

# Power Cost Equalization A Primer and Look Back

**Senate Committee  
Community & Regional Affairs**

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# Looking back to 1977

## Almost no transmission in Alaska

- Chugach electric owned a line (built in 1968) from the Beluga gas field to Anchorage
- Fairbanks relied on local heavy oil and coal
- Diesel fuel was the primary energy source elsewhere

## Very little hydropower

- Eklutna – 30 mw, serving ML&P, MEA, CEA
- Cooper Lake – 20 mw, serving CEA
- Snettisham – 52 mw, serving Juneau
- ~20 mw of small projects scattered throughout SE Alaska

# Oil started flowing down the Pipeline

The State began to spend its newfound wealth

- A transmission line to Fairbanks was started
- The Susitna mega-project design was started
- The Bradley Lake project was started
- Kodiak, Valdez, Ketchikan, Wrangell and Petersburg began work on 4 hydro-projects
- Studies were commissioned to identify projects to reduce the cost of electricity throughout Alaska

# The First Power Cost Assistance program

- Oil prices peaked in 1979
- Diesel-fueled utilities were hit hard
- Legislature established the Power Production Cost Assistance Program in 1980 – a one year stop-gap
- In 1981, the program was amended into the Power Cost Assistance Program, which was designed to self-extinguish in five years

# And finally - PCE

- In 1984, consultants admitted defeat
  - There was no silver bullet for rural Alaska's electric needs
  - Small loads and small communities spread across thousands of miles could not be interconnected
- Legislature established Power Cost Equalization
  - PCA was rewritten as PCE – effective October 1984
  - Utilities using diesel to generate at least 75% of power in calendar year 1983 were eligible
  - Cost of power was to be equalized to the average of Anchorage, Fairbanks and Juneau – 8.5 cents per kwh
  - Costs above 52.5 cents were not covered
  - All users were eligible for the first 750 kwh used
  - Community Facilities received PCE on 100% of their usage

# Enter the PCE Endowment Fund

- Established in FY00 via HB446
  - **15 years of underfunding (FY92 – FY07)**
- Invested to achieve 7% return
- \$100 M from CBR in FY01
- \$84 M from sale of 4 Dam Pool hydros in FY02
- \$182.7 M in FY07
- \$400 M in FY12
- Revised target of 5% return in FY16
  - After PCE, returns fund Municipal Assistance, Renewable Energy Grants

# The Situation from 1985 - 2017

- The floor has been raised 124% to 19.02 cents
- The ceiling was raised from 52.5 cents to \$1.00
- Eligible electricity has been reduced 1/3 to 500 kwh
- 6,000+ commercial customers no longer get PCE
- Fuel cost up 127% but efficiency is also up 32%
  - Fuel cost per kWh went from \$.1033 - \$.1875
- Non fuel costs per kWh are up 31%
  - \$.141 in '85 to \$.184 in '17
- Current funding (\$28 million) is at 100% level
- PCE cost in FY86 \$17.8 million
- PCE cost in FY17 \$26.1 million

# Program Changes since FY86

	1986	2000	2017
Population served	62,042	77,625	83,850
Total Sales (gWh)	225	391	463
Eligible Sales	108	116	133
Percentage eligible	48%	30%	29%
Average Fuel Cost/gallon	\$1.17	\$1.10	\$2.66
Fuel Consumed – MM gallons	21	28	29
Fuel cost – millions	\$23	\$30	\$77
Non-fuel cost – millions	\$32	\$42	\$85
Total utility cost – millions	\$55	\$72	\$162
Total PCE – millions	\$17.8	\$14.4	\$26.1
Percent of total costs	32%	20%	16%



# About AVEC

- 58 villages (recently added Yakutat, Bethel)
- 32,000 population –
  - 38% of PCE population served
  - 41% of total PCE disbursed
  - Shageluk (smallest) 77
  - Bethel (largest) 6,224
  - Anchorage 294,356
- 92% Alaska Native

**AVEC**



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MAP OF ALASKA VILLAGE ELECTRIC COOPERATIVE VILLAGES

# AVEC System Statistics

- 50 power plants
- 13 wind systems serving 20 villages
- 170+ diesel generators
- 500+ fuel tanks
- 8.5 million gallons fuel burned

# 2018 Overview

- 11,400 Services – residential and commercial
- 118 million kWh sales
- \$52.4 million revenues
- \$28.1 million Total Fuel Cost
- \$25.4 million non-fuel cost
- 44¢ - Total revenue per kWh
- 397 kWh - Average residential usage per month
- 48¢ - Residential revenue per kWh
- Power Cost Equalization \$10.7 million,
  - 21% of revenue, 41% of total PCE disbursed

# Qn. #1 – Does PCE Reduce Rural Power Cost to Urban Levels?

## Residential Power Cost per 2017 PCE Report

Chugach Electric	Anchorage	.1991
Golden Valley	Fairbanks	.2411
AEL&P	Juneau	.1189
Kodiak Electric	Kodiak	.1530
Kotzebue Electric	Kotzebue	.1939*
AVEC	56 Villages	.2300*
Bettles	Bettles	.3167*
MKEC	5 Villages	.4158*
Napakiak	Napakiak	.4888*

\*after PCE

# Cost of 700 Residential kwh

➤ Anchorage	\$139.37
➤ Fairbanks	\$168.77
➤ Juneau	\$83.23
➤ Kodiak	\$107.10
➤ Kotzebue	\$173.23*
➤ AVEC Village	\$219.00*
➤ Bettles	\$296.27*
➤ MKEC	\$421.12*
➤ Napakiak	\$409.40*

\*After PCE

## Qn. #2 – Who gets PCE?

- Every residential consumer
  - Only one meter per consumer
  - Only the first 500 kWh
- Community Facilities
  - Up to 70 kWh/resident per month
    - Streetlights
    - Washeterias
    - Water and sewer facilities
    - Community buildings

## Qn. #3 – Who doesn't get PCE?

- Schools
- State facilities
- Federal facilities
- Commercial consumers
- Consumers with seriously delinquent accounts



## Qn. #4 – How does PCE work?

- Utility applies to RCA to participate
- Utility submits detailed cost and operational data
- RCA determines eligible costs and computes PCE by rate class
- Utility bills customers per normal tariff rates
- Utility applies PCE credit based upon actual consumption (subject to kWh limit)
- Consumer is responsible to pay bill after PCE credit
- Utility bills State (AEA) for all PCE credited
- Utility provides AEA with detailed billing records
- Utility files annual update of costs with RCA, per schedule established by RCA

# Qn. #5 – Doesn't PCE discourage conservation and innovation?

- Only 29% of all electricity sold in eligible communities receives PCE
- But the smaller the community, the more kwh that are eligible (because of minimal commercial usage)

➤ Akiachak	46%
➤ Aniak	37%
➤ AVEC	48%
➤ Cordova	28%
➤ Kotzebue	27%
➤ Napakiak	72% (School is on own generation)
➤ Tanana	38%

# Qn. #6 Doesn't Most of PCE go to "Overheads?"

## FY17 Program Statistics

Fuel Costs	\$76,759,457
Non-Fuel Costs	<u>\$85,141,895</u>
Total Electricity Cost	\$161,901,352
Total PCE Disbursed	\$26,099,807
Percent of Fuel Costs	34%
Percent of Total Costs	16%

## Qn. #7 What are “Overheads?”

They are all “non-fuel” costs.

- Operating and maintaining power plants
- Operating and maintaining tank farms
- Operating and maintaining distribution lines
- Connecting customers, billing, collections
- Administration, accounting, engineering, warehouse
- Insurance, depreciation, cost of long-term debt
- Taxes and miscellaneous

# AVEC's Non-fuel Costs - 2017

Generation Ops & Maintenance	11.5
Distribution O&M	1.5
Customer accounts	1.7
Administration, Insurance	3.7
Depreciation	3.7
Interest on LTD	1.3
All other	0.6

Total 24.0 cents/kWh

Fuel 21.9 cents/kWh

## Qn. #8 – Do PCE Villages have any Plant Investment?

- Generally speaking, investment per customer served is actually **higher** in rural Alaska (2007)

Utility	Total Plant	Per Customer
AEL&P	101,728,884	6,635
Chugach Electric	773,762,915	9,981
Golden Valley	434,881,925	10,563
Kodiak	84,698,822	14,839
Kotzebue	16,203,807	13,526
AVEC	108,496,970	14,404
(\$2,047,113 per village)		

## Qn. #9 – Isn't PCE Abused?

There are strict requirements of RCA and AEA

- Line Loss standards – 12%
- Only one eligible account per customer
- Various expenses (like lobbying) disallowed
- Monthly reports must be submitted to AEA
- Community Facilities are scrutinized by AEA
- Revenues billed must be collected
  - AVEC writes off less than .005% annually in bad debts

## Qn. #10 – Would PCE Money be better spent on Alternative Energy?

Wind generation is 6 times the cost of diesel generation

- We cannot use 'utility sized' turbines as in Lower 48
- Average village load is ~150 kw
- There are only 1 or 2 manufacturers of 50-100 kw units
- To accommodate sophisticated integration needs, the existing generation and distribution must be upgraded
- Typical cost of a 300kW integrated project \$4+ million
- Diesel generation and fuel tankage still needed for the 70%+ energy that wind cannot provide
- AVEC has recently installed two 900kW turbines



# Qn. #11 Why are we subsidizing Rural Alaska?

- This was the compromise reached in 1984, when the Legislature recognized that there was no answer to bring affordable power to rural Alaska
- Billions of dollars were spent or committed to reduce power costs for urban Alaska and communities fortunate to have hydropower
- Railbelt communities continue to benefit from heavily subsidized natural gas since 1968.
- In 1985, PCE utilities paid \$1.17/gallon of diesel – 25x the cost of Railbelt gas at \$0.35/mcf



Thank you!

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