

Knowledge Sharing, Community Engagement and Human Capacity Building



Alaska Network of Energy
Education and Employment

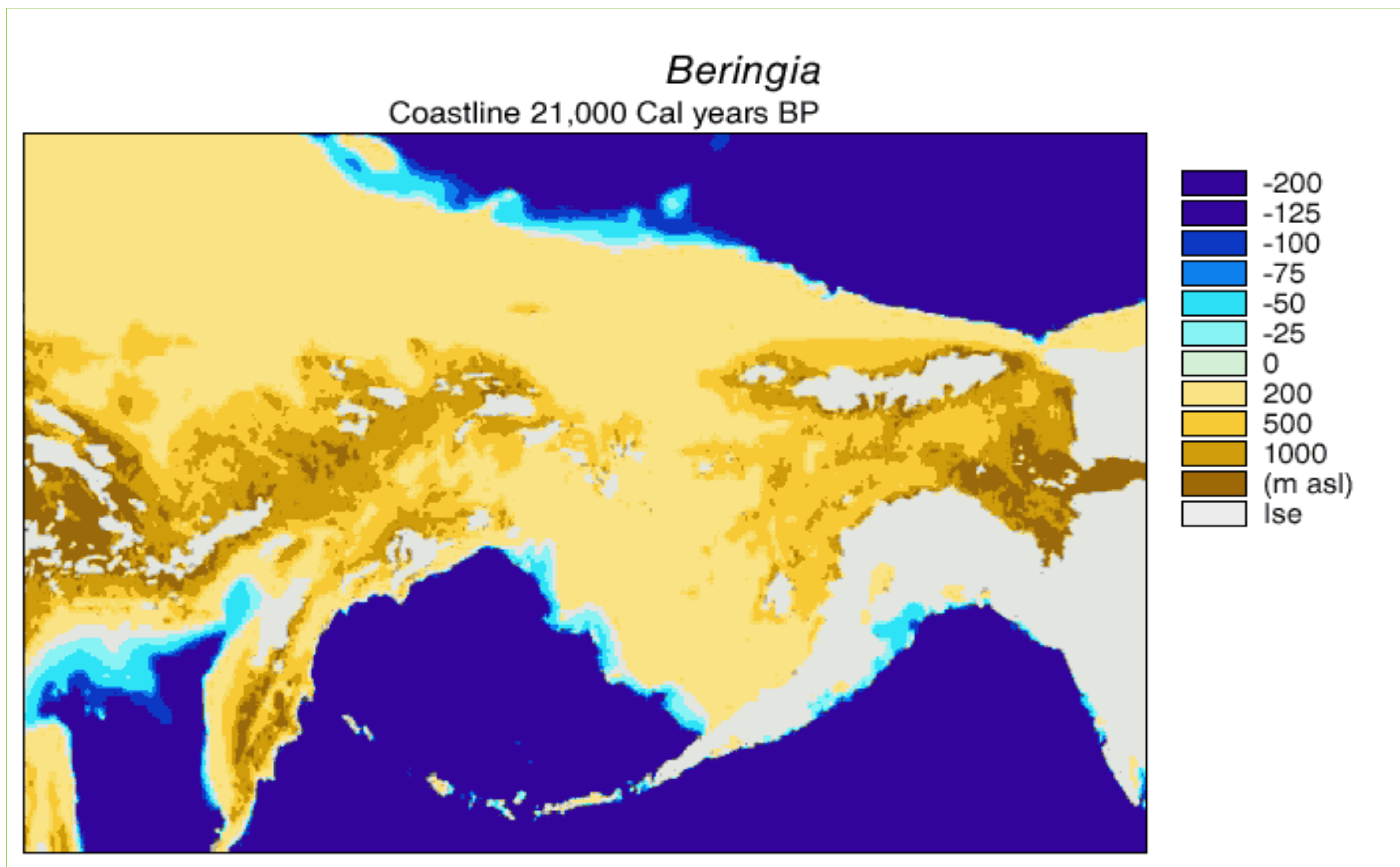
Chris McConnell, ANEEE Director



Renewable Energy
Alaska Project

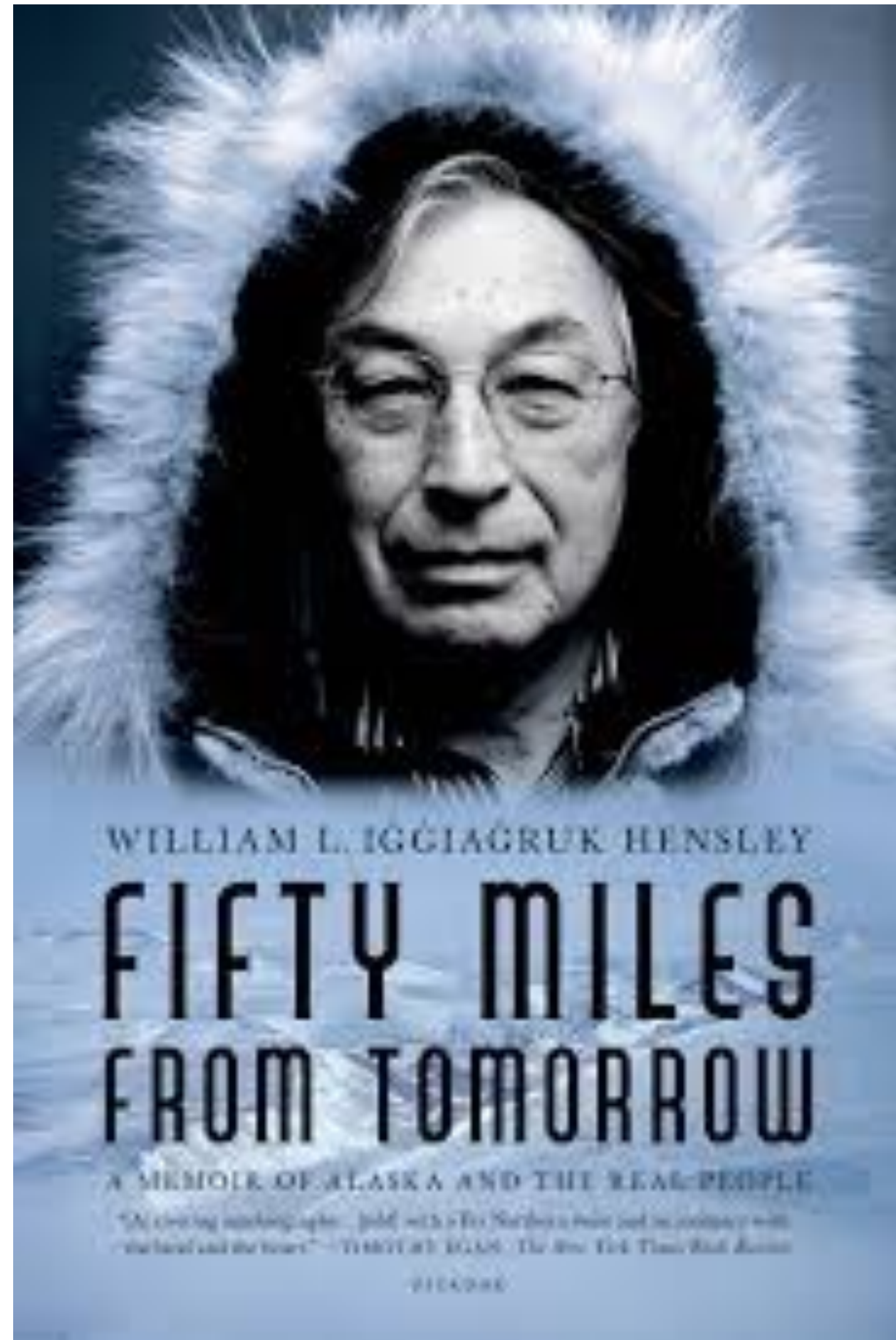
IPS Connect
Cordova, Alaska
July 29, 2022

How we got here.





Willie Hensley on the Electrification of Rural Alaska



“Electricity had come to town in Kotzebue in the 1950s and all of a sudden we no longer needed to burn diesel oil in coffee cans on the ice-runway at night for pilots with nowhere to land. We could buy freezers to preserve food instead of storing it deep in the frozen ground. Street lights lit our way on stormy evenings. Children could advance at school because they could study at night. But out in the villages it was entirely different. Like the early years of my life, I sometimes think of it as the twilight of the Stone Age.”

Energy Literacy Principles

1

Energy is a physical quantity that follows precise natural laws.



2

Physical processes on Earth are the result of energy flow through the Earth system



3

Biological Processes depend on energy flow through the Earth System



4

Various sources of energy can be used to power human activities, and often this energy must be transferred from source to destination.



5

Energy decisions are influenced by economic, political, environmental, and social factors.



6

The amount of energy used by human society depends on many factors.



7

The quality of life of individuals and societies is affected by energy choices.





Alaska Network for Energy Education & Employment

alaskarenewableenergy.org

WHERE ALASKANS *LEARN – TRAIN – EARN* In the Energy Sector

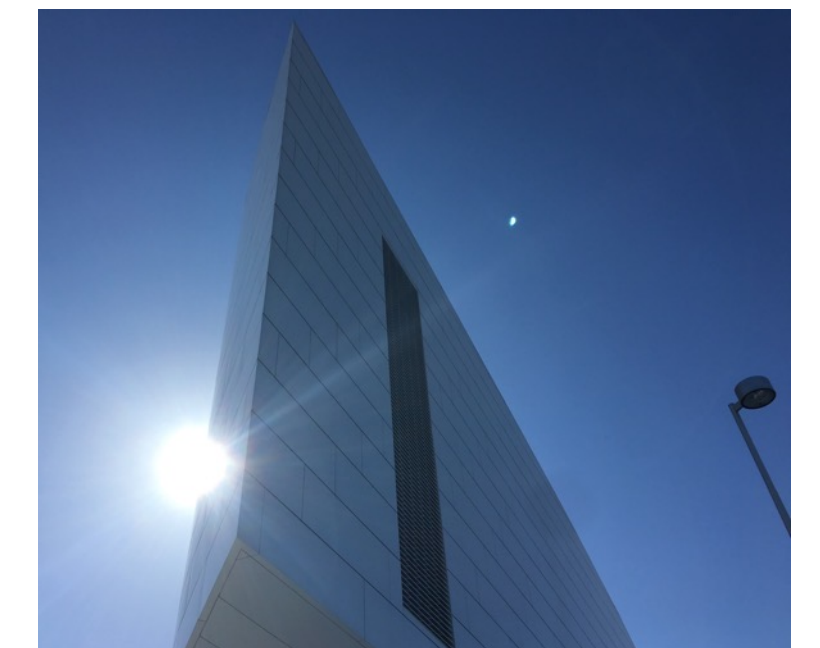
K – 12th GRADE



VOCATIONAL / CTE



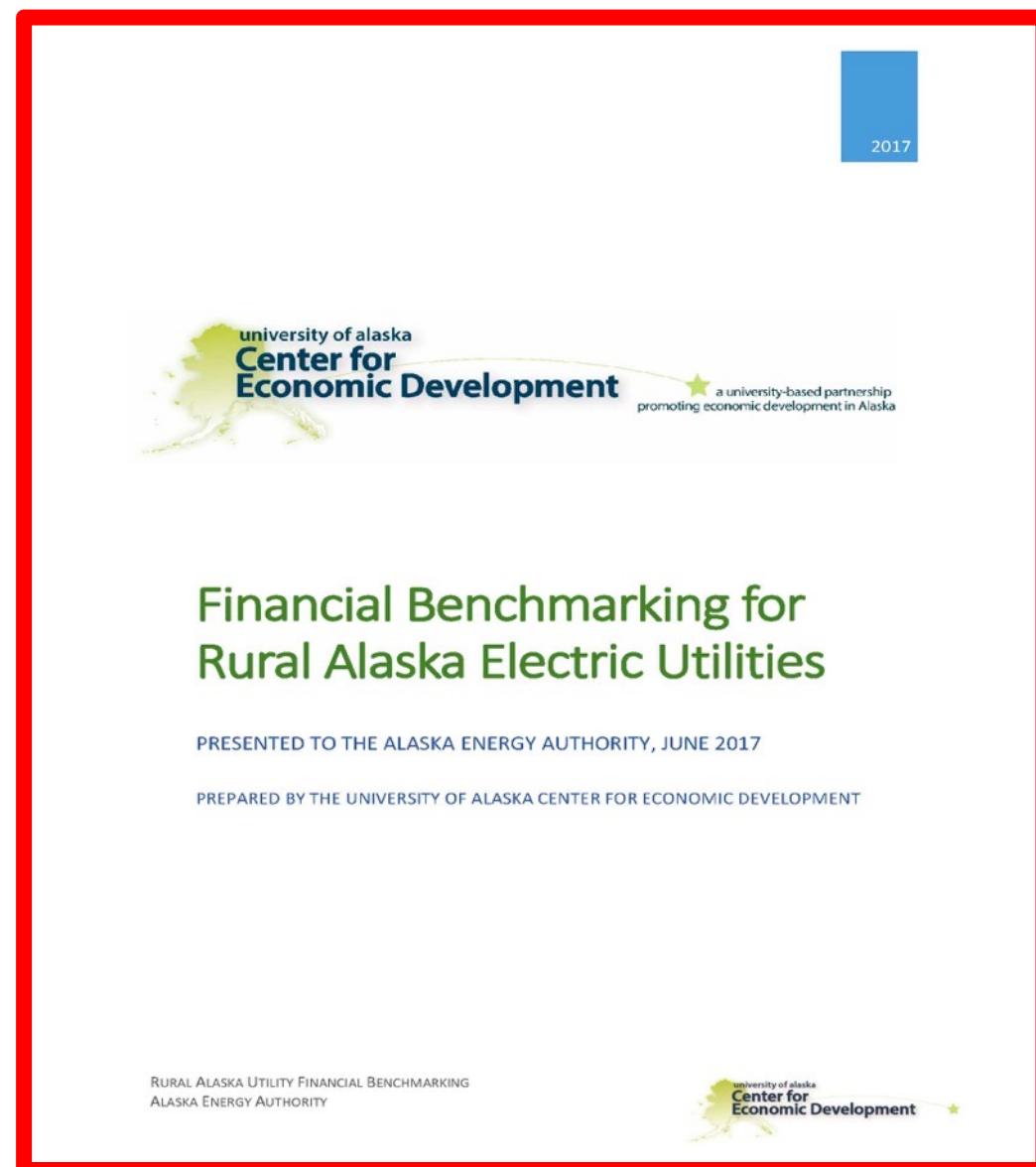
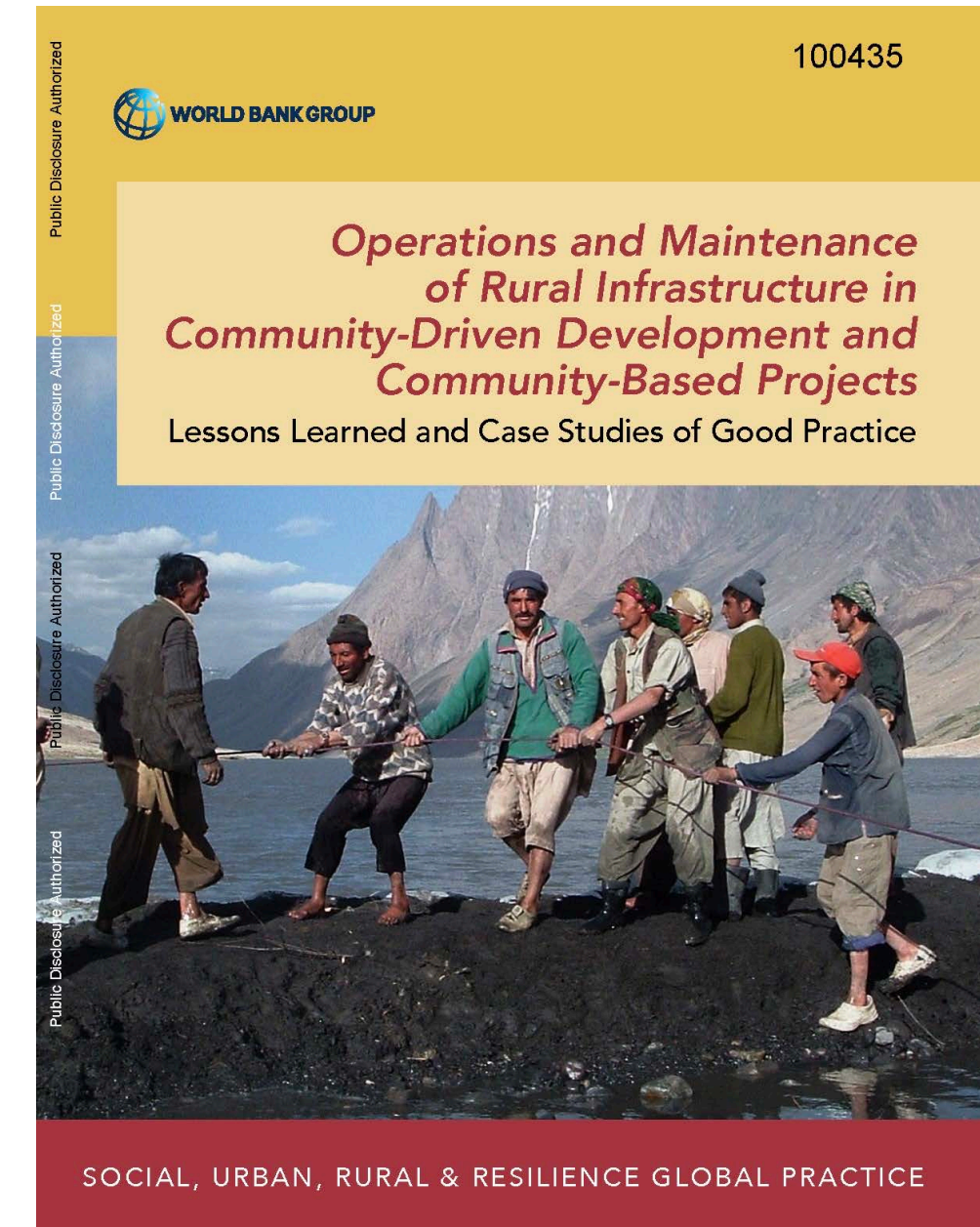
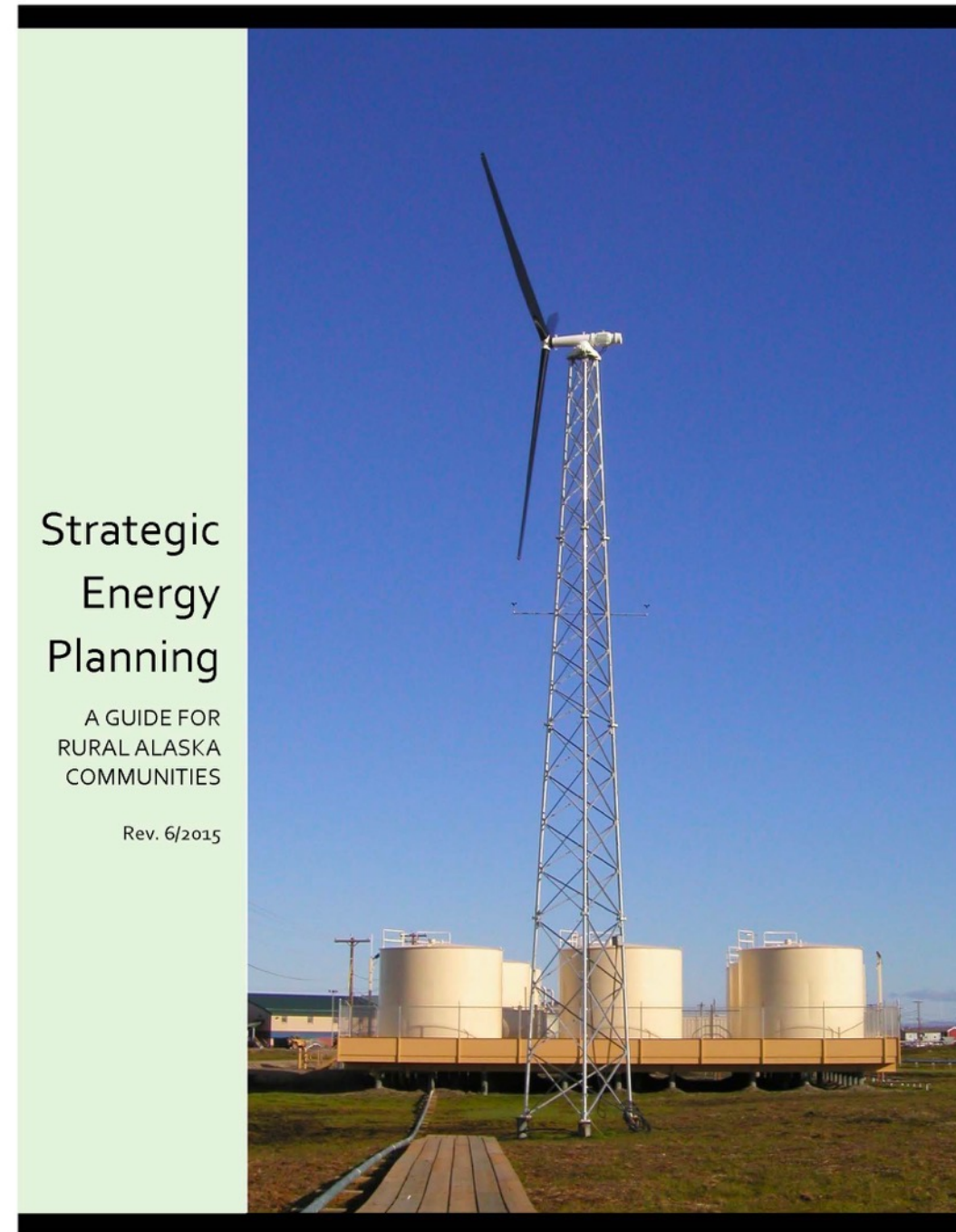
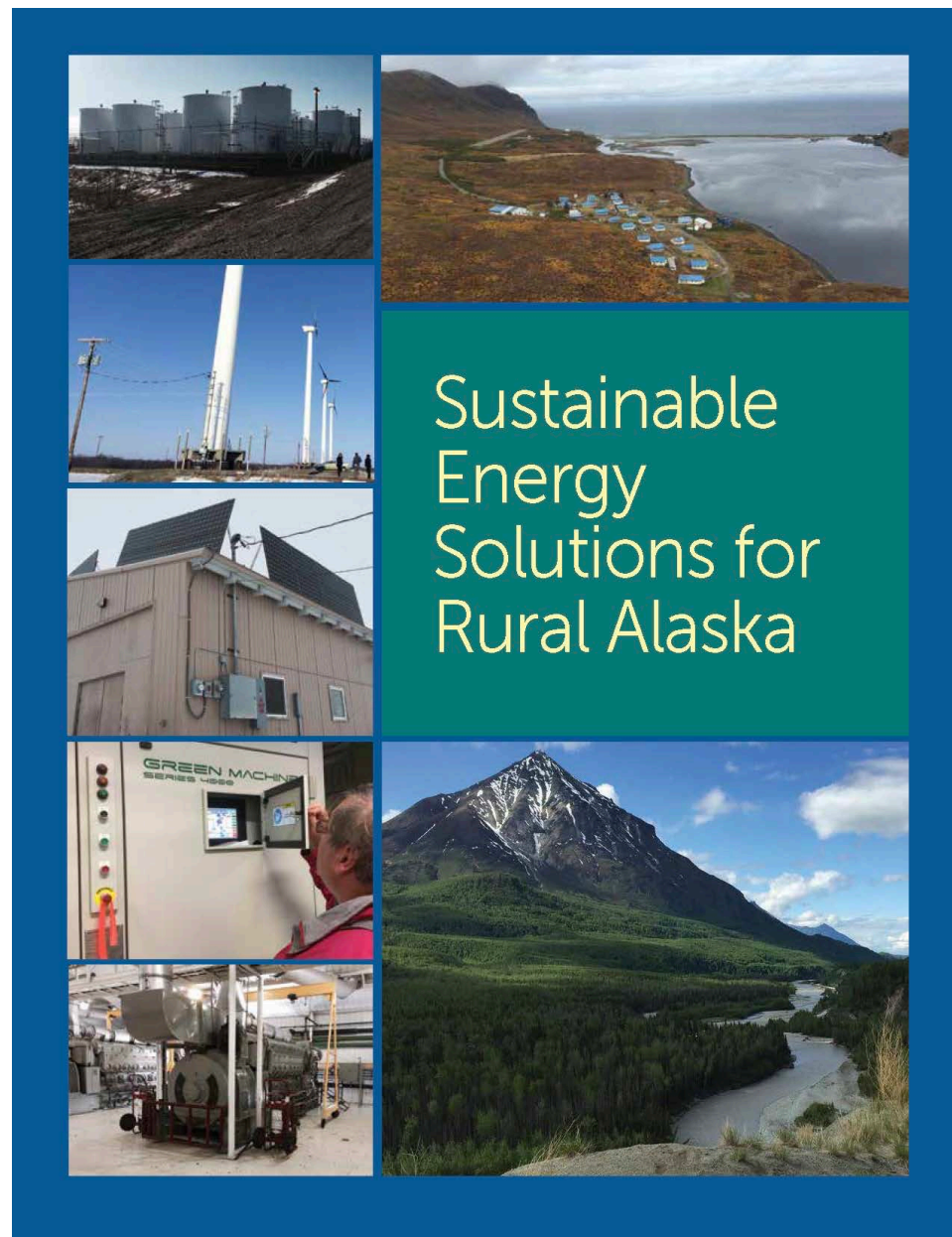
UNIVERSITY



JOBS & CAREERS



Real
Al



Recommended Reading



JRC SCIENCE AND POLICY REPORTS

Strategic Energy Technology (SET) Plan Roadmap on Education and Training

Availability and mobilisation of appropriately skilled human resources

JRC Coordination: A. Georgakaki, U. von Estorff, S.D. Peteves
2014



ANESEE OBJECTIVES

- 1) Identify and map energy stakeholders and missions of the various K-12, vocational training, University programs and curricula across Alaska.**
- 2) Update gap analysis on those programs and curricula and catalogue successful models from other jurisdictions.**
- 3) Convene the energy education stakeholders to communicate the gap analysis and develop new draft vocational training and curricula ideas, as well as an overall strategy to begin connecting them together.**
- 4) Develop metrics to evaluate proposed new training and curricula**
- 5) Discover funding to pilot and evaluate new training and curricula**
- 6) Continue to periodically convene stakeholders to build both regional and sector-specific networks.**

IIAE



Y OF ALASKA ANCHOR

ISEI



BRISTOL BAY CAMPUS

SERVING THE BRISTOL BAY REGION AND THE ALEUTIAN AND PRIBILOF ISLANDS



PEOPLE'S LEARNING CENTRE



KODI

ASSOCIATION

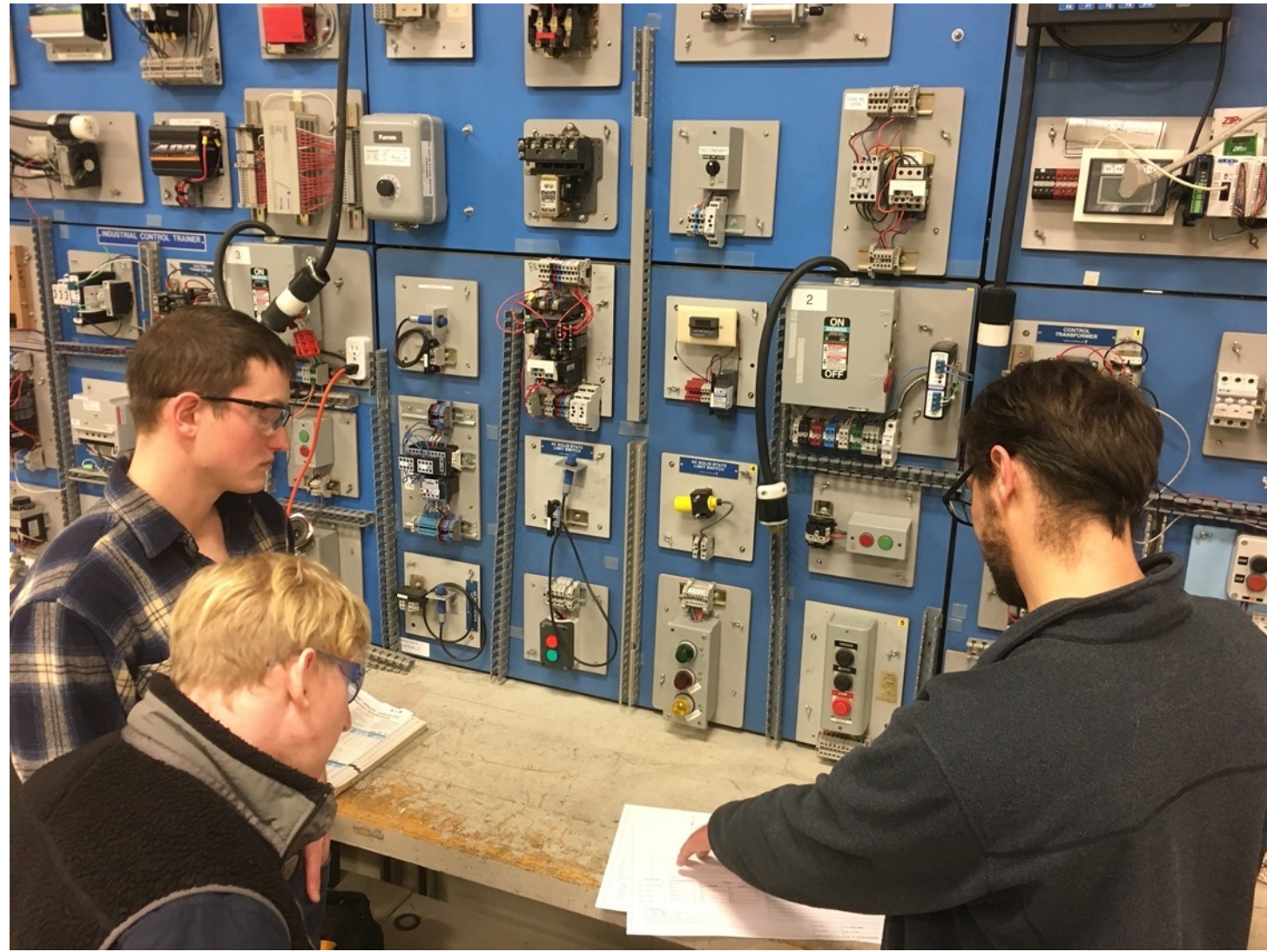
K – 12th GRADE

Lower Kuskokwim School District
Science Fair



Kusilvak Academy –Toyo Repair for College Credit





CLEAN ENERGY CAREER PATHWAYS

Regional Training Centers



AVTEC
Alaska Vocational and Technical Education Center

King Tech High School, Anchorage



Industry/Community Collaborations
Village of Tyonek / Urban Greens



University Collaborations

Third ACEP/ASU Microgrid Boot Camp Successfully Completed

UAF Interior Alaska Campus



UAF Bristol Bay



Community Engagement

Facility Energy Management Workshop - Nome

Kawerak Energy Fair





Chefornak Manager, Clerk and PCE Trainer

In-Community Technical Assistance

Fort Yukon Operators



Port Heiden Power Plant Module Build and Imaging



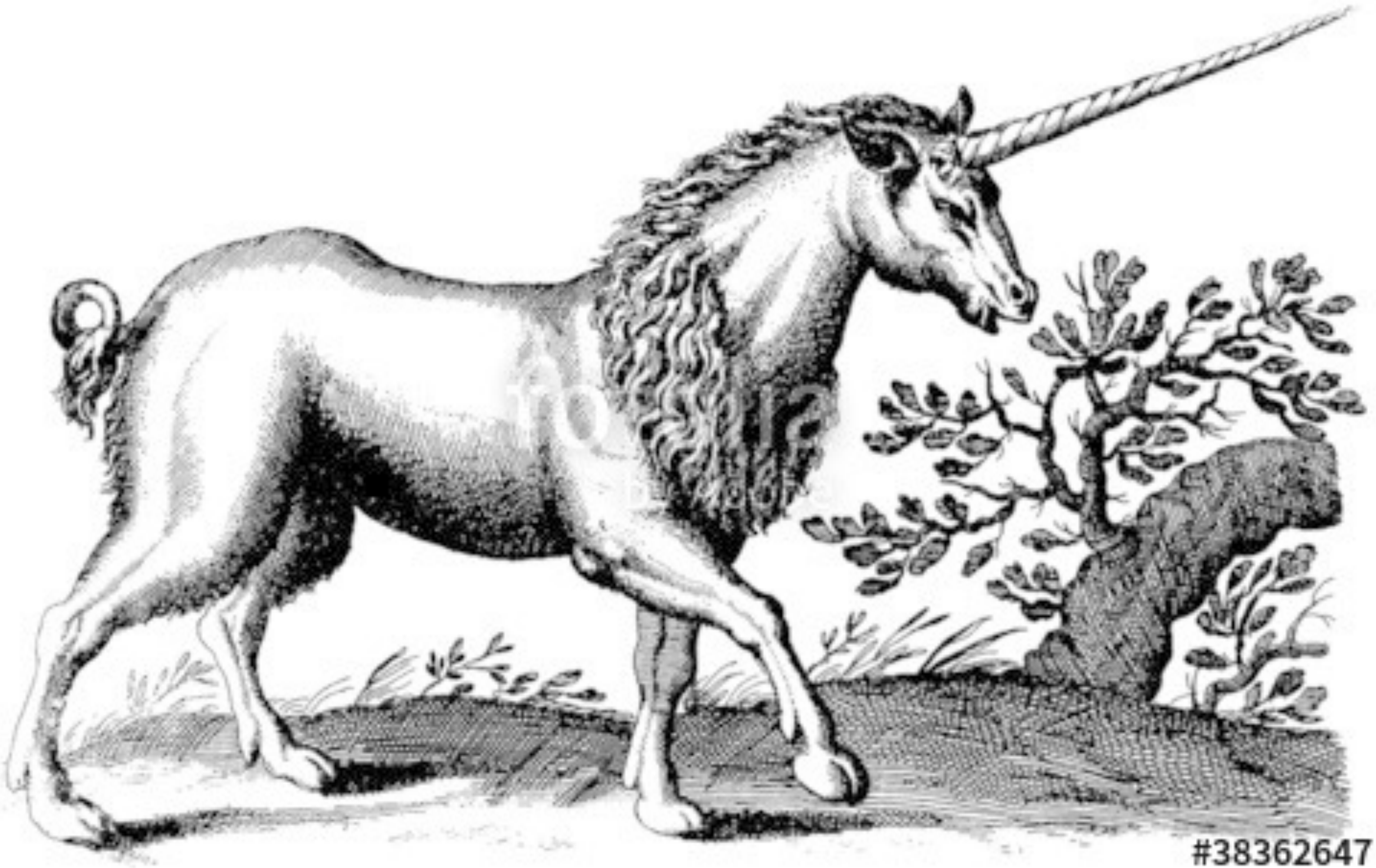


**F-35 FIGHTER JET
= \$100 Million**



PILOT TRAINING = \$11 Million

Rural Alaska Trainers



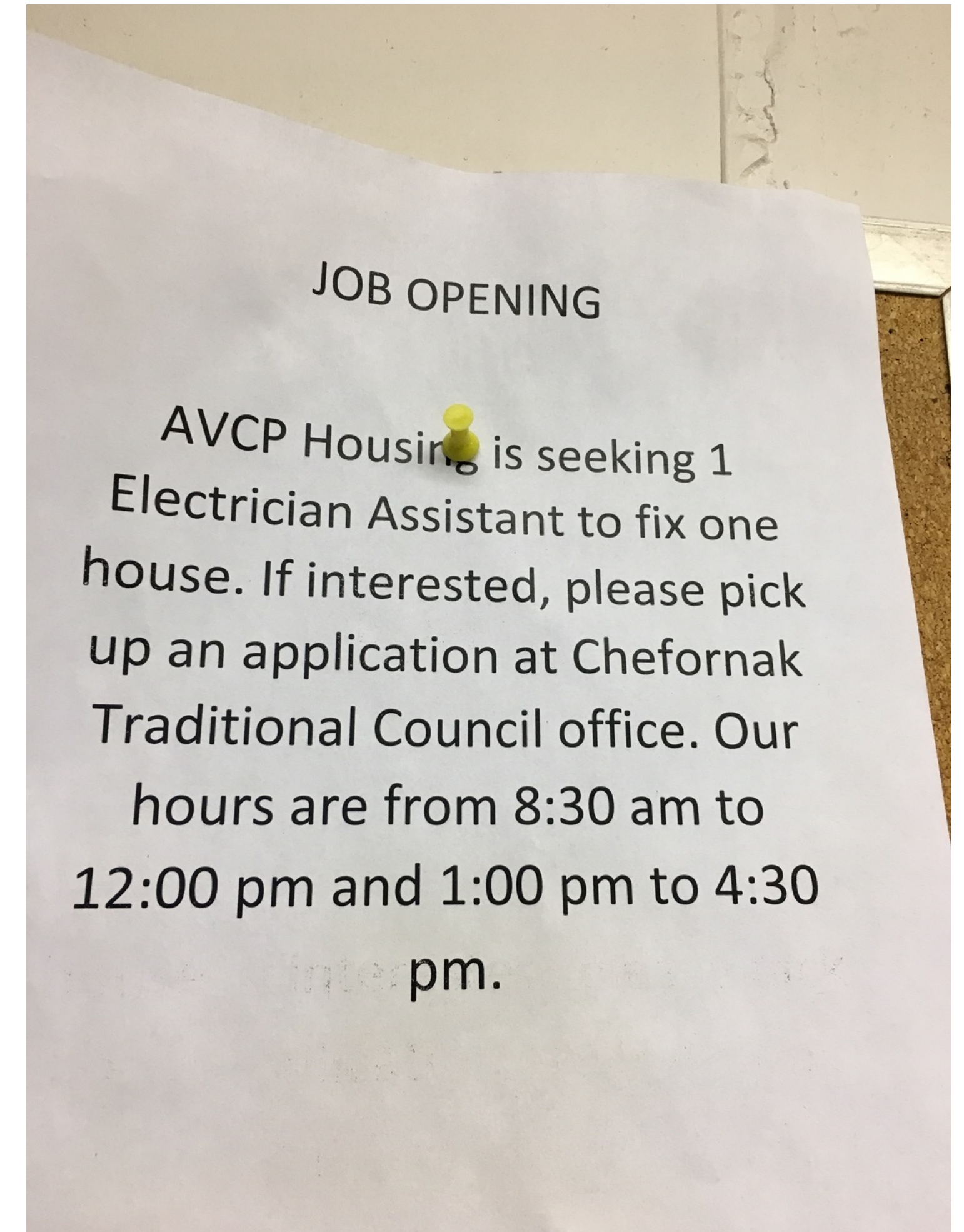
Train the Trainers

alaskarenewableenergy.org

 **REAP** Renewable Energy
Alaska Project

Rural AK Utility Success Indicators

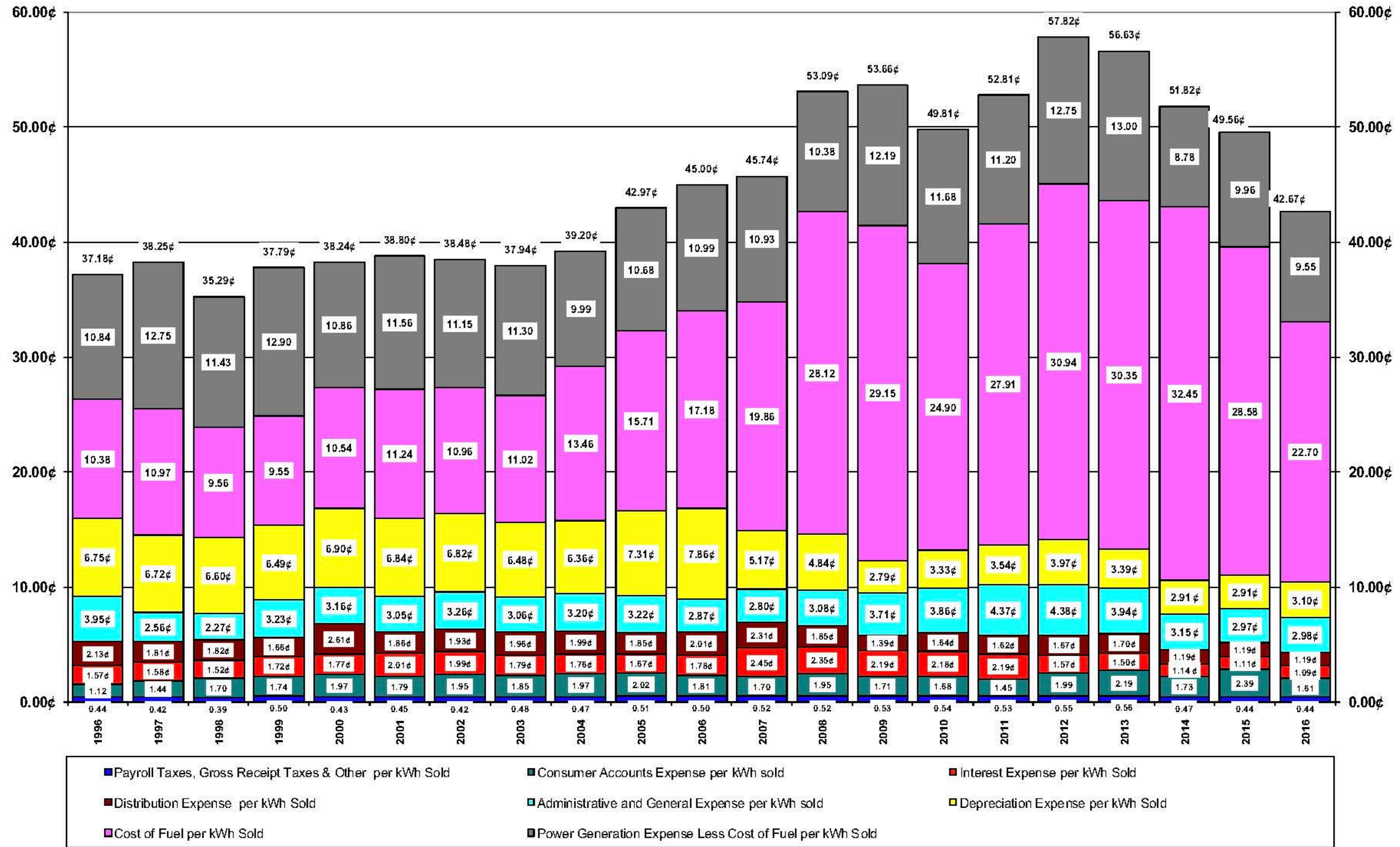
- 1. Sustainable Funding/Access for Training and Technical Assistance**
- 2. A clear person in charge (PIC)**
- 3. Ongoing assessment of infrastructure and capacity of operating personnel**
- 4. Scheduled Tech Assistance and On-Call Assistance Available**
- 5. In Person/On Site Training Calendar + Accountability/Compliance**
- 6. Strong Administrative and Financial Support**
- 7. Fair wage for Operator, Clerks and Managers**



Best Practices – AVEC Training

- 1) Improve math and reading.**
- 2) On-Call support for problems with mechanical controls, electrical controls and distribution.**
- 2) A full understanding of how engine and controls function as a system. This requires that each operator must be trained at their own individual plant.**
- 3) Compliance inspection at lease every quarter, preferably every month. Assistance or technical support for every compliance issue. (This would require a great number of circuit riders).**
- 4) Strong administrative support from the village/tribal council.**

Alaska Village Electric Cost Components per Kilowatt-hour Sold



ARUC Structure

- 17 ARUC staff
 - Free to communities – funded by grants, projects, ANTHC \$
- Regional managers
 - Bethel
 - Kotzebue
 - Anchorage



RUBA REPORT CARD

Category	Best Practice	Points	Contacts	Additional Information	
Technical	<i>Operator Certification</i>	Utility has more than one operator certified to the level of the water system	10	Operator Certification Program	Regulations require that the primary operator of a water system be certified at level equal to the classification of a system. The classification of each water system can be found online at https://dec.alaska.gov/Applications/Water/OpCert/ . For scoring purposes, the certification requirements considered will be for Water Treatment unless a system only requires a Water Distribution operator, in which case only Water Distribution certifications will be considered. Operators of Small Treated and Small Untreated systems who hold a Water Treatment certification at any level are considered to be certified to the level of the system. Wastewater Collection and Wastewater Treatment certifications will be considered if a community has a wastewater system but no water system. Systems that do not require a certified operator will receive full points.
		Primary operator is certified to the level of the water system and the backup operator holds some level of certification in water treatment or distribution	7		
		Primary operator is certified to the level of the water system and the backup operator holds no certification or there is no backup operator	5		
		Utility has one or more operators certified at some level in water treatment or distribution	3		
		Utility has no certified operators	0		
	<i>Preventive Maintenance Plan</i>	Utility has a written PM plan; PM is performed on schedule; records of completion are submitted on a quarterly basis and have been verified	25	Remote Maintenance Workers (RMWs)	A Preventive Maintenance Plan is a schedule of maintenance activities necessary for continued operation of the utility. At a minimum, the plan must include those activities required to prevent a loss of service. RMWs are available to assist in developing a PM Plans and training operators in proper maintenance. Utilities seeking 25 points must submit completed PM records to their assigned RMW on a quarterly basis. PM criteria apply to wastewater utilities if there is no public water system. Communities without a public water or wastewater system will receive full points.
		Utility has a written PM plan; performance of PM and record keeping are not consistent	15		
		Utility has no PM plan or performs no PM	0		
	<i>Compliance</i>	Utility had no Monitoring and Reporting violations during the past year	10	Drinking Water Program	Public water systems are required to collect water samples to demonstrate that the water meets drinking water quality standards and is safe for consumers. The Drinking Water Program provides each utility with an annual Monitoring Schedule each year. Sampling is a primary responsibility of the operator and sufficient funds for monitoring must be included in the budget. Communities without a public water system will receive full points.
		Utility had up to five Monitoring and Reporting violation during the past year	5		
Utility had more than five Monitoring and Reporting violation during the last year		0			
Total Technical Points		45			
Managerial	<i>Utility Management Training</i>	A person who holds a position of responsibility for management of the utility has completed a DCRA approved Utility Management course or other utility management training course within the last five years	5	RUBA	This person is not required to have the Utility Manager title, but must have some responsibilities pertaining to the management of the utility. This person must reside within the community and represent the utility, even in instances when the utility is managed by a third party.
	<i>Meetings of the Governing Body</i>	The utility owner's governing body meets routinely consistent with the local ordinance/bylaw requirements and receives a current report from the operator	5	Rural Utility Business Advisor (RUBA)	Meetings must be held as prescribed by ordinance or by rules and regulations of the governing body, with reasonable exceptions made for unforeseeable circumstances. A written or oral report from the operator or contracted utility manager must be recorded in the meeting minutes.
		The utility owner's governing body meets routinely consistent with the local ordinance/bylaw requirements	2		
		The utility owner's governing body does not meet	0		
Total Managerial Points		10			
Financial	<i>Budget</i>	Utility owner and the Utility have each adopted a realistic budget and budget amendments are adopted as needed; Accurate monthly budget reports are prepared and submitted to the governing body	15	RUBA	If the utility is managed or operated by a third party, the utility owner and the contractor must demonstrate appropriate budgeting and financial reporting practices. The utility owner must demonstrate appropriate budgeting for any utility subsidies and for the contracted services. The contracted manager must also demonstrate a realistic budget for the utility. When the utility is managed by a third party, monthly financial reports must be submitted to, and reflected in the meeting minutes of, the utility owner's governing body. Utilities not under contracted management must have a distinct budget for the utility operations in order to achieve the maximum score.
		Either the Utility or the Utility owner has adopted and implemented a budget, the other has not	13		
		Either the Utility or the Utility owner has adopted a budget, but it is not being implemented	10		
		Utility owner and the Utility have not adopted a budget	0		
	<i>Revenue</i>	Utility is collecting revenue sufficient to cover the Utility's operating expenses and to contribute to a repair and replacement account	20	RUBA	To receive full points, the reports must show that sufficient revenues - whether from user fees, explicitly identified subsidies, or a combination of both- are being collected to meet all the utility's associated expenses, and that the utility is budgeting for repair and replacement expenses and/or already has sufficient funds saved to cover foreseeable repair and replacement costs. 'Collection policy' means a set of procedures designed to ensure bills are paid on time and in full, and to collect on past-due payments. Sending customers a bill/statement each month showing the amount owed is not a collection policy. The collection policy must include a statement of action that will be taken if past-due amounts are not received.
		Utility is collecting revenue sufficient to cover expenses	15		
		Utility has a fee schedule and a collection policy that is followed	5		
		Utility has no fee structure or collection policy	0		
	<i>Worker's Compensation Insurance</i>	Utility has had a workers' compensation policy for all employees for the past two years and has a current policy in place	5	RUBA	All employees of the entity which owns the utility must be covered by workers' compensation insurance. In addition, all employees of a third party managing the utility must be covered, if applicable.
		Utility has a current workers' compensation policy in place for all employees	2		
Utility has no workers' compensation policy		0			
<i>Payroll Liability Compliance</i>	Utility has no past due tax liabilities and is current with all tax obligations	5	RUBA	This criteria applies to the utility owner, as well as to a third party managing the utility, if applicable. Taxes considered include both Federal and State taxes. A utility representative must sign an IRS tax authorization form for this information to be verified for scoring purposes.	
	Utility owes back taxes, but has a signed payment agreement, is current on that agreement, and is up-to-date with all other tax obligations	2			
	Utility is not current with its tax obligations and/or does not have a signed repayment agreement for back taxes owed	0			
Total Financial Points		45			
Total Points Possible		100			

REMOTE MAINTENANCE WORKER PROGRAM



Slides Courtesy Carrie Bohan - DEC



People In Power (PIP)



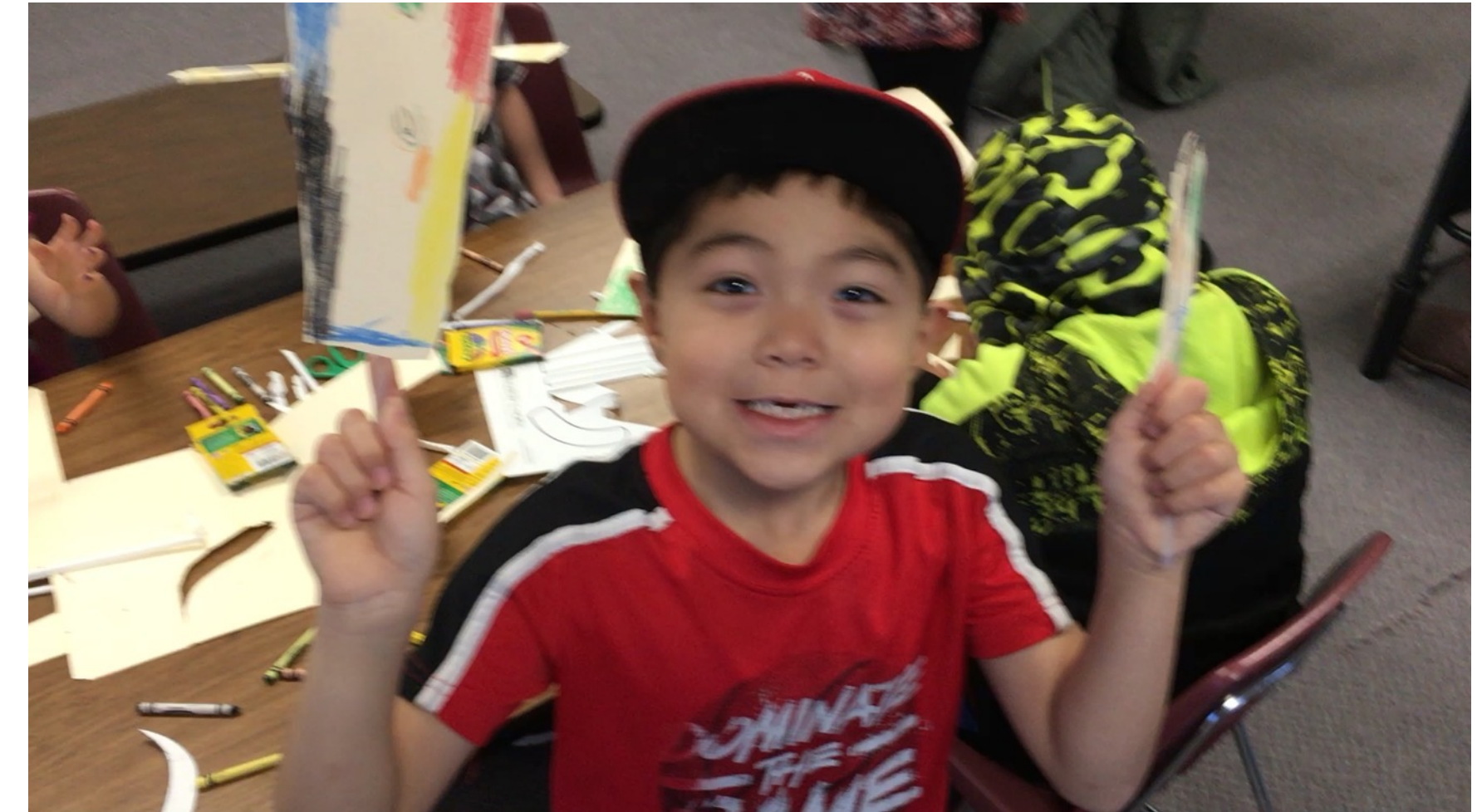
Training Coordination for Low Performing Independent Rural Alaska Utilities

A collaboration between The Denali Commission, Department of Energy Arctic Energy, ANEEE and REAP

Building Capacity in Operations/Maintenance/Management/Governance



Destiny Determined by Energy



LINKS:

ANEEEWORKS.ORG

ALASKA ENERGY ECOSYSTEM MAP - ArcGIS

alaskarenewableenergy.org

Chris McConnell
ANEED Director
June 11, 2021

 Renewable Energy
Alaska Project