The Facilities Mission *is* the Motivation

2018 ASB SCHOOL DISTRICT MAINTENANCE EMPLOYEES CONFERENCE

Chris McConnell

ANEEE Director

REAP | Renewable Energy Alaska Project

ALASKA NETWORK of ANEEE ENERGY EDUCATION AND EMPLOYMENT

REAP | Renewable Energy Alaska Project

REAP Advances Clean Energy in Alaska

Our mission is to increase the development of renewable energy and promote energy efficiency throughout Alaska.

- **COLLABORATION**
- **EDUCATION**
- **ADVOCACY**
- **TRAINING**

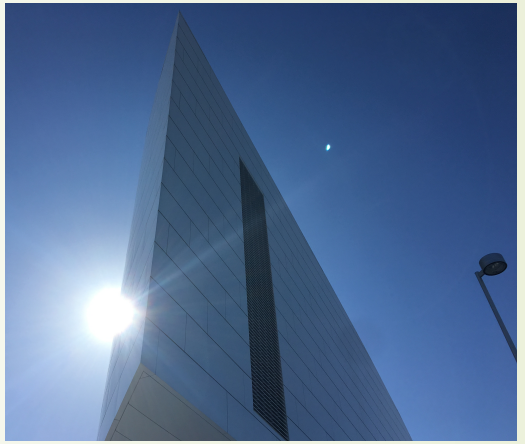
MAPPING WHERE ALASKANS
LEARN – TRAIN – EARN
In the Energy Sector

ALASKA NETWORK of ANEEE
ENERGY EDUCATION AND EMPLOYMENT

KINDERGARTEN – 12th GRADE

VOCATIONAL

University of Alaska & APU



JOBS & CAREERS


T- 00:01:25
FALCON HEAVY TEST FLIGHT
STARTUP
LIFTOFF
MAX-Q
BOOSTER ENGINE CUTOFF
MAIN ENGINE CUTOFF
FAIRING DEPLOY
BOOSTERS LAND
STAGE 2 SHUTDOWN
CORE LANDS
SPACEX

FIRETUBE
BOILER
EXPLOSION

What is the Facilities Mission in Alaska?

The 70/30 Mission:
Quality Instruction for Alaskan Children

Studies by the EPA have found that the ideal temperature for learning: is between 68 and 74 degrees.

When temperatures fall out of this range, there appears to be a significant decrease in test score performance, approximately 14% to 18%.

Further, an additional EPA study finds that improved ventilation rates can improve test scores by approximately 15%.

Each year schools are required to spend at least 70% of their budget on direct instruction, or obtain a waiver from the Alaska Department of Education and Early Development (DEED).

Between 2001 and 2011, on average about half of the 53 school districts in Alaska have had to obtain a waiver for this requirement.

Reducing the energy costs required to maintain a comfortable school environment would free up more funding to be spent where it is needed most—on direct student instruction.

Energy Efficiency of Public Buildings in Alaska: Schools

CCHRC/AHFC

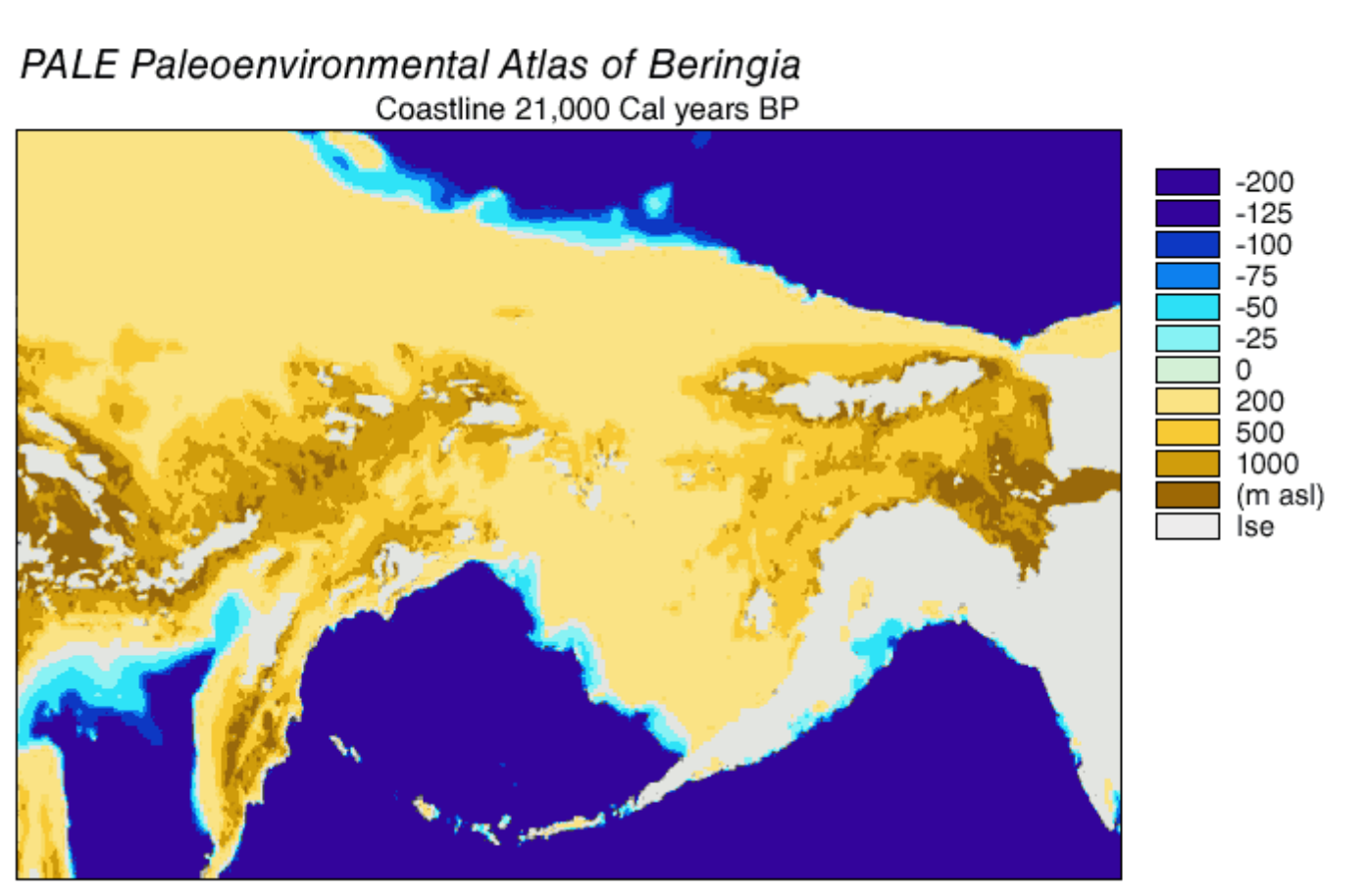
Alaska Housing FINANCE CORPORATION

School districts in the United States spend approximately $12 billion per year on energy bills with one-third of this amount being wasted due to inefficient building operation and behaviors (DOE).

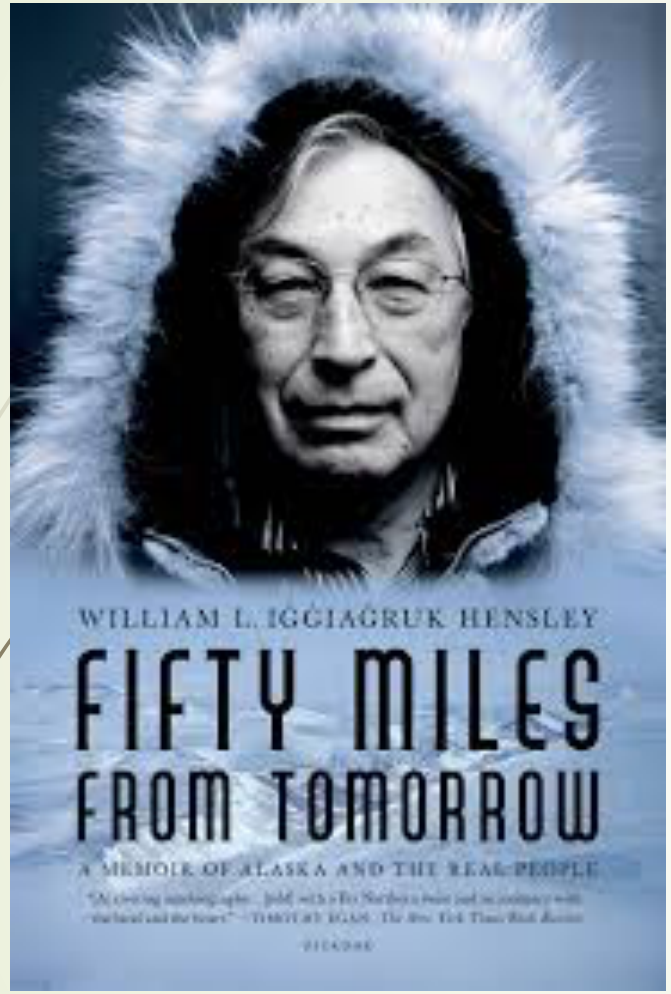
A Legacy of Alaskan Challenges and Barriers

- Distance
- Logistics
- Access to /Opportunities for Education & Training
- Literacy/Numeracy
- Economies of Scale
- Realistic Expectations
- Accountability
- Cultural Divides

21,000 Years of Energy Literacy in Alaska



A Legacy of Overcoming Challenges and Barriers



Willie Hensley on the Electrification of rural Alaska in 1969:

"Nothing was going to help more to ease us into the 20th century then electrifying the villages. But who is going to pay for it? And how was it going to happen? - given the fact that the people in the villages still function in an almost cashless barter economy…"

"The major challenge was to secure the funding…"

TAKE CARE OF YOUR $TUFF:
THE O&M CHALLENGE IN ALASKA


IIAF
Partners for Progress in Delta, Inc.
Building Alaska's Workforce
UNIVERSITY OF ALASKA ANCHORAGE
ISER
INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH
AEC
AMUNDSEN
EDUCATIONAL CENTER
UAS
UNIVERSITY OF ALASKA
SOUTHEAST
BRISTOL BAY CAMPUS
SERVING THE BRISTOL BAY REGION AND
THE ALEUTIAN AND PRIBILOF ISLANDS
AVTEC
Alaska
er Electric
ciation, Inc.
Sandia
National
Laboratories
Incorporated 1996
Barrow, Ala
NREL
NATIONAL RENEWABLE ENERGY LABORATORY
COMMUNITY & TECHNICAL
COLLEGE
UNIVERSITY of ALASKA FAIRBANKS
Yuut Elitnaurviat
PEOPLE'S LEARNING CENTER
KODIAK ELEC
ASSOCIATION
e Electric Association

THE TWO CATEGORIES OF MAINTENANCE

FUN

NOT FUN

PREVENTIVE

CORRECTIVE

PREDICTIVE

MAJOR BARRIERS
TO
PREVENTIVE MAINTENANCE


I DON'T ALWAYS PENCIL WHIP . . .
BUT WHEN I DO, YOU HAVE NO PROOF
memecrunch.com

OR?

- TRAINING
- BUDGET CONSTRAINTS
- ADMINISTRATIVE/MANAGERIAL SUPPORT
- PAY/INCENTIVES
- PRIDE & UNDERSTANDING THE MISSION

HOW DO YOU TRAIN?

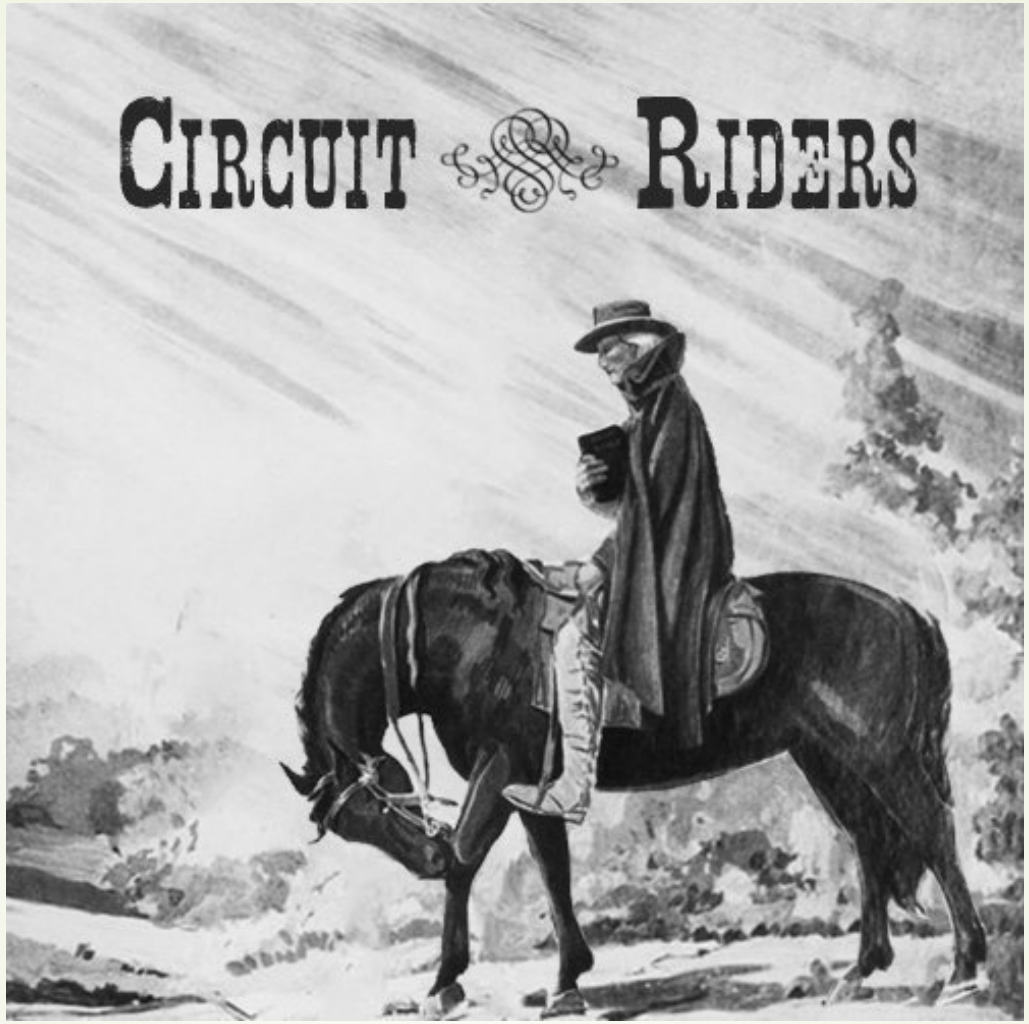
- Do you systematically assess training needs?
- Does anyone in your organization track available training opportunities?
- Have you collaborated with another organization in the past 3 years to provide training?
- Leveraging / tapping into organizations already in the community is the best starting point - expand from there.
- What is the most important constraint on training?

A) Employer resistance B) Cost

C) Perceived benefits

D) Fear of losing a good worker – Brain Drain

Norm Miller's Classroom



An Alaska Case Study

Training Lessons from Norm Miller

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 requires a great number of circuit riders).

4) Strong administrative support from the village/tribal council.

WHO GETS TRAINED?

F-35 FIGHTER JET = $100 Million

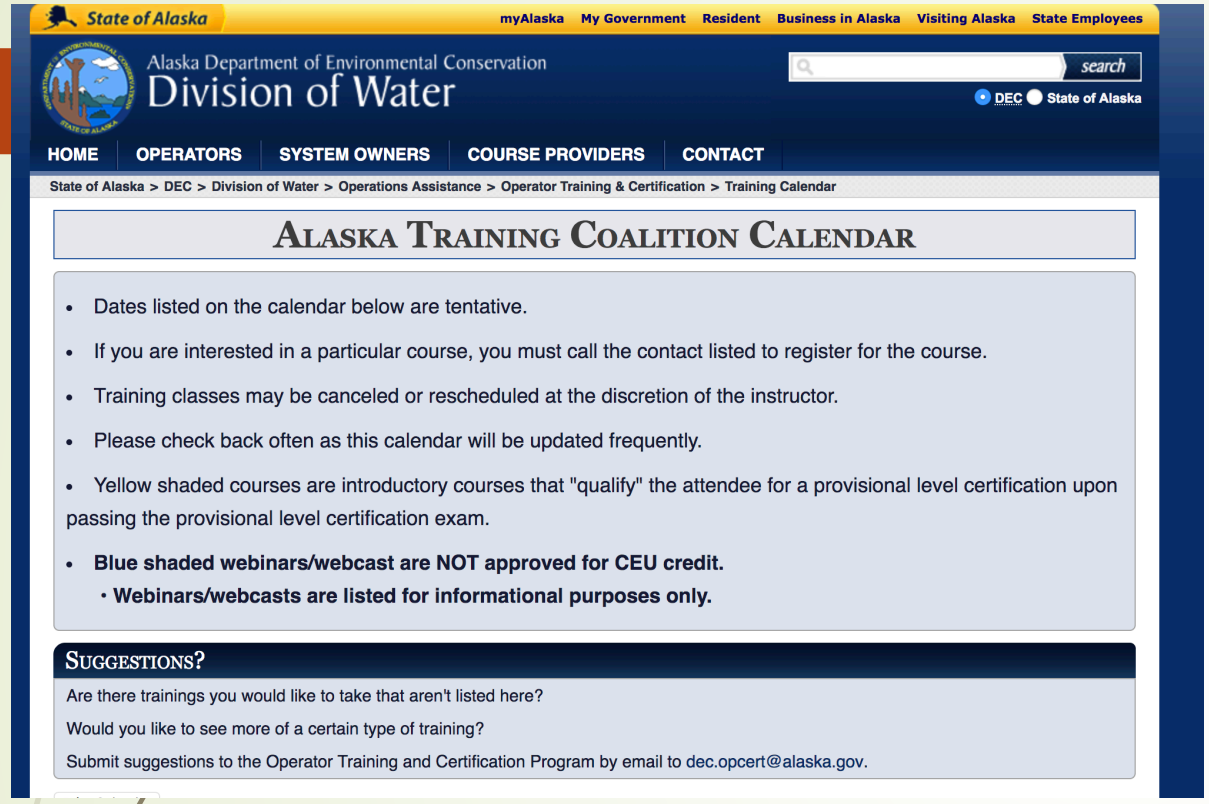
PILOT TRAINING= $11 Million

SETTING UP FOR TRAINING SUCCESS

- EARN THE POSITION – PRE TRAINING
- PROVIDE TRAINING with INCENTIVES
- PROVIDE DEDICATED TRAINING SPACES
- REQUIRE ACOUNTABILITY

WHO IS TRACKING TRAINING OPPORTUNITIES?

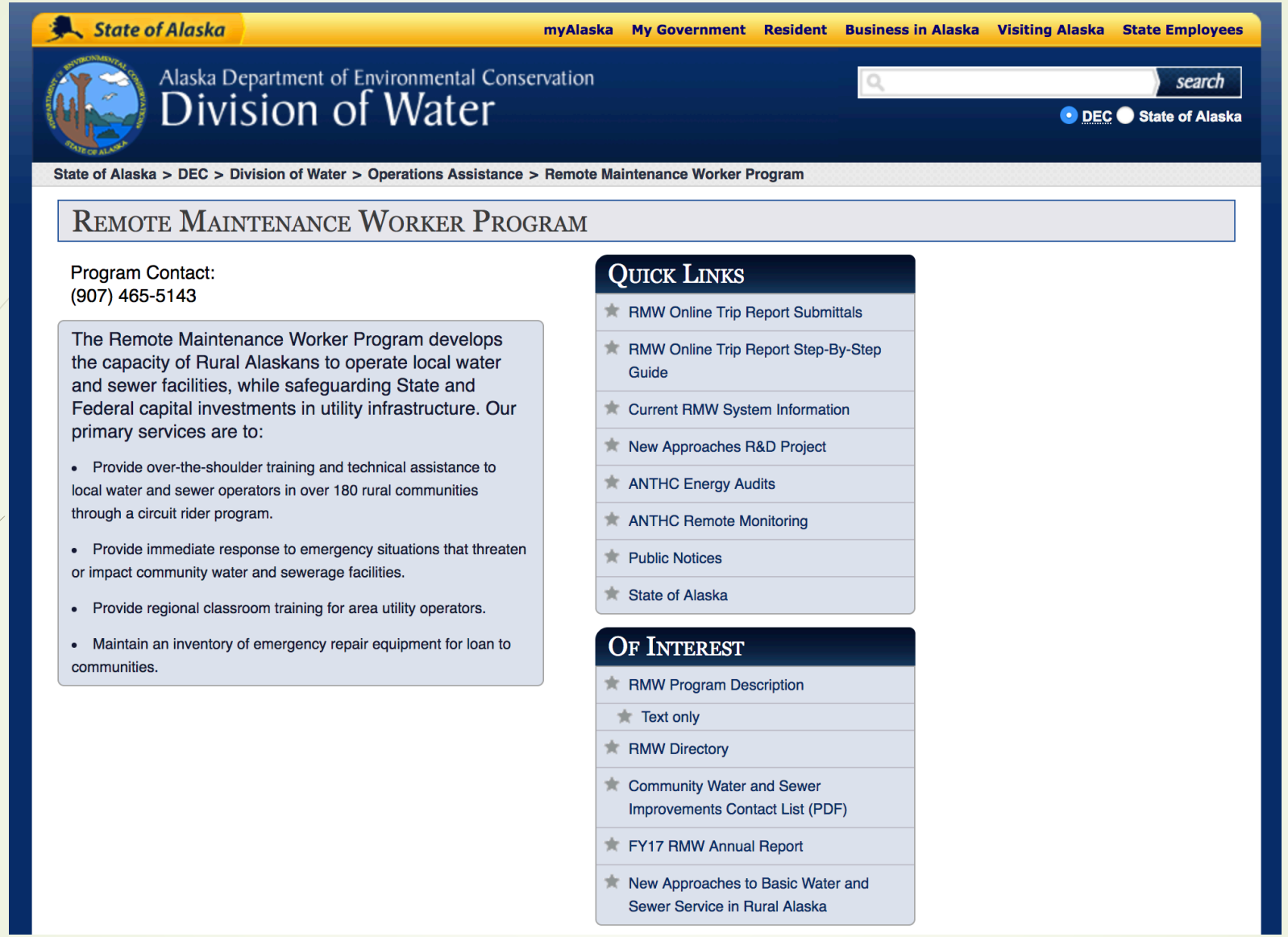
Alaska Training Clearinghouse



MAY

DATE	COURSE	LOCATION	CEUS	SPONSOR	CONTACT
May 1 - 3	**Boiler Maintenance and Repair for Water Operators**	Bethel	2.0 Core	YKHC	Jennifer Dobson (907) 543-6420
May 2 - 3	**Arc Flash Electrical Safety NFPA 70E®** Cost: $1,100 The foremost goal of this two-day Arc Flash Electrical Safety course is to keep workers safe while working on or around electrically energized equipment. Click here to register for the training.	Anchorage	1.5 Core	TPC Trainco	Naomi Yencich (303) 531-4560
May 2 - 4	**Arc Flash Electrical Safety NFPA 70E® w/ Skills & Certification** Cost: $1,650 he first two days of this three-day course are identical to our traditional Arc Flash Electrical Safety course. For this version, a third day is added so that students can demonstrate what they have learned by participating in hands-on classroom exercises and taking the ATMT® Electrical Safety Certification exam. . Click here to register for the training.	Anchorage	2.25 Core	TPC Trainco	Naomi Yencich (303) 531-4560
May 7 - 9	**AWWMA 58th Annual Statewide Conference** The conference will be held at the Anchorage Marriott Downtown Hotel **Click here for information about the conference.**	Anchorage	Varies	AWWMA	Angie Monteleone (907) 561-9777
May 7 - 8	**Pump Repair and Maintenance** Cost: $1,100 This two-day hands-on Pump Repair course is designed to bring students up to speed in their knowledge of field pump repair, maintenance and servicing as quickly and efficiently as possible. Click here to register for the training.	Anchorage	1.5 Core	TPC Trainco	Naomi Yencich (303) 531-4560
May 7 - 25	**High-Tech Operator Level 3** Cost: $405 non-member / $255 member This is a 12 hours, 3 week online course and consists of pre-recorded presentations, online learning activities, videos, quizzes and evaluations. Review information management technologies, both server-based and Web hosted. Participants will discuss and compare management systems, as well as applications available for collecting and managing performance data and methods available for storing information online securely. **Click here to register for the training.**	Online	1.2 Core	AWWA	**AWWA** (800) 926-7337
	Intermediate Wastewater Operator				

ALASKA TRAINING COALITION CALENDAR



REMOTE MAINTENANCE WORKERS

UNIVERSITY OF ALASKA VOCATIONAL EDUCATION

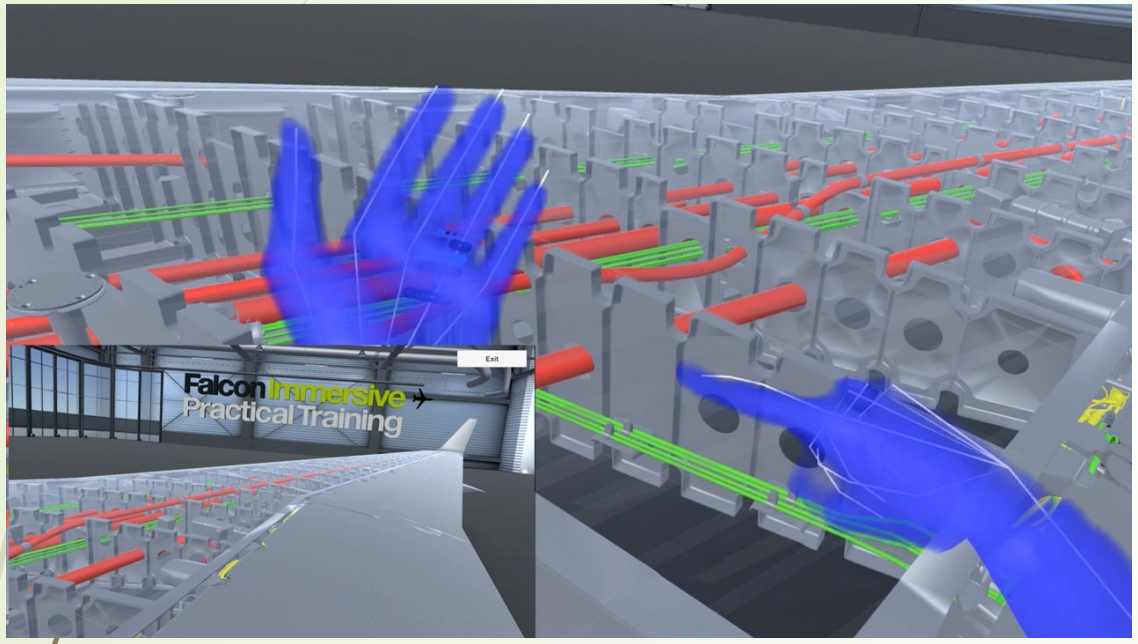
UAF Community and Technical College
UAA Community and Technical College
Mat-Su / Bristol Bay
Seward / Ketchikan / Sitka /Kodiak /
Kenai /
Prince William Sound / UAF Rural Campuses

TECHNICAL & VOCATIONAL EDUCATION PROGRAMS
REGIONAL TRAINING CENTERS (RTCs)

- AVTEC
- Alaska Technical Center (ATC)
- Amundsen Educational Center
- Galena Interior Learning Academy
- Ilisag□vik College
- Northwestern Alaska Career and Technical Center (NACTEC)
- Partners for Progress in Delta
- Southwest Alaska Vocational and Education Center (SAVEC)
- Yuut Elitnaurviat


jobs
ALASKA DEPARTMENT OF LABOR
& WORKFORCE DEVELOPMENT

THE FUTURE IS COMING
(It's already here)



Augmented and Virtual Reality (AR/VR)

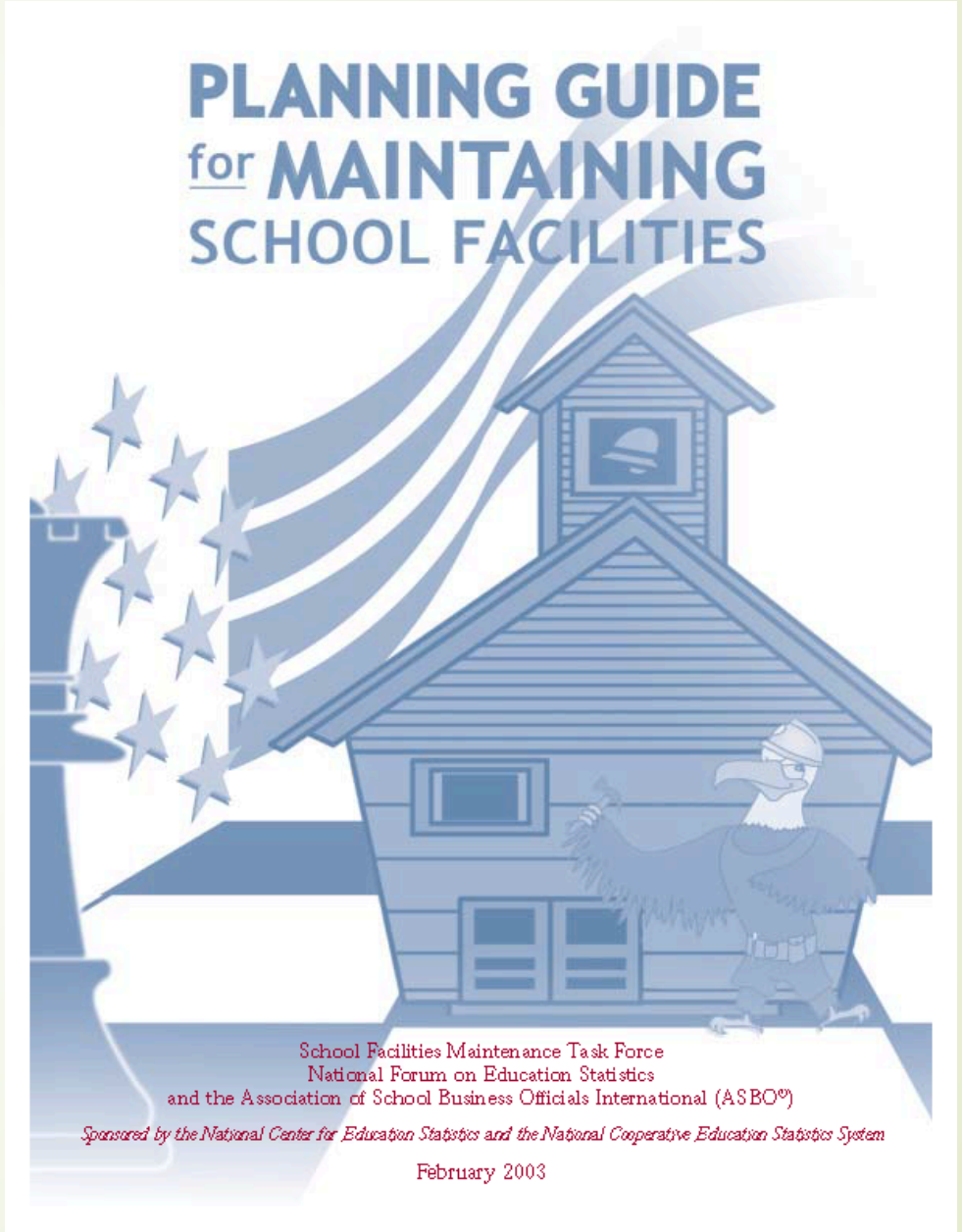
RESEARCH FREE RESOURCES

HOW DO I IMPLEMENT A PM PROGRAM?

4 TIPS FROM PM ALL STARS ON
HOW TO GET STARTED

SCHOOL DUDE®

SCHOOLDUDE




ASHRAE
TM


EMS
Energy Managers Society


aee
The Association
of Energy Engineers


IFMA
International Facility Management Association
Empowering Facility Professionals Worldwide


FMA

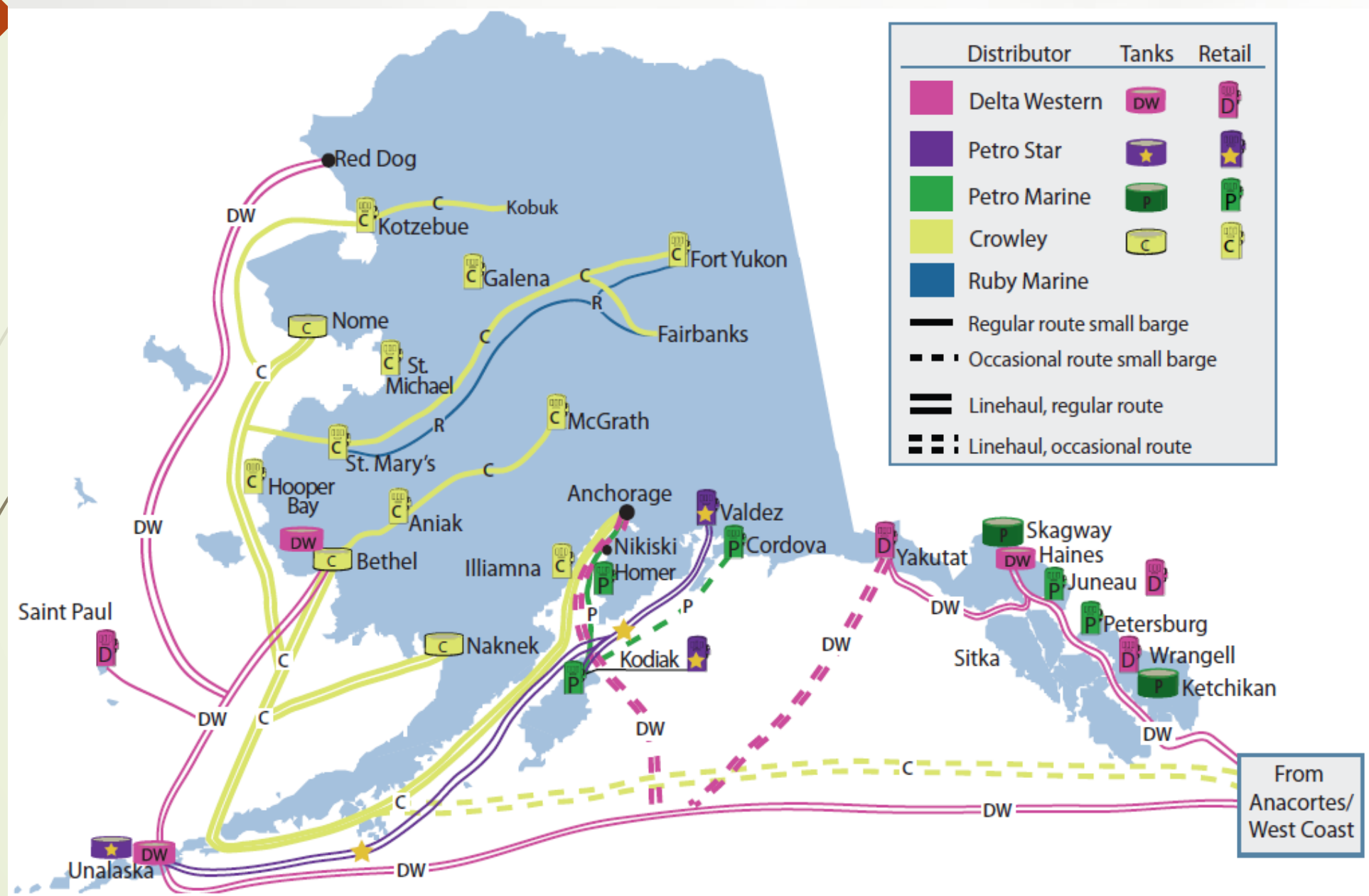

BOMA
International

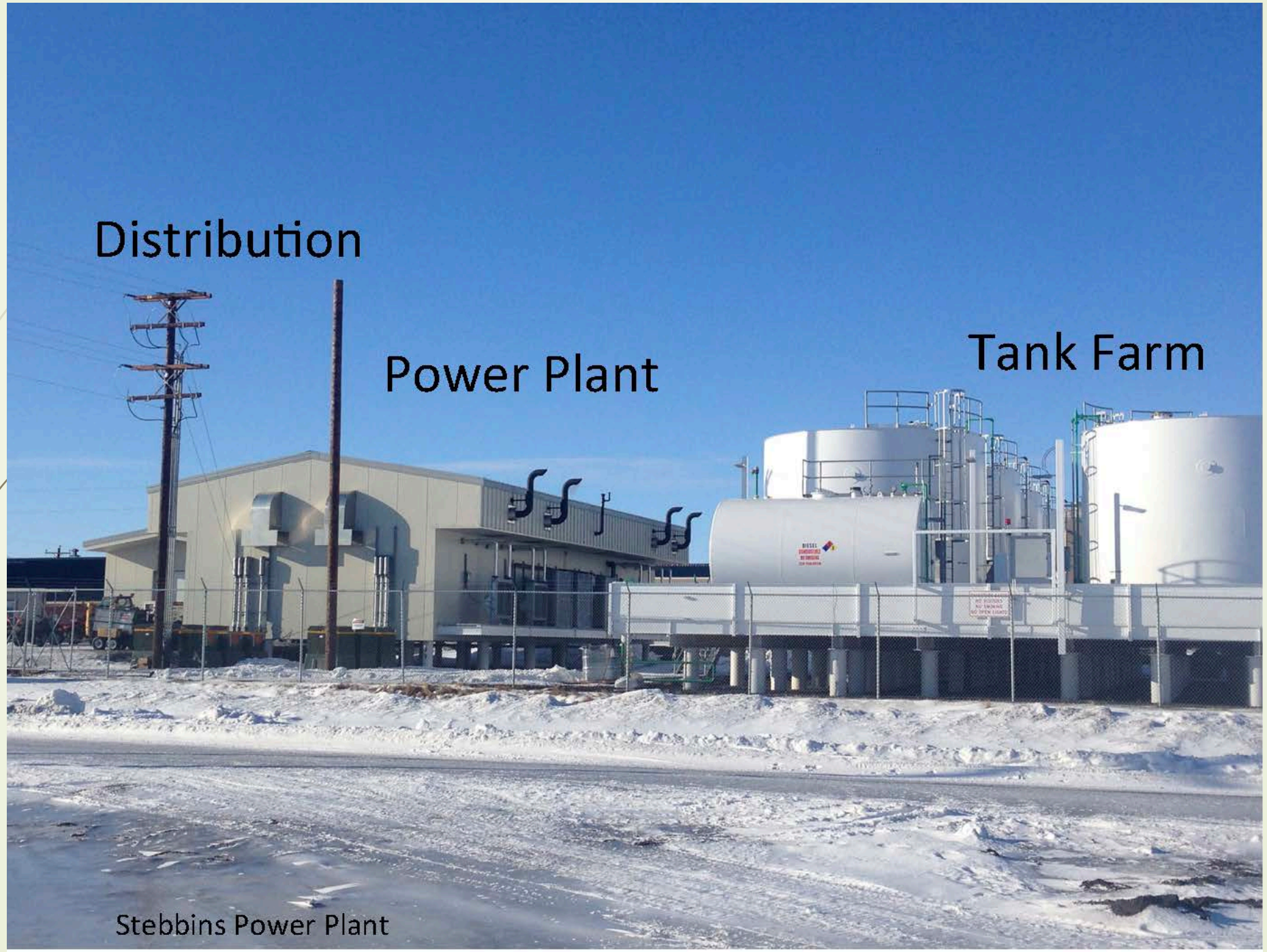
OR?

- TRAINING
- ADMINISTRATIVE/MANAGERIAL SUPPORT
- PAY/INCENTIVES
- **PRIDE & UNDERSTANDING THE MISSION**

HOLISTIC UNDERSTANDING - AVEC

Fuel Distribution Routes to Rural Markets



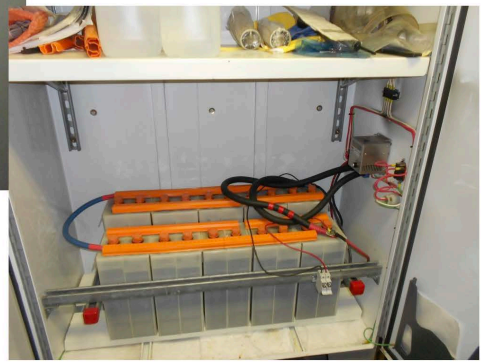

Distribution
Power Plant
Tank Farm
Stebbins Power Plant

DIESEL ENGINE SELECTION:

Lightweight Electronic Engines - fuel efficiency
Marine Manifolds for Increased Thermal Efficiency
Identical Make and Model- maintenance efficiency

Stebbins Power Plant

Nickle Cadmium
Battery Bank



For DC Bus and
Engine Cranking

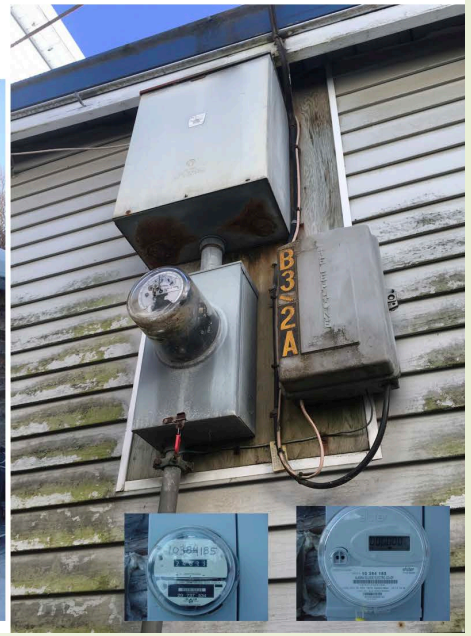
Remote Radiators
with Variable speed
Fans

Switchgear

Wind Integration with Automated Dispatch and Secondary Load Control

Chevak Power Plant

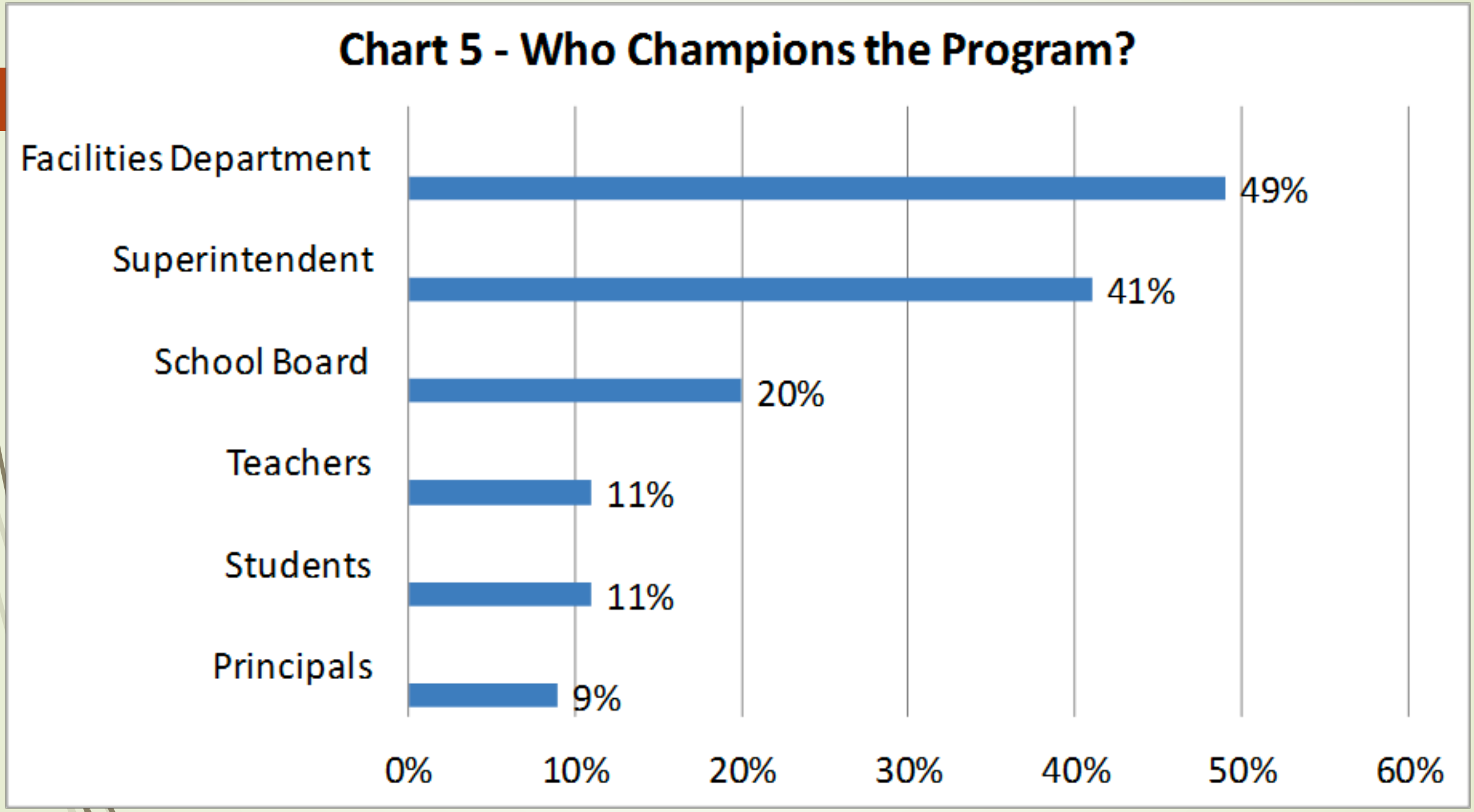
Service Meters



The Facilities Mission *is* the Motivation

The Building as a Tool for Energy Literacy

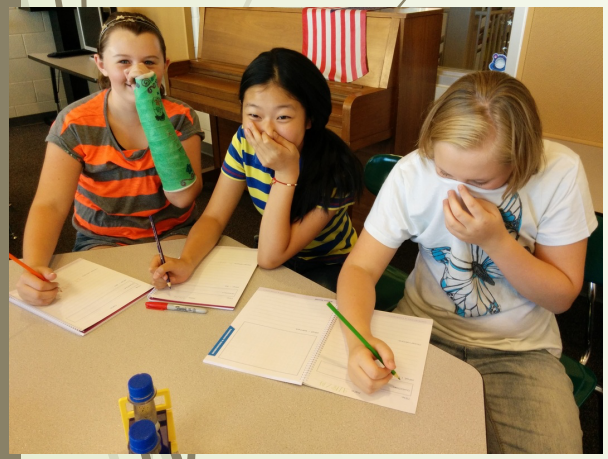
Chart 5 - Who Champions the Program?



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.


74
79



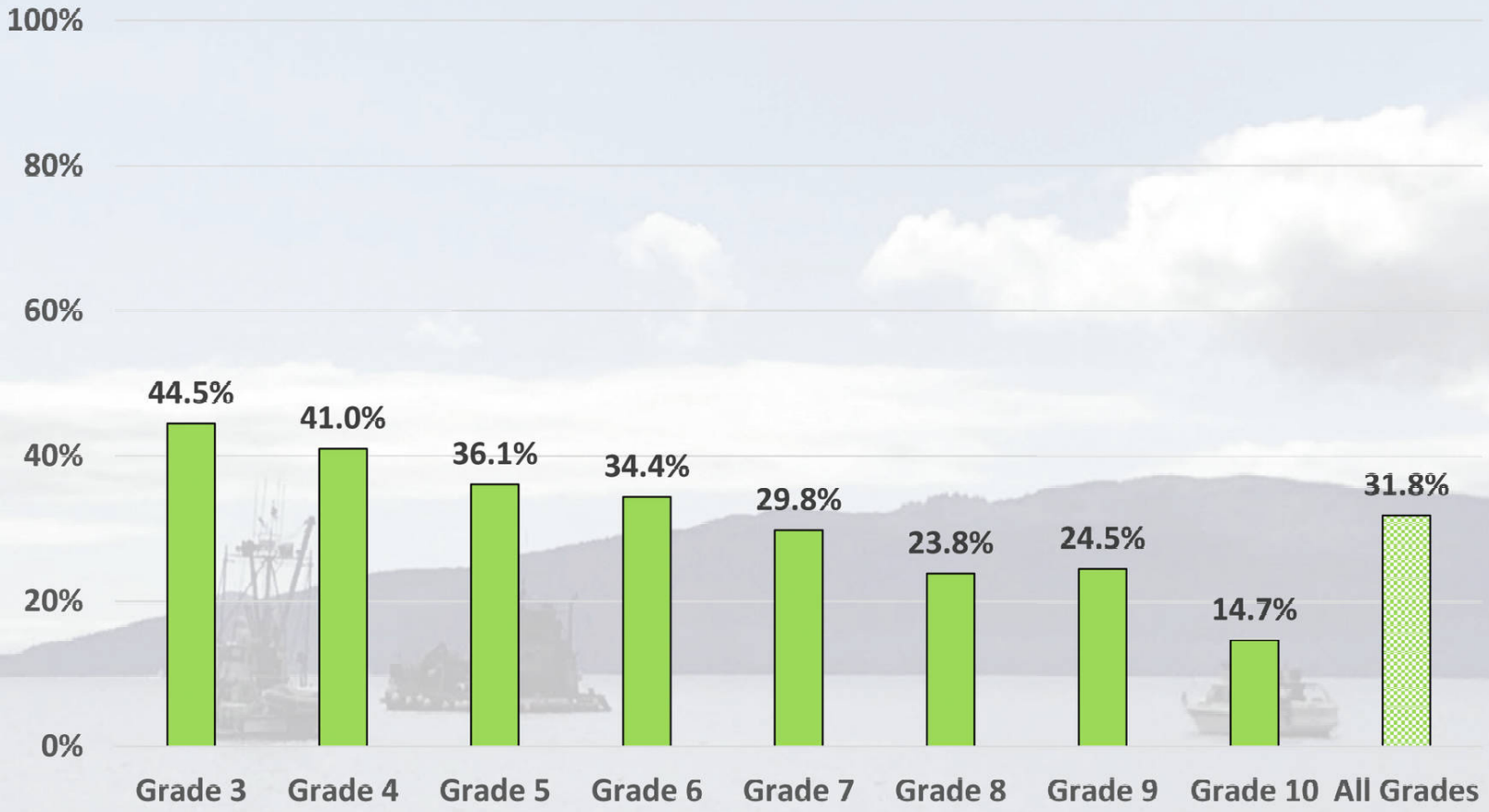
NEXT GENERATION SCIENCE STANDARDS – RURAL SCHOOL CURRICULUM OVERVEW

	Standards Woven Throughout Units	Year	Physical Science
Grades K-2	Inquiry and Process Science and Technology Cultural, Social, Personal Perspectives and Science History and Nature of Science Traditional and Ecological Knowledge	1	**Properties of Matter** 1. Classifying Matter 2. Observing Reactions
		2	**Motions & Forces** 1. How Things Move 2. Vibrations Make Sound 3. Magnets
		3	**Energy Transfer & Transformation** 1. The Sun Warms the Land, Air & Water 2. Insulation
Grades 3-5		1	**Properties of Matter** 1. Solid, Liquid, Gas 2. Heating, Cooling & Change
		2	**Motions & Forces** 1. How Forces Change Motion 2. Moving Without Touching
		3	**Energy Transfer & Transformation** 1. Insulators & Conductors of Heat 2. Different Kinds of Energy 3. Changes Made by Energy

	Standards Woven Throughout Units	Year	Physical Science
Grades 6-8	Inquiry and Process Science and Technology Cultural, Social, Personal Perspectives and Science History and Nature of Science	1	**Properties of Matter** 1. Atoms, Molecules & States of Matter 2. Mixing & Separating 3. Physical & Chemical Changes
		2	**Motions & Forces** 1. Magnets & Currents 2. Waves 3. How Light Travels 4. Forces
		3	**Energy Transfer & Transformation** 1. Energy Changes Form 2. Explaining Changes of State (solid, liquid, gas)
Grades 9-12		1	**Properties of Matter** 1. Periodic Table 2. Atomic Structure 3. Chemical Reactions
		2	**Motions & Forces** 1. Newton's Laws 2. Interactions of Electric & Magnetic Forces 3. Movements of Waves
		3	**Energy Transfer & Transformation** 1. Types of Heat Transfer 2. Useful Energy 3. Electrical Circuits

AKENERGYSMART.ORG

2017 PEAKS math proficiency by grade



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Thank You!

ANEEE Director Chris McConnell

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