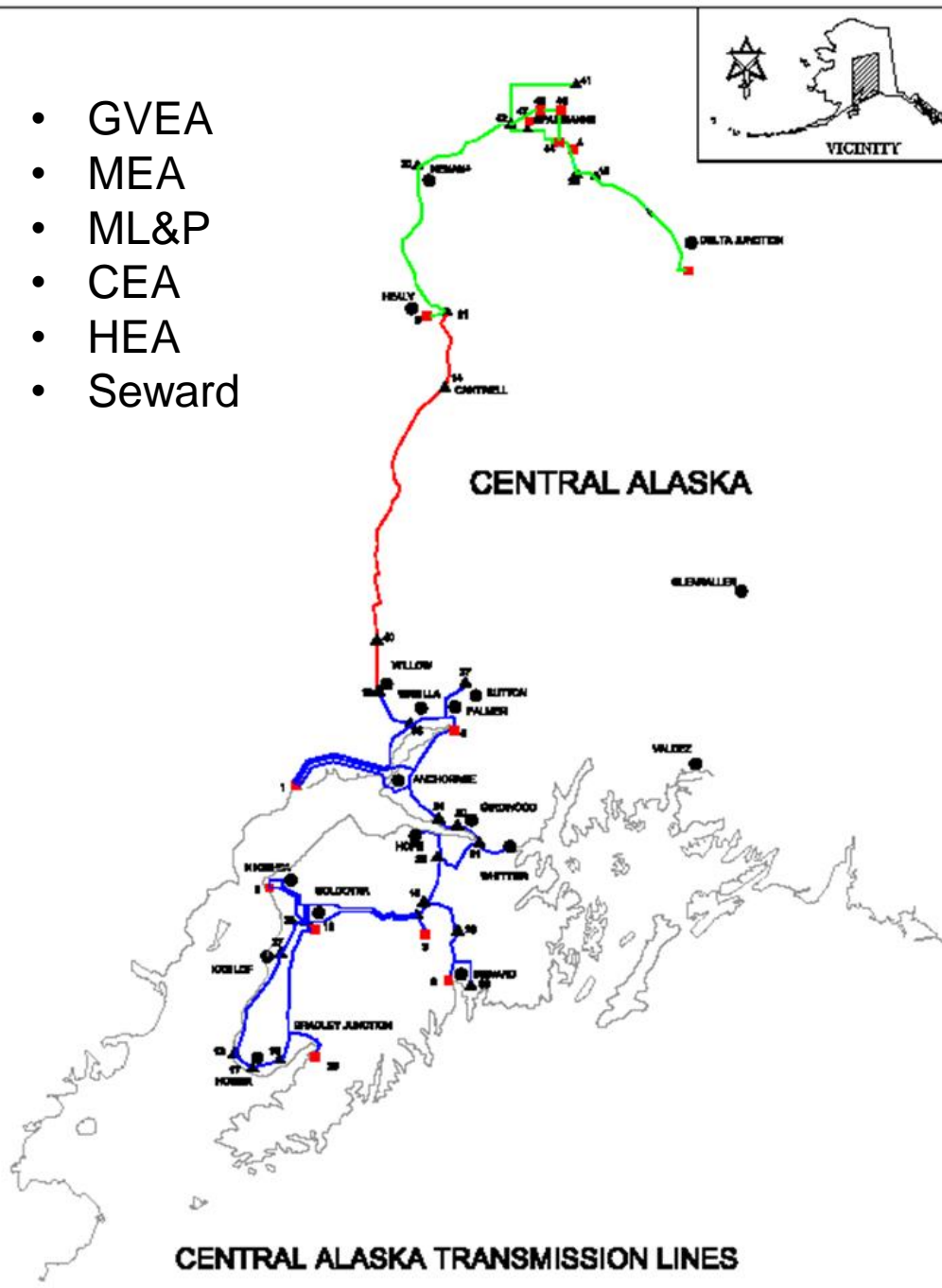
- GVEA
- MEA
- ML&P
- CEA
- HEA
- Seward



Railbelt – 1980s

- Alaska Intertie Built
- Alaska Intertie Agreement
- Soldotna Unit #1

- GVEA
- MEA
- ML&P
- CEA
- HEA
- Seward



Railbelt –1990s

Added.....

- Bradley Lake Hydro
- Bradley Transmission Lines
- Ft. Knox Gold Mine

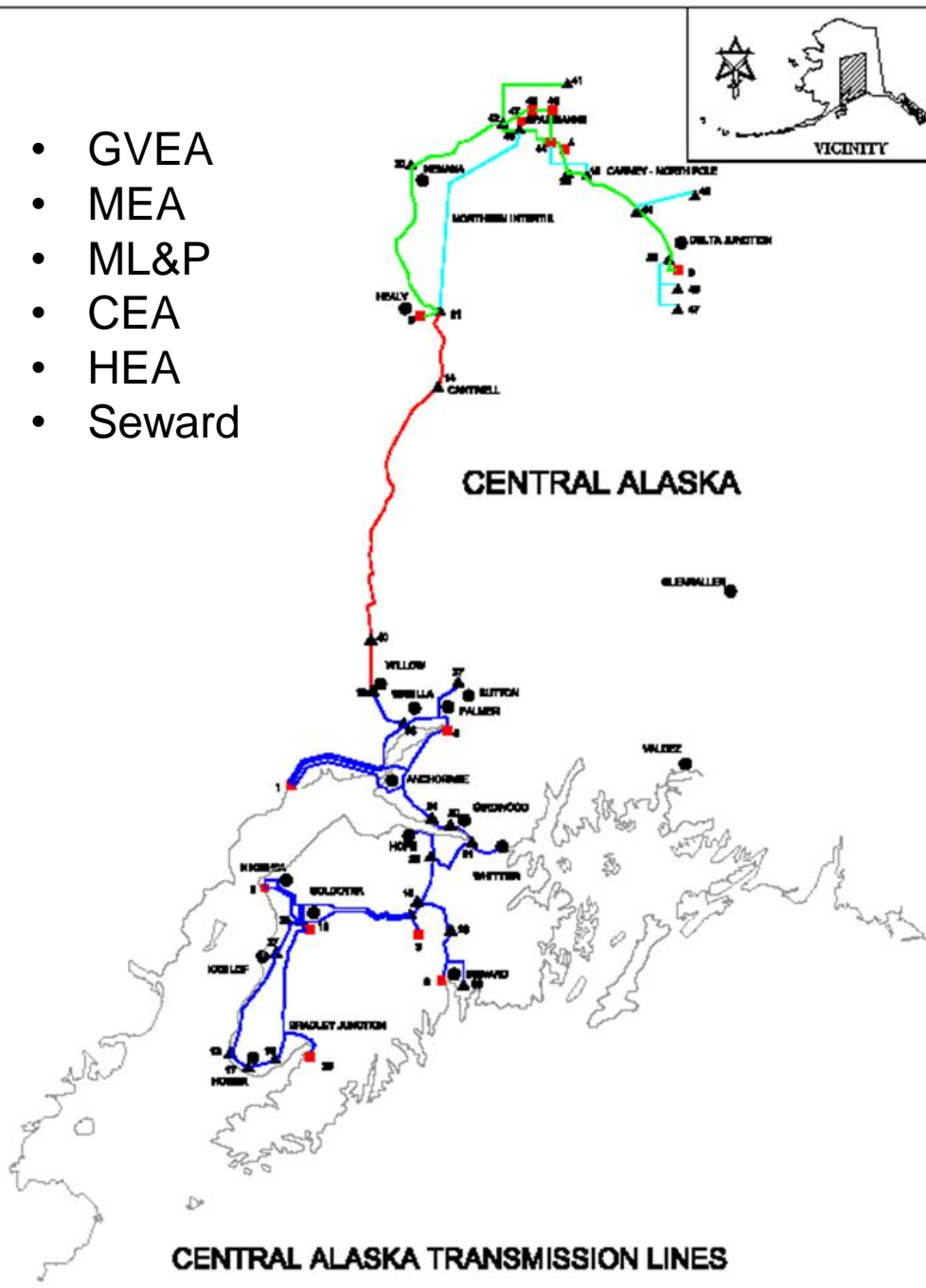


Railbelt Today - - 2000s

Added...

- Northern Intertie
- Battery Energy Storage System (BESS)
- Ground Based Missile Defense
- Alyeska Pump #9
- Pogo Gold Mine
- NP to Carney Transmission Line

- GVEA
- MEA
- ML&P
- CEA
- HEA
- Seward

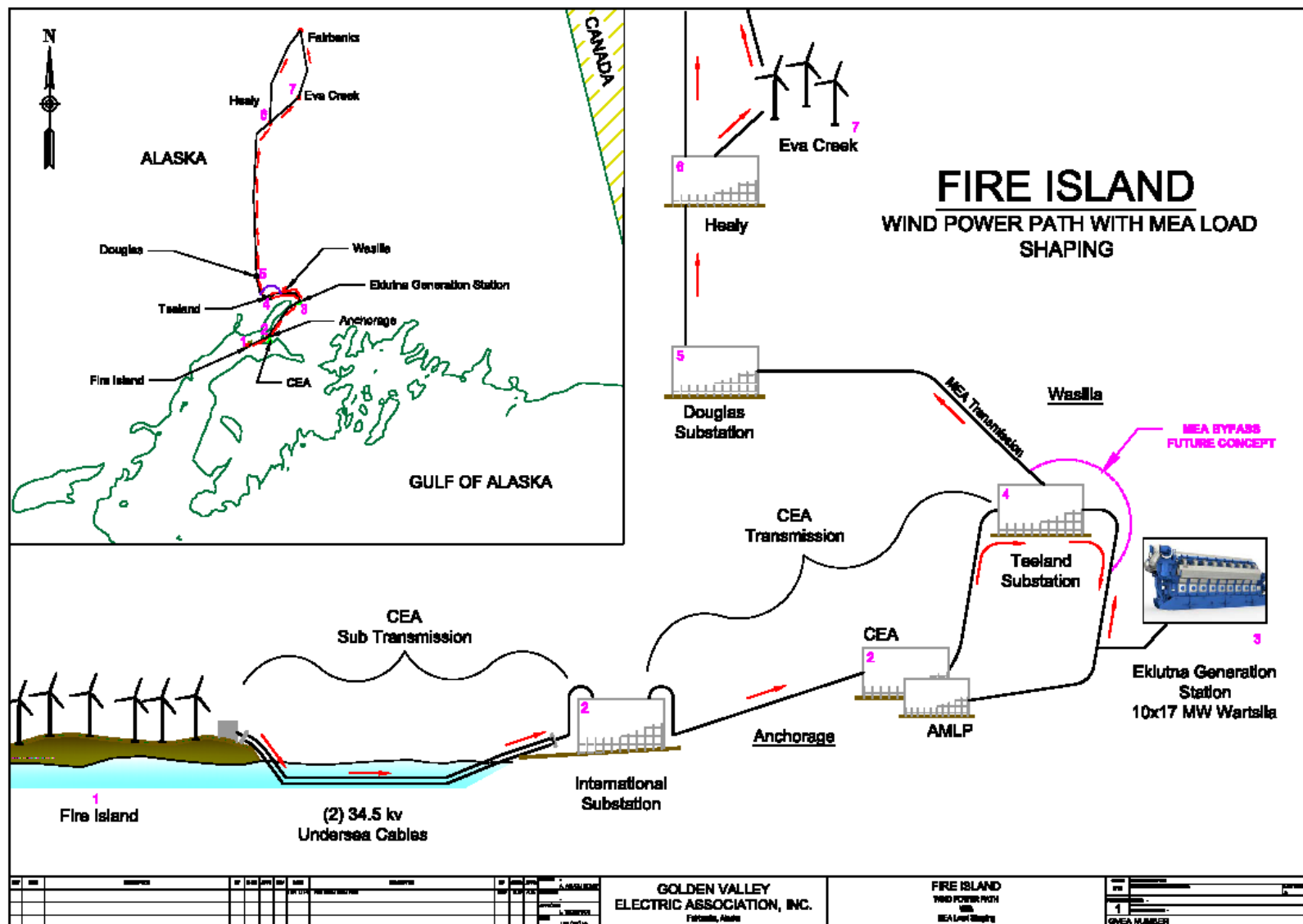


Additional Projects

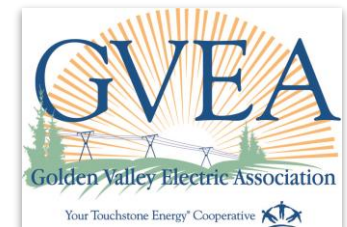
- Clear AFS becomes member
 - Avg. load 4 MW /mo. (winter peak 7 MW/mo.)
 - CAFS constructs their own substation on base
 - GVEA constructs 2.5 miles transmission line & switching substation
 - Approx. \$6.1 M project funded by military
 - Oct 2015 completion
- Expand & enhance the interties to increase capacity, share power, improve reliability
 - ARCTEC
 - Unified System Operator (USO)
 - Guiding Principle of a Railbelt Transco Agreement



Fire Island Wind Project, Phase 2



Impacts to Our Community

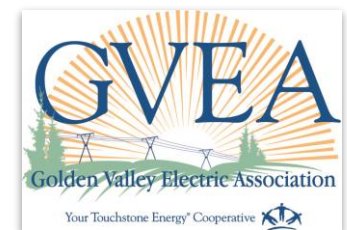


kWh Rates Around the State*

- 14.9¢ ML&P Anchorage
- 15.9¢ CEA Anchorage
- **17.8¢ GVEA Fairbanks**
- 19¢ MEA Wasilla
- 20.6¢ HEA Homer
- 28¢ CVEA Valdez
- 29.3¢ CVEA Glennallen
- 60¢ AVEC Minto no PCE
- 20¢ AVEC Minto w/ PCE

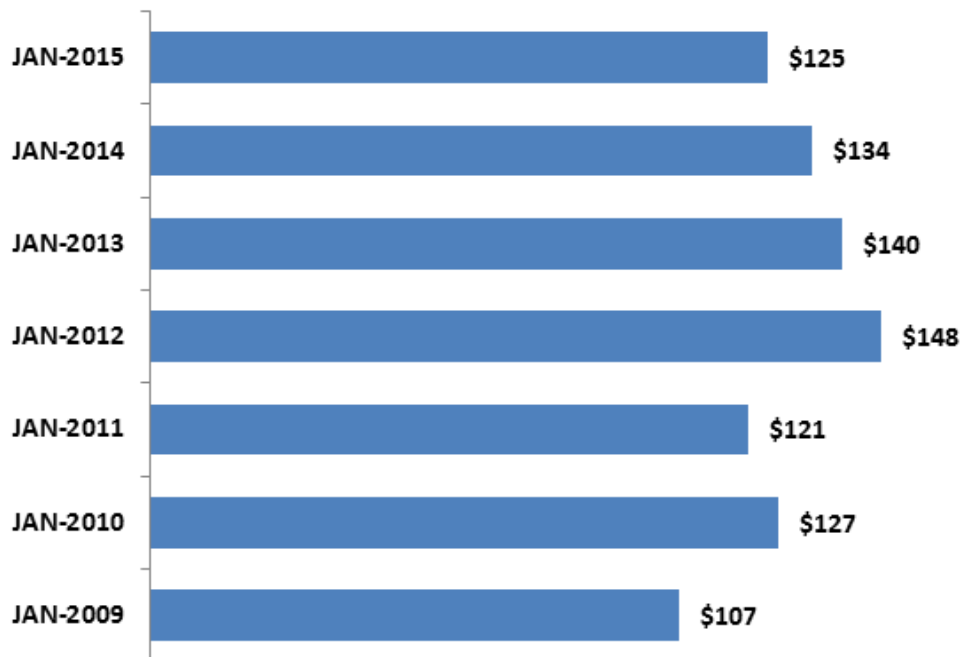
*Rates are per kilowatt-hour and do not include monthly customer charges.

*Effective February 1, 2015



Electric Costs at GVEA

Avg. 600 kWh Residential Bill



Effective Feb. 1, 2015:

- \$17.50.....Customer Charge
 - 10.7¢ kWh...Utility Charge
 - 7.1¢ kWh.....Fuel & Purchased Power Charge (F&PP)
- F&PP down 33% over last 7 months



Alaska Urban Space Heating Costs

2012 Snapshot....when will oil prices go up again?

Simplified Fuel Cost Comparison: Fuel Oil, Propane, Natural Gas

| Location, Tariff, System | Fuel Oil, \$/gallon | Propane, \$/gallon | Natural Gas, \$/MCF |
|-----------------------------|---------------------|--------------------|---------------------|
| | 1.00 | 1.12 | 7.96 |
| Anchorage June 2012 | 1.38 | 1.54 | 11.00 |
| | 2.00 | 2.24 | 15.92 |
| | 3.00 | 3.35 | 23.88 |
| Fairbanks, June 2012 | 4.00 | 4.47 | 31.84 |
| | 5.00 | 5.59 | 39.80 |
| | 6.00 | 6.71 | 47.76 |
| | 7.00 | 7.83 | 55.72 |

Source: Northern Economics.



Interior Energy Issues

Oil prices down but for how long?

- Need Long-term solution to oil
 - Increase availability of economy power over intertie
- Need Long-term Low-cost solution for Interior
 - Propane
 - LNG by truck or rail from south or north
- Energy Conservation



Questions

