

The Challenges of Electricity (and Diesel Fuel) in Rural Alaska

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Alaska Village Electric Cooperative

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About AVEC

- **52 villages (having just added Teller)**
- **22,000 population –**
 - **44% of Village Alaska Population**
 - **Anvik (smallest) 101**
 - **Hooper Bay (largest) 1,124**
 - **Anchorage 277,498**
- **92% Alaska Native**

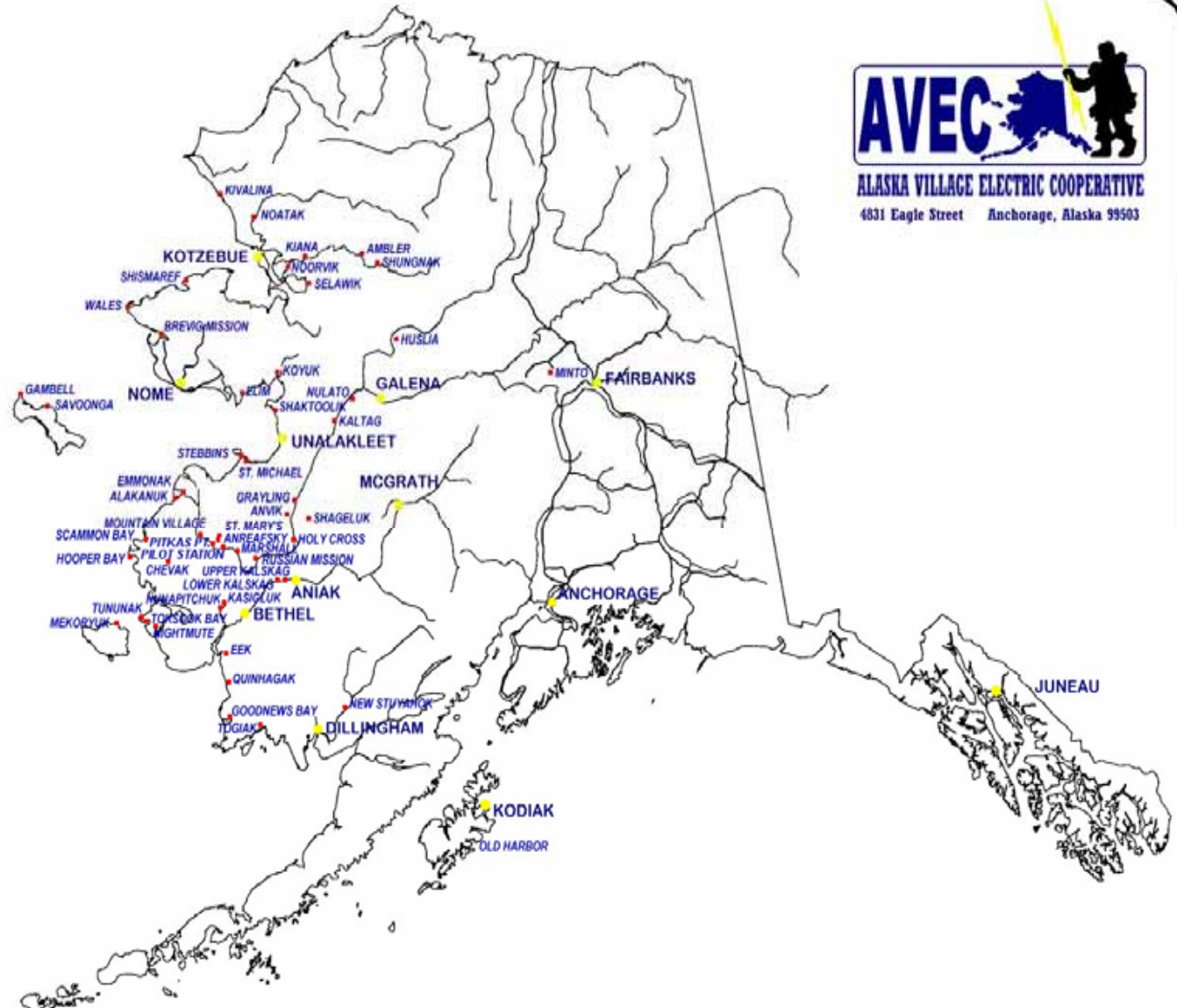
Diverse Population Served

- Athabaskan
- Aleut
- Inupiat
- Yu'pik
- Siberian Yu'pik
- Caucasian





AVEC
ALASKA VILLAGE ELECTRIC COOPERATIVE
4831 Eagle Street Anchorage, Alaska 99503



MAP OF ALASKA VILLAGE ELECTRIC COOPERATIVE VILLAGES

Driving Issues

- **Geographic remoteness**
- **Subsistence economies**
- **Low per capita Income**
- **High cost of living**
- **Poor infrastructure**
- **Poor technology**

Logistical Issues

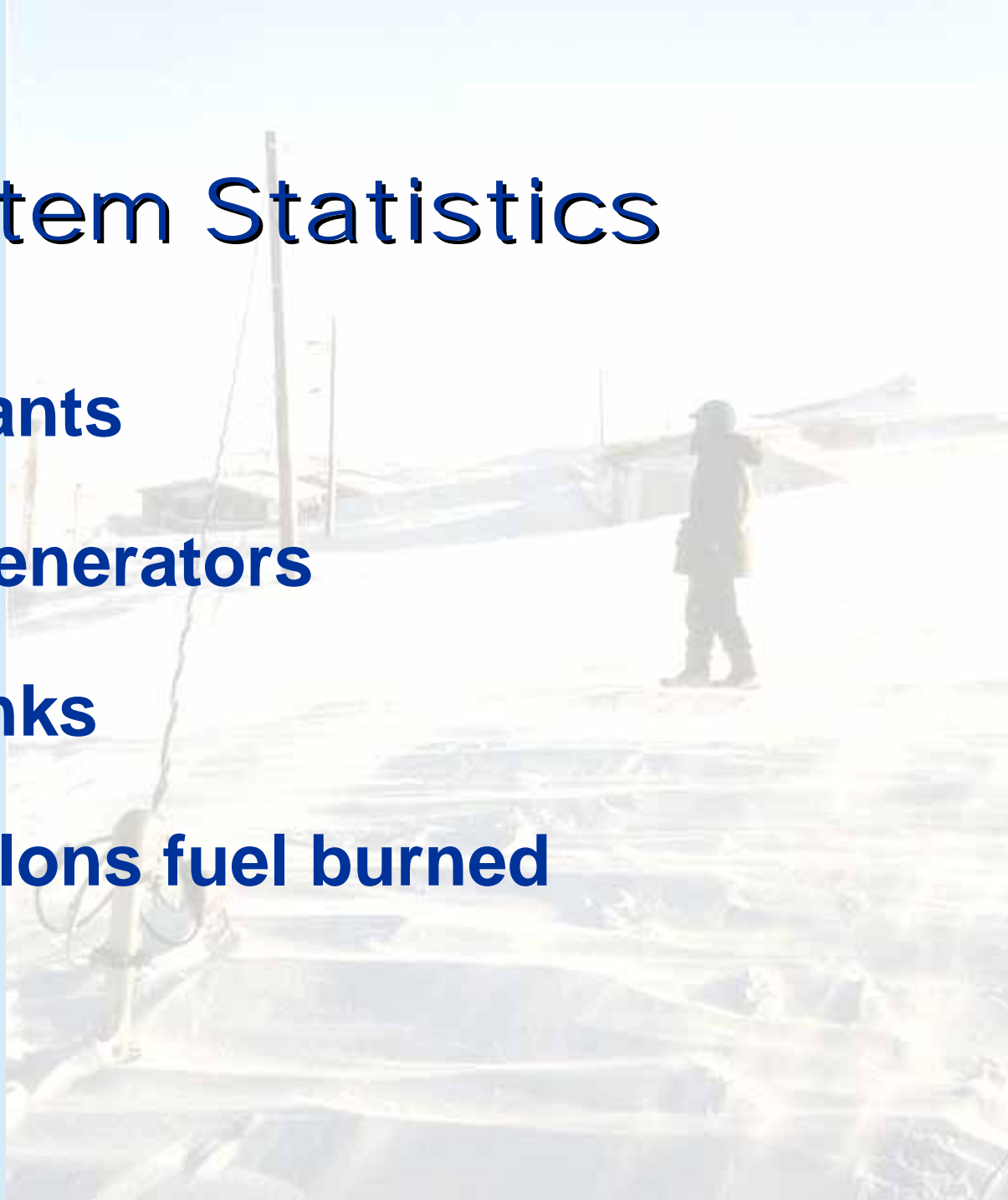
- **\$1 million on air transportation**
 - Only one village on the road system
- **\$9.5 million on fuel in 134 deliveries**
- **2004 fuel cost 30% higher than in 2003**
- **Most supplies are barged in**
- **All technical support from Anchorage**

2004 Overview

- **7,122 Services – residential and commercial**
- **62 million kWh sales**
- **\$24.7 million revenues**
- **40¢ - Total revenue per kWh**
- **397 kWh - Average residential usage**
- **44¢ - Residential revenue per kWh**
- **Power Cost Equalization 26% of revenue**

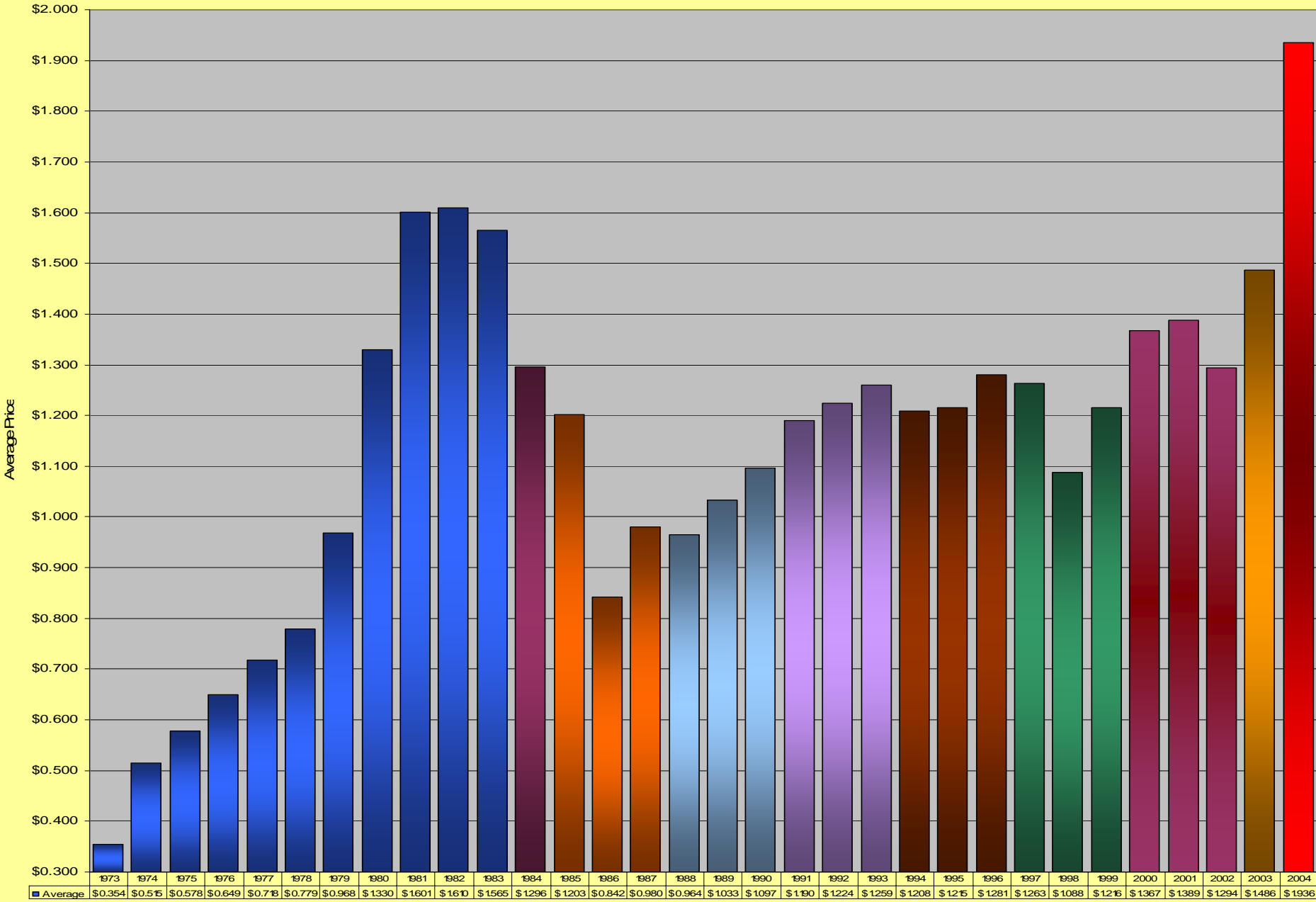
System Statistics

- **48 power plants**
- **170 diesel generators**
- **500+ fuel tanks**
- **5 million gallons fuel burned**



Alaska Village Electric Cooperative, Inc.

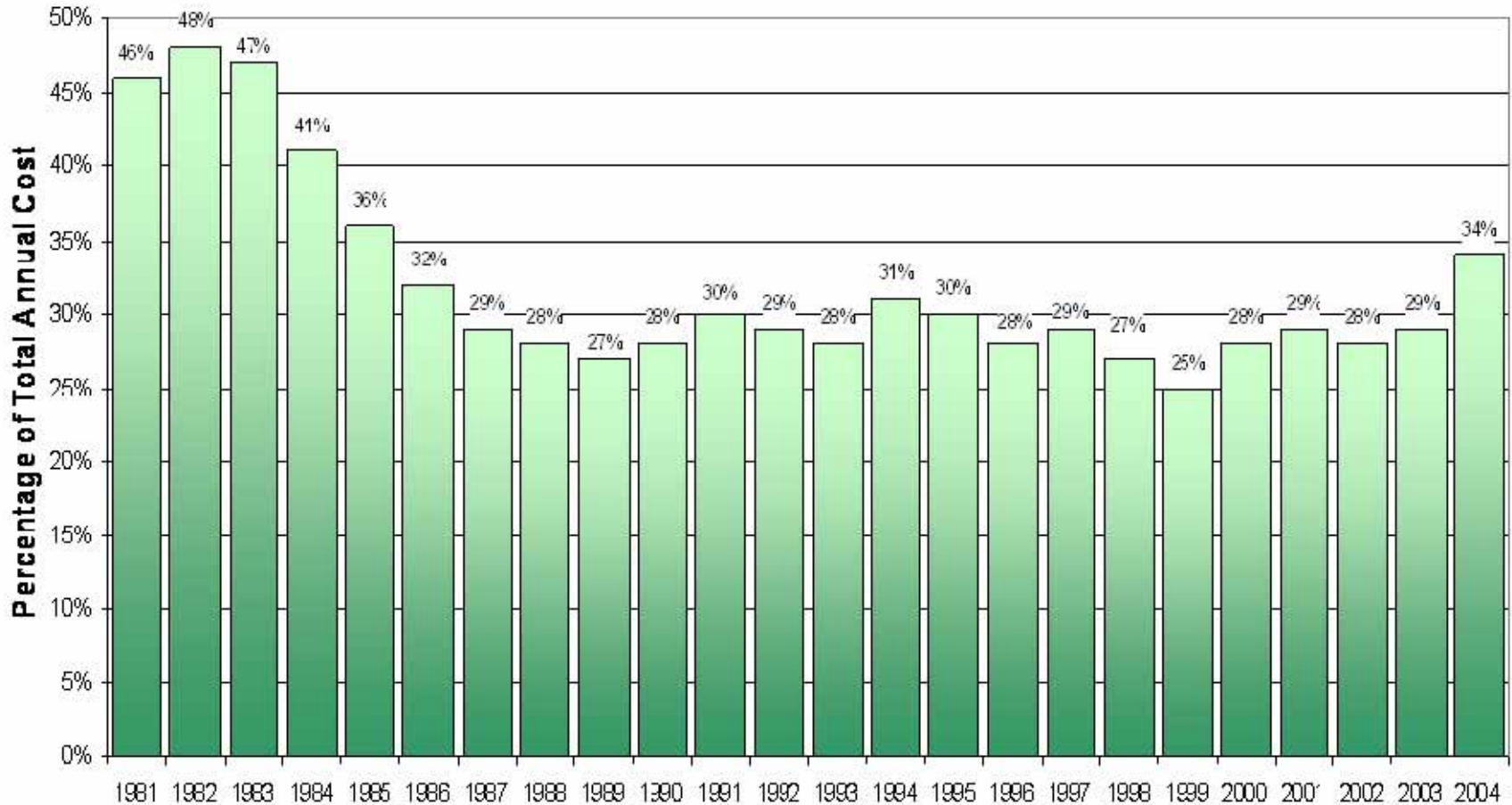
1973 - 2004 Fuel Prices



Alaska Village Electric Cooperative

Annual Cost of Fuel Oil as a Percentage of Total Annual Costs

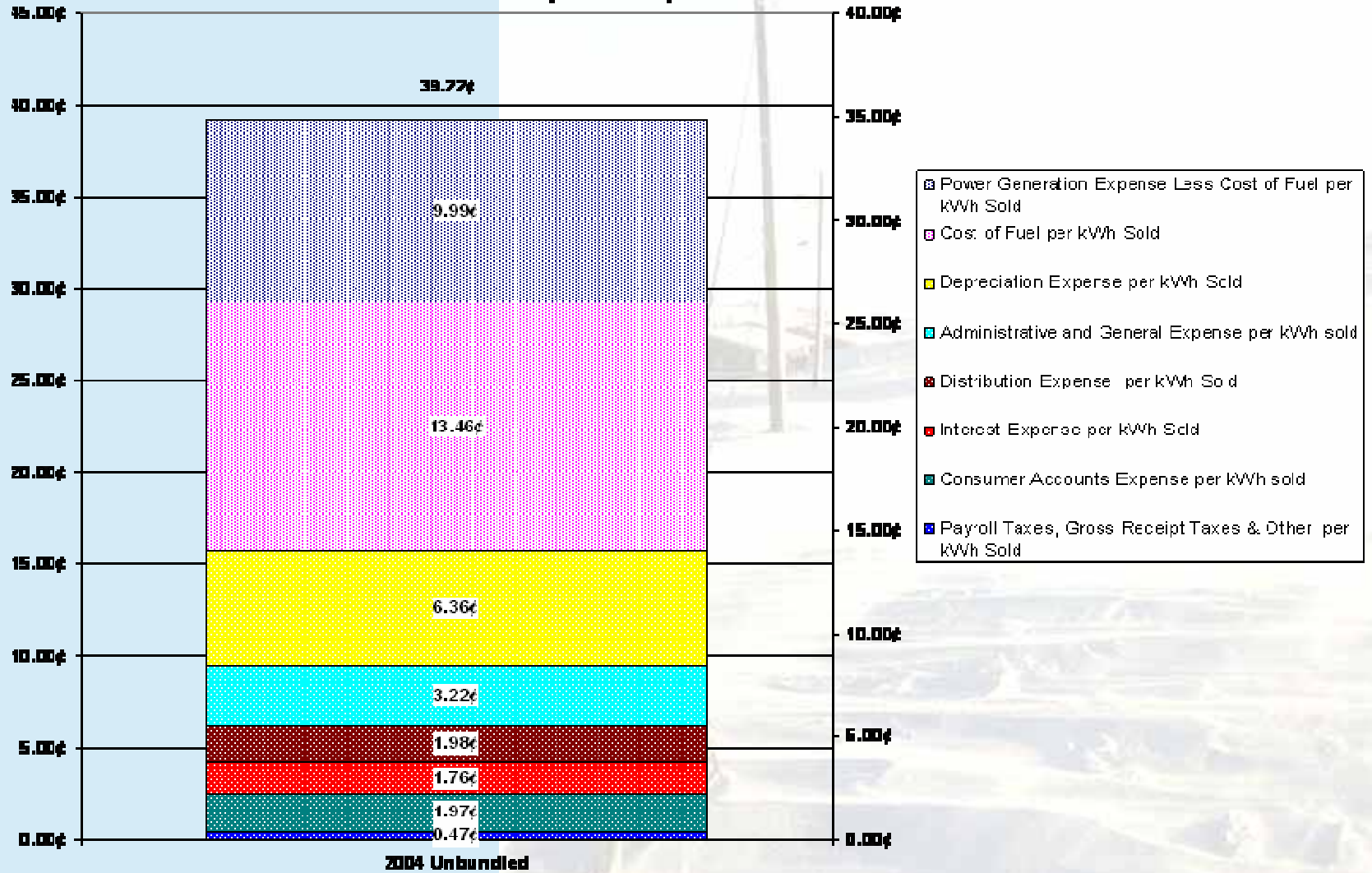
System-wide



A Look at Historical Costs

	1970	1975	1980	1985	1990	1995	2000	2004
Sales mWh	2,674	11,353	18,042	27,855	36,676	44,178	54,697	61,934
Revenue (1000s)	478	2,848	6,839	11,548	13,688	17,918	20,437	24,682
Revenue per kWh	17.9	25.1	37.9	41.5	37.3	40.6	37.4	39.9
Costs per kWh	25.4	25.6	37.0	40.3	35.9	35.5	38.2	39.2
Margins per kWh	(0.9)	(0.5)	0.9	1.2	1.4	5.1	(0.8)	0.7

Alaska Village Electric Cost Components per Kilowatt-hour Sold



Gambell Fuel Storage

• AVEC diesel	142,700	22%
• All other diesel	394,100	61%
• Gasoline	<u>106,800</u>	17%
• Total	643,600	gallons

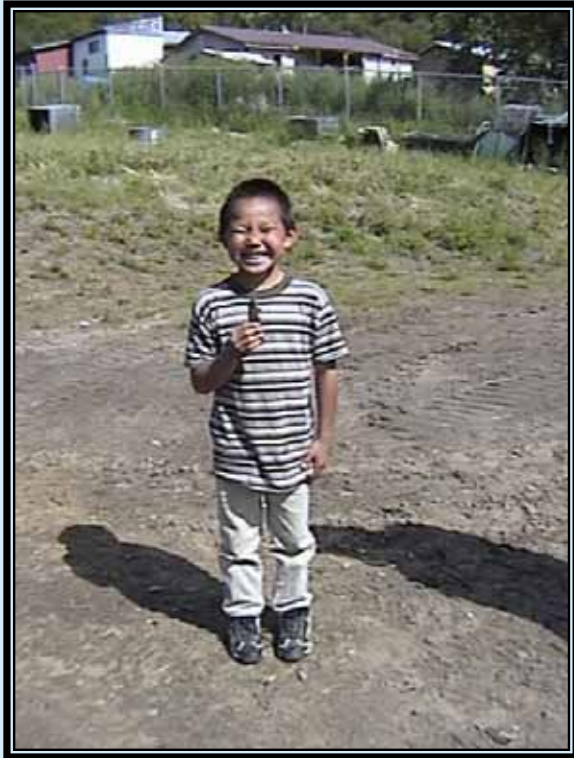
Gambell Plant in Summer



Gambell Plant in Winter



Fuel barge and young customer



Kiana Series 60 Detroit Diesel



Northern Lights in
Noorvik, Alaska

Questions?

Presented by Meera Kohler
Alaska Village Electric Cooperative