Innovation, Inspiration, and Opportunity: Forging Our Energy Future

Question asked: What do you want your community’s energy system to look like when you are fifty years old? Answer drawn by Zachary Hecht of Kodiak, first place winner of the 2018 REC program cover art contest. This contest was sponsored by Alaska Village Electric Cooperative. Winners were selected by Senator Lisa Murkowski.
SAFE, RELIABLE & AFFORDABLE ENERGY SOLUTIONS
April 2018

Thank you for attending the 2018 Alaska Rural Energy Conference. We are excited that this year marks the twentieth anniversary of the conference! AEA, in close partnership with the Alaska Center for Energy and Power, holds this conference, but it takes our many sponsors and supporters to make this event happen. This event has become the preeminent gathering of stakeholders discussing rural community energy security, environmental sustainability and economic development because of you.

This year we held a contest to design the REC program cover. We asked Alaska students in grades five through eight to answer this question: What do you want your community's energy system to look like when you are fifty years old? The answers were full of optimism, innovation and inspiration — and we have incorporated those ideas into this year's program. So let's keep the concepts of innovation, inspiration, and opportunity in mind this week as we share stories about rural energy challenges and more importantly, solutions.

While it might be easy to feel discouraged about the future these days, the young people who responded to our REC program cover art contest offer a different perspective. Despite uncertainty around the state's economy, and lingering, big questions about how Alaska will adapt to and mitigate the impacts of climate change, Alaska can lead the world in the identification and implementation of distributed generation systems that integrate local, renewable resources, cutting edge and innovative technology, and home grown capacity for building and maintaining the energy systems that power and heat our future. And it all starts with you.

This week we will be discussing utility business and project finance; operations, maintenance and workforce development; and energy technology and innovation. The conversation and collaboration facilitated this week contributes to realizing the kind of inspired vision shared by the young people who answered our question. This is my first Rural Energy Conference as AEA's executive director. I am excited about the chance to hear from you, learn from you, and with you, to explore opportunities toward an energy future where innovation sets the tone.

Thank you,

Janet Reiser
Executive Director, Alaska Energy Authority
DAILY MEALS
The conference offers a daily continental breakfast at 7:00 a.m. on Tuesday, Wednesday and Thursday in the Gold Room (West). Attendees staying at the hotel are also welcome to partake of the Westmark’s complimentary breakfast located in the Red Lantern restaurant. Lunch will be served at noon each day. Lunch tables are set up in Gold Room (West), Rampart Room and Northern Latitudes Restaurant. Buffets will be staged in both Gold Room (West) and Northern Latitudes for your convenience. A day-long coffee and tea service along with afternoon snacks will be also be available in Gold Room (West).

CONFERENCE STRUCTURE
Plenary Sessions: Daily Plenary Sessions are opportunities for an assembly of all participants to hear from leading officials on energy issues from the local to the international level. Plenary Sessions are scheduled for Tuesday morning after the keynote address as well as Wednesday and Thursday mornings of the conference.

Technical Sessions: During this three-day period, six technical sessions have been planned, each offering three concurrent workshops on different topics. We’d like to believe that no two workshops are the same, creating a unique forum. Details of the technical sessions, including speaker names and presentation titles, are in the detailed agenda in the conference program.

Vendor Breaks: There will be a vendor break on Tuesday and Wednesday from 3:00-3:30 pm in the Northern Latitudes and Yukon Room. This will be an opportunity for attendees to speak with vendors and sponsors about their products, projects and work in Alaska’s rural energy field.

VENDOR BOOTHs
Vendor and sponsor booths are located in the Yukon and Minto Rooms and in the main hall of the Westmark. Booths will be open throughout the conference.

EVALUATION FORM
During the conference, you will be asked to fill out an evaluation form to help us plan future Rural Energy Conferences. Your cooperation is needed in completing this form and we ask that you submit them to the conference staff before you leave or scan the QR code provided to complete the form online. Thank you, in advance, for your valuable insight.

CONTINUING EDUCATION CREDITS
Continuing education credits are available for engineers and educators attending this conference. Forms are available at the registration desk and in each breakout room and should be signed by session chairs after each session. Note: The Alaska Rural Energy Conference and its organizers are not responsible for submitting or tracking CE Credits for attendees.

CONFERENCE STAFF / ASSISTANCE
Questions? Concerns? Comments? Please see any of the conference staff for assistance. We will do our best to accommodate your needs while attending the Rural Energy Conference!
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<thead>
<tr>
<th>Day/Time</th>
<th>Plenary Sessions</th>
<th>Track A Utility Business and Project Finance</th>
<th>Track B Operations, Maintenance and Workforce Development</th>
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<tr>
<td>Tuesday 8–10 am</td>
<td>Welcome, Keynote, and Opening Remarks</td>
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<tr>
<td>Tuesday 10:30–12 pm</td>
<td>Alaska as a Hub for Energy Innovation and Deployment</td>
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<td>Tuesday 12–1:30 pm</td>
<td>Lunch Speaker 12:30pm – 1:30pm: Outcomes from RACEE Day: An Exploration into Community Scale Energy Efficiency Best Practices, Nils Andreassen, Institute of the North</td>
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<td>Heat Pumps for Alaska — Pros and Cons</td>
<td>Integration of Renewables: Overcoming Hurdles</td>
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<tr>
<td>Wednesday 7:30 am</td>
<td>WORKING GROUPS: Wind</td>
<td>Biomass</td>
<td>Solar</td>
<td>Heat Pumps</td>
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<td>Wednesday 9–10 am</td>
<td>Capacity and Rural Community Development</td>
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<td>Wednesday 10:30 am –12 pm</td>
<td>Efficiency First!</td>
<td>Heat Recovery Systems: More Bang for Your BTUs</td>
<td>Storing Electrical Energy — The How’s, What’s, Where’s and Why’s</td>
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<td>Wednesday 12–1:30 pm</td>
<td>Lunch Speaker 12:30pm - 1:30pm: Climate Action for Alaska: Energy Resilience, Byron Mallott, Lieutenant Governor, State of Alaska</td>
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<td>Wednesday 1:30–3 pm</td>
<td>Utility Business Management</td>
<td>Diesel Genset Operations and Maintenance</td>
<td>Solar PV in Alaska and the Northern Latitudes: Success and New Directions</td>
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<td>Wednesday 3:30–5:00 pm</td>
<td>Getting Useful Data</td>
<td>How to Select a Powerhouse Engine</td>
<td>Community Energy Project Management</td>
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<td>Thursday 7:00 am</td>
<td>WORKING GROUPS: Hydro</td>
<td>Greenhouse Peer Network</td>
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<td>Your Carbon Calorie Count: Food and Energy in Alaska</td>
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<td>Thursday 10:30 am–12 pm</td>
<td>Investing in Your Workforce — and Increasing Capacity</td>
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<td>Energy from Water</td>
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<td>Wrap-Up and Adjourn</td>
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The 2018 Rural Energy Conference would not have been possible without the generous support of the following organizations. Thank you!

PRESENTING SPONSORS

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VENDORS


FRIENDS OF RURAL ENERGY

Cold Climate Engineering, LLC • Energy & Resource Economics • EWT • Information Insights, Inc • Northwest Arctic Borough • Yukon Government
Robert Venables • Executive Director, Southeast Conference

Robert Venables is the Executive Director for Southeast Conference, Alaska’s Regional Development Organization for southeast Alaska. He has over 30 years of public service in Alaska, serving on many local, regional and state boards and commissions with a passion for sustainable communities and healthy economies. Robert’s involvement with Southeast Conference began in 1997 through the Haines Chamber of Commerce. In 2001, he joined the board of directors and is a past president. Robert has been very involved in community energy planning, both in southeast and in rural Alaska, working with utilities and community stakeholders to develop regional energy plans developed with support from the Alaska Energy Authority. Robert lived and worked from Haines for over 30 years where he was previously employed as the Borough Manager and Economic Development Director, before moving to Juneau in 2016. He continues to serve on several boards, including the state’s Marine Transportation Advisory Board and is a member of the state’s Municipal Advisory Gas Project Review Board.

Victor Joseph • Chief/Chairman, Tanana Chiefs Conference

Victor Joseph was elected to the position of TCC Chief/Chairman in March of 2014. Victor has worked for TCC for 20 years serving as the TCC Health Director for the past seven. Victor is a tribal member of the Native Village of Tanana. He is an experienced leader with extensive experience building strong working relationships with tribal leaders, colleagues, staff, funding agencies and corporate beneficiaries. Victor’s entire career has been driven by a strong belief that healthy people will lead to empowered people. He is a proven leader with a track record that backs up his love and efforts for his people.

Karl Kassel • Mayor, Fairbanks North Star Borough

Karl Kassel was elected as the 11th Mayor of the Fairbanks North Star Borough in October, 2015, and is currently serving a three-year term. Kassel has a long history with the FNSB. He first worked for the borough as the Parks Superintendent from 1988 to 2002 and served as the Parks and Recreation Director from 2002 to 2008. Prior to his term as Mayor, Kassel was elected to the FNSB Assembly in 2010 and served as Presiding Officer from 2013 to 2015. Kassel has been a leader in sustainable development. He and his wife, Billie, built and live in one of the most energy efficient homes in Alaska, which relies on solar, wind, and passive heat retention to stay warm during Interior Alaska’s long, cold winters. Kassel also owned his own construction business and worked as a construction consultant, each with a focus on renewable energy and sustainability. Kassel has volunteered in many community organizations, including the Yukon Quest International Sled Dog Race, the Tanana Valley Youth Sports Foundation and the Goldstream Valley Trail Users Association. He has served as the public address announcer for the Open North American sled dog race since 1980. An avid outdoorsman, Kassel has canoed the Kukpawruk, Noatak, Kobuk, Porcupine and many other rivers in northern Alaska and Canada.

Jim Matherly • Mayor, City of Fairbanks

Mayor Jim Matherly is a third generation Alaskan who was born and raised in Fairbanks. He attended elementary through high school in the Fairbanks area, graduating from Lathrop High School in 1981. After studying at UAF, Jim’s career path led him into the banking and mortgage industry where he worked for over 25 years. He has been DJ’ing since 1982 and spent 20 years in broadcasting on various radio shows. He also worked a few years in the tourism industry and also for the Chamber of Commerce. Matherly opened his own Allstate Insurance office in 2013 and recently sold it. Matherly has been involved in several volunteer and fundraising activities for organizations including Fairbanks Counseling and Adoption, Literacy Council of Alaska, Big Brothers & Big Sisters, and the Junior Achievement Board. He also taught Junior Achievement for many years in Fairbanks public schools. Mayor Matherly comes from a very politically active family and starting in 2010 served 2 terms on the City Council before being elected Mayor in 2016. Mayor Matherly keeps very busy with his six kids. He has strong family ties to the community and enjoys spending time with his 98-year-old Grandma who still lives in Fairbanks.
APRIL 10 — KEYNOTE SPEAKER

Bill Walker • Governor, State of Alaska

Governor Bill Walker was born in Fairbanks and raised in Delta Junction and Valdez. His parents, Ed and Francis Walker, were Alaskan pioneers. Ed Walker was an Alaskan Scout with Castner’s Cutthroats in the Aleutians in WWII, and his mother worked on the Alcan Highway project. As a family, the Walkers celebrated Alaska Statehood in 1959, survived the 1964 Earthquake, and worked together in the family construction and hotel businesses. Governor Walker also worked as a carpenter, teamster and laborer on the Trans-Alaska Pipeline construction to pay for his education. He earned his bachelor of science degree in business management from Lewis and Clark College and his juris doctor from the University of Puget Sound School of Law (now Seattle University). Prior to taking office, Governor Walker and his wife, Donna, owned a law firm that focused on municipal and oil and gas law. Married since 1977, the Walkers have four children, and five grandchildren. Governor Walker is an avid downhill skier and enjoys fishing, boating, snow-machining, campfires with the family at the lake, and taking the grandkids ice skating.

APRIL 10 — OPENING REMARKS

Janet Reiser • Executive Director, Alaska Energy Authority

Janet Reiser joined the Alaska Energy Authority as it’s Executive Director on January second of this year. Prior to that, she served on the Chugach Electric Board of Directors for 9 ½ years serving as Board Chair for 6 ½ of those years. Janet served as a Director on the Alaska Railbelt Cooperative Transmission & Electric Company (ARCTEC) since its inception in 2011. She continues to serve on the Board of Directors of the Cooperative Leadership Network, an organization dedicated to helping rural electric cooperative directors explore and share successes in the consumer-centric utility model for cooperatives. Janet has been in Alaska for over thirty years, serving in technical and executive management roles in the telecom, construction, and engineering industries. She holds a Bachelor of Science degree in Chemical Engineering from the University of Colorado, Boulder.

Joel Neimeyer • Federal Co-Chair, Denali Commission

Joel Neimeyer serves as Federal Co-Chair of the Denali Commission, an innovative federal agency that is a federal-state partnership designed to provide critical utilities, infrastructure and support for community and economic development in Alaska. The Commission has been in existence since 1998 and delivers federal services in the most cost effective manner possible. He was appointed in April 2014 by U.S. Commerce Secretary Penny Pritzker for his second four-year term. He has 33 years of federal experience as a civil engineer in planning, designing and constructing rural Alaska infrastructure projects. He is a proud graduate from the University of Texas at Austin, and is a licensed Professional Engineer in the State of Alaska. His first 25 years of federal service was as a Commissioned Corps Officer with the US Public Health Service – more specifically as an Engineer Officer for the Indian Health Service.

James R. Johnsen • President, University of Alaska

Dr. Johnsen was appointed to serve as the 14th president of the University of Alaska on July 28, 2015. His experience includes executive leadership positions in the private sector with Alaska Communications and with Doyon, Limited, and in higher education between 1996-2008 in several executive roles including vice president of administration and chief of staff. As president, Dr. Johnsen is a commissioner on the Denali Commission and the Western Interstate Commission on Higher Education, a member of the Alaska Aerospace Corporation Board, a trustee on the UA Foundation Board, and a member of the Homeland Security Academic Advisory Council. His education includes a B.A. in politics from the University of California, Santa Cruz, master’s in political science from the University of Chicago, and doctorate in higher education management from the University of Pennsylvania.
Fred Parady • Deputy Commissioner, Department of Commerce

Fred Parady joined the Department of Commerce as Deputy Commissioner in the summer of 2014. Prior to his appointment, he lived in Barrow for over six years, serving as Chief Operating Officer of the North Slope Borough School District and Chief of Staff of the North Slope Borough during that time. A highly successful minerals executive with an environmental and safety background, Mr. Parady won two national reclamation awards and twice earned recognition from the Mine Safety and Health Administration for operating the safest mine in the United States. Mr. Parady served over a decade in the Wyoming House of Representatives, culminating as Speaker of the House. His leadership posts included Majority Floor Leader, Chairman of the Labor Health and Social Services Committee, Chairman of Rules Committee and Chairman of Management Council. He chaired the Select Committee on Capital Investment and Finance which rewrote the investment policies of the state. He also carried the legislation to create the Wyoming Business Council. He is a life-long United Way volunteer, and chaired the State of Alaska’s 2014 SHARE campaign, which successfully reached 102% of its goal to raise $415,000. While residing in Wyoming, he served as President of the Board of Directors of the Sweetwater County Youth Home, building a new 15 bed Youth Crisis Shelter, as well as President of the Young at Heart Foundation, during which time they successfully built a new senior center. Mr. Parady holds both an M.S. degree in Land Rehabilitation from Montana State University and a B.S. degree in Range Resources from the University of Idaho. He is also a Certified Safety Professional (CSP) from the American Society of Safety Engineers (ASSE). He is a Past President of the American Society of Surface Mining and Reclamation and a graduate of Leadership Wyoming with the Class of 2006. He has made Juneau his home, along with his wife, Dr. Lisa Skiles Parady and the youngest of their four daughters who is a kindergartener at Auke Bay Elementary School.
AGENDA

Tuesday, April 10, 2018

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<td>Registration &amp; Breakfast</td>
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<td>8:00</td>
<td>Welcome, Keynote and Opening Remarks</td>
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<td>8:00</td>
<td>CALL TO ORDER</td>
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<td>8:00 – 8:15</td>
<td>Robert Venables, Executive Director, Southeast Conference</td>
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<td>8:15 – 8:20</td>
<td>Victor Joseph, Chief/Chairman, Tanana Chiefs Conference</td>
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<td>8:20 – 8:25</td>
<td>Karl Kassell, Mayor, Fairbanks North Star Borough</td>
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<td>8:25 – 8:30</td>
<td>Jim Matherly, Mayor, City of Fairbanks</td>
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<td>8:30 – 9:00</td>
<td>Bill Walker, Governor, State of Alaska</td>
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<td>9:00 – 9:30</td>
<td>Janet Reiser, Executive Director, Alaska Energy Authority</td>
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<td>9:30 – 10:00</td>
<td>Joel Neimeyer, Federal Co-Chair, Denali Commission</td>
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<td>10:00</td>
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<td>12:30</td>
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<td>1:30</td>
<td>Technical Session 1</td>
<td>Gold East</td>
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Video presentations from the Congressional Delegation will be presented as time allows.

Alaska as a Hub for Energy Innovation & Deployment
Moderator: Chris Rose, Renewable Energy Alaska Project
Alaska Utility Energy Technology Needs — Clay Koplin, Cordova Electric
Emerging Energy Technology Fund - Enabled Technology Evaluation — Josh Craft, Alaska Energy Authority
Alaska’s Role in Digitizing and Decarbonizing Global Energy, Food, Water and Transportation Systems — Isaac Vanderburg, Launch Alaska
Alaska as a Hub for Energy Innovation & Deployment — Gwen Holdmann, Alaska Center for Energy & Power

Outcomes from RACEE Day: An Exploration into Community Scale Energy Efficiency Best Practices — Nils Andreassen, Institute of the North

Getting the Most Out of PCE
Moderator: Jeff Williams, Alaska Energy Authority
PCE Program Overview — Jeff Williams, Alaska Energy Authority
Non-fuel Costs: The Importance of Accurate Recordkeeping and Meter Reading — Brenda Cox, Regulatory Commission of Alaska
PCE Reporting — Connie Fredenburg, Utility Management Assistance
Do Your Rates Reflect Your True Costs? — Meera Kohler, Alaska Village Electric Cooperative

Developing a Wind Project
Moderator: Josh Craft, Alaska Energy Authority
Holistic Energy Project Development — Josh Craft, Alaska Energy Authority
What’s in the Wind...Data — Doug Vaught, V3 Energy
Electrical and Heat Considerations in a Wind Project — Brian Hirsch, DeerStone Consulting LLC
Lessons Learned from Wind Project Optimization — Bailey Gamble, Alaska Native Tribal Health Consortium
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<tr>
<td>1:30</td>
<td>Technical Session 1 continued</td>
<td>Tanana Trade Center</td>
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<td><strong>Renewables for Heat</strong></td>
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<td>Moderator: Amanda Byrd, Alaska Center for Energy &amp; Power</td>
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<td><strong>FNSB and Alaska Center for Energy &amp; Power Research Partnership and Biomass Gasification CHP Pilot Project</strong></td>
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<td></td>
<td>— Ben Loeffler, Fairbanks North Star Borough</td>
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<td><strong>Galena Biomass Project</strong></td>
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<td>— Tim Kalk &amp; Phil Koontz, Sustainable Energy for Galena, Alaska</td>
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<td><strong>Kotzebue Hospital Wind-to-Heat Project</strong></td>
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<td>— Cody Uhlig, Alaska Native Tribal Health Consortium</td>
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<td>3:00</td>
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<td><strong>Paying for Projects with Loans</strong></td>
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<td>Moderator: Chris Rose, Renewable Energy Alaska Project</td>
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<td><strong>How to be Bankable and Creditworthy</strong></td>
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<td>— Nolan Klouda, Center for Economic Development</td>
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<td><strong>State Loans and How Taking on Debt Works with PCE</strong></td>
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<td>— Cady Lister, Alaska Energy Authority</td>
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<td><strong>Federal Loans for Power and Efficiency Projects</strong></td>
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<td>— Jessie Huff, U.S. Department of Agriculture</td>
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<td><strong>Heat Pumps for Alaska — Pros and Cons</strong></td>
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<td>Moderator: Ingemar Mathiasson, Northwest Arctic Borough</td>
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<td><strong>NWAB Project</strong></td>
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<td>— Mark Houston, The Comforts of Home, LLC</td>
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<td><strong>Statewide Analysis</strong></td>
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<td>— Robin Garber-Slacht, Cold Climate Housing Research Center</td>
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<td><strong>Heat Pumps: A Utility Perspective</strong></td>
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<td>— Alec Mesdag, Alaska Electric Light &amp; Power</td>
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<td><strong>Integration of Renewables: Overcoming Hurdles</strong></td>
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<td>Facilitated Round Table • Moderator: Gwen Holdmann, Alaska Center for Energy &amp; Power</td>
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<td></td>
<td>— Heike Merkel, David Light and Mariko Shirazi, Alaska Center for Energy &amp; Power</td>
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<td>— Josh Craft, Alaska Energy Authority</td>
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<td>— Bill Thompson, Alaska Village Electric Cooperative</td>
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<td>— Dennis Meiners, Intelligent Energy Systems</td>
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<td>— Jason McEvers, Capstone Solutions</td>
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**6-8pm Evening Reception**

Doyon, Limited Building

Please join us for an evening reception, hosted by Doyon Limited, for an opportunity to talk in a more informal setting with conference presenters, vendors and colleagues from around the state and beyond. Light hors d’oeuvres will be served. Additional details for this reception can be found on page 14.
# Agenda

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<td><strong>Solar</strong></td>
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<td><strong>Heat Pumps</strong></td>
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## 9:00 Plenary Session 2

**Capacity and Rural Community Development: On Doing More and More (and More)…**

Moderator: Janet Reiser, Alaska Energy Authority
— Robert Venables, Southeast Conference
— Ryan Hennessey, Yukon Government

## 10:00 Break

## 10:30 Technical Session 3

**Efficiency First!**

Moderator: Rebecca Garrett, Alaska Energy Authority

- **Assessing Community Efficiency Opportunities** — Jim Fowler, Energy Audits of Alaska
- **EE Procurement Standards and Building Energy Policies** — Tim Leach, Alaska Housing Finance Corporation
- **Affordable Efficient Housing Case Study** — Bruno Grunau, Cold Climate Housing Research Center

**Heat Recovery Systems: More Bang for Your BTUs**

Moderator: Dan Smith, Alaska Energy Authority

- **Heat Recovery in Rural Alaska** — Tashina Duttle, Alaska Native Tribal Health Consortium
- **Heat Sales Agreements** — Forrest Button, Alaska Village Electric Cooperative
- **Combined Heat & Power** — Carolyn Roos, Washington State University/U.S. Department of Energy

**Storing Electrical Energy - The How's, What's, Where's and Why's**

Moderator: George Roe, Alaska Center for Energy & Power

- **The How's of Electrical Energy Storage - Principals and Protocols** — Babu Chalamala, Sandia National Lab
- **The What's of Electrical Energy Storage - Products and Practices** — Rob Roys, ABB
- **The Where's and Why's of Electrical Energy Storage - Projects and Progress** — Chuck Huntley, Huntley and Associates, LLC

## Noon Lunch

12:30 **Lunch Speaker**

*Climate Action for Alaska: Energy Resilience* — Byron Mallott, Lieutenant Governor, State of Alaska

## 1:30 Technical Session 4

**Utility Business Management**

Moderator: Crystal Enkvist, Alaska Power Association

- **Alaska Energy Authority Business Management Assistance Pilot Project** — Neil McMahon, Alaska Energy Authority
- **Good Governance & the Board's Role in Ensuring Organizational Sustainability** — Mike Walsh, The Foraker Group
- **60Hertz's Remote Power Plant Maintenance App** — Piper Foster-Wilder, 60Hertz
## Wednesday, April 11, 2018 continued

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<th>Time</th>
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<tr>
<td>1:30</td>
<td><strong>Technical Session 4 continued</strong></td>
<td>Tanana Trade Center</td>
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<td><strong>Diesel Genset Operations and Maintenance</strong></td>
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<td>Moderator: Tim Sandstrom, Alaska Energy Authority</td>
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<td><strong>O&amp;M Top Ten and Avoided Costs</strong> — Bill Stamm, Alaska Village Electric Cooperative</td>
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<td><strong>O&amp;M Manuals: Overview and Use</strong> — Brian Gray, Gray Stassel Engineering</td>
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<td><strong>O&amp;M Guide for the Utility Manager</strong> — Alan Fetters, Alaska Energy Authority</td>
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<td><strong>Solar PV in Alaska and the Northern Latitudes: Success and New Directions</strong></td>
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<td>Moderator: Erin Whitney, Alaska Center for Energy &amp; Power</td>
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<td><strong>Performance Review of Eagle Solar PV Installation</strong> — Chris Pike, Alaska Center for Energy &amp; Power</td>
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<td><strong>Deering and Buckland Solar PV Installations</strong> — Brian Hirsch, DeerStone Consulting, LLC</td>
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<td><strong>Solar PV Performance and New Technologies in Northern Latitude Regions</strong> — Joshua Stein, Sandia National Lab</td>
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<td>3:00</td>
<td><strong>Break</strong></td>
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<td>3:30</td>
<td><strong>Technical Session 5</strong></td>
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<td><strong>Getting Useful Data</strong></td>
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<td>Moderator: Cady Lister, Alaska Energy Authority</td>
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<td><strong>Community Profiles: What Data Do We Need and Why?</strong> — Neil McMahon, Alaska Energy Authority</td>
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<td><strong>Data Driven Project Development and Delivery for Energy Efficiency Projects</strong> — Dena Strait, Bettisworth North</td>
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<td><strong>What Should Your SCADA System Do For You</strong> — Ryota Abe and Jacob Pomeranz, Electric Power Systems</td>
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<td><strong>How to Select a Powerhouse Engine</strong></td>
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<td>Moderator: Tim Sandstrom, Alaska Energy Authority</td>
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<td><strong>Emission Regulations’ Impact on Diesel Engine Selection</strong> — Steve Stassel, Gray Stassel Engineering</td>
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<td><strong>Diesel Engine Selection Factors</strong> — Brian Gray, Gray Stassel Engineering</td>
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<td><strong>The Diesel Binder: A Guide to Selection</strong> — Alan Fetters, Alaska Energy Authority</td>
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<td><strong>Community Energy Project Management</strong></td>
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<td>Moderator: Michael Rovito, Alaska Power Association</td>
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<td><strong>Project Management Framework</strong> — Devany Plentovich, Alaska Energy Authority</td>
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<td><strong>Communications</strong> — Michael Rovito, Alaska Power Association</td>
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<td><strong>Contracting and Procurement</strong> — Richard Wooten, Alaska Energy Authority</td>
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### 6-8pm Evening Reception

Please join us for an evening reception, sponsored by Golden Valley Electric Association, for an opportunity to talk in a more informal setting with conference presenters, vendors and colleagues from around the state and beyond. Light hors d’oeuvres will be served. Additional details for this reception can be found on page 14.
AGENDA

Thursday, April 12, 2018

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<td>7:00</td>
<td>Working Groups</td>
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<td>Hydro</td>
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<td>Greenhouse Peer Network</td>
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<td>8:30</td>
<td>Plenary Session 3</td>
<td>Gold</td>
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Your Carbon Calorie Count: Food and Energy in Alaska
Moderator: Shaina Kilcoyne, Renewable Energy Alaska Project
Meyers Farm – Naturally Grown in Bethel — Tim Meyers, Meyers Farm
It takes a Community to Support a Greenhouse — Karen Petersen, Southeast Conference
Community Sustainability Success Stories - Igiugig — Jeff Bringhurst, Igiugig Greenhouse
Why a Food-Energy-Water Nexus Approach is Useful in Rural Alaska Communities — Erin Whitney, Alaska Center for Energy & Power

10:00 | Break
10:30 | Technical Session 6

Investing in Your Workforce — Increasing Capacity — Gold Middle
Moderator: Giey Kochanowski, U.S. Department of Energy
Alaska’s Training Landscape – Opportunities, Challenges and Barriers — Chris McConnell, Renewable Energy Alaska Project
Energy Education Through UAF’s Rural Campuses — Tom Marsik, University of Alaska Bristol Bay Campus
State Training Opportunities — Karin St. Clair, Alaska Energy Authority
ARENA Case Study — Tyler Kornelius, Arctic Remote Energy Networks Academy graduate

Energy from Water — Gold East
Facilitated Round Table • Moderator: Jeremy Kasper, Alaska Center for Energy & Power
— Jeremy Kasper, Alaska Center for Energy & Power
— Clay Koplin, Cordova Electric
— Bryan Carey, Alaska Energy Authority
— Karl Hill, Village of Igiugig
— Ed Zapel, HDR

Noon | Lunch & Wrap-Up | Adjourn
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Join the Alaska Energy Authority and the Alaska Center for Energy and Power for an evening of networking at Doyon, Limited. Every 2 years, AEA and ACEP collaborate to host the Alaska Rural Energy Conference to create a forum for energy stakeholders to share ideas and information with the goal of promoting economic development, environmental sustainability and energy security for Alaskans. This evening offers the opportunity for conference attendees to meet presenters, vendors and colleagues from around the state and beyond in an informal setting. Light hors d’oeuvres will be served.

*Buses will be running continuously between the Westmark Hotel and Doyon from 5:45 to 8:00 p.m.*

This reception is sponsored by Doyon.

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Join the Alaska Rural Energy Conference at ACEP’s new offices and take a tour of the Energy Technology Facility. The Alaska Center for Energy and Power moved into its new home on the top floor of the recently completed Engineering Learning and Innovation Facility (ELIF) at UAF. Having a permanent space designed specifically to support the sort of interdisciplinary, interactive research ACEP engages in has been a major milestone for the Center. This move also coincides with ACEP’s 10th birthday, even more reason to celebrate! Tours will be available for ACEP’s Energy Technology Facility (ETF) during this reception. The ETF houses ACEP’s testing facilities; the Power Systems Integration Laboratory, and the Tanana River Hydrokinetic Test Site. The lab and the test site are designed to offer a unique testing environment to technology developers, utility managers and other decision makers.

*Buses will be running continuously between the Westmark Hotel and ACEP from 5:45 to 8:00 p.m.*

This reception is sponsored by Golden Valley Electric Association.
Golden Valley Electric Association
Powering a Clean Energy Future

Eva Creek Wind
24.6 Megawatts

Solar Project
563 Megawatts

Online Oct 2018!
TUESDAY, APRIL 10 — PLENARY 1

Chris Rose • Founder and Executive Director, Renewable Energy Alaska Project

Chris Rose is the founder and Executive Director of Renewable Energy Alaska Project (REAP), a non-profit coalition of over 80 diverse energy stakeholder organizations working to increase the development of renewable energy and promote energy efficiency across Alaska. REAP has been instrumental in helping to establish and fund clean energy programs and projects across Alaska, including the creation of the state’s Renewable Energy Fund in 2008 and the Emerging Energy Technology Fund in 2010. Before establishing REAP in 2004, Mr. Rose had a private law practice for over a decade that included work in remote Northwest Arctic villages and the mediation of a variety of disputes around the state. He has written a monthly opinion column for Alaska’s only statewide newspaper, served on various statewide boards and committees and is currently the chairman of the state’s Renewable Energy Fund Advisory Committee. Since 2008, that Fund has granted over $250 million to 70 renewable energy projects that today are displacing the equivalent of approximately 30 million gallons of diesel fuel each year.

Clay Koplin • Chief Executive Officer, Cordova Electric Cooperative, Inc.

Clay Koplin is the Chief Executive Officer of Cordova Electric Cooperative, Inc. Clay has a bachelor’s degree in Electrical Engineering from the University of Alaska Fairbanks (UAF) and a Master’s Degree in Business Administration from Indiana University’s Kelly School of Business. In 1992, he went to work at Kodiak Electric Association as Staff Engineer and registered as a professional engineer before moving to Cordova with his wife Lila in 1998 to work as Manager of Engineering and Operations. In 2007, Clay became CEO for Cordova Electric Cooperative. Clay has served as Cordova Ducks Unlimited Chairman, State of Alaska Marine Transportation Advisory Board, Little League Umpire, Prince William Sound Economic Development District Board, Cordova Chamber of Commerce Board President, Health Services Board, Cordova City Councilman, Cordova Vice Mayor, Northwest Public Power Association Board of Trustees, Alaska Statewide Electric Utility Manager’s Forum Chairman, Alaska Center for Energy and Power Advisory Board, and is currently Mayor of Cordova. His professional specialties include project management, underground electric and communication line design and project management, electric utility business management, strategic planning and execution. Clay enjoys community service, writing, hunting, fishing, and gardening.

Josh Craft • Emerging Energy Technology Fund Manger, Wind Program Manager, Alaska Energy Authority

Josh Craft was born and raised in Fairbanks, Alaska and now lives with his wife Stephanie in Chugiak. He graduated from UAF with a bachelor’s degree in mechanical engineering and is pursuing a master’s degree in engineering management. Before taking a position with the Alaska Energy Authority in 2011, he owned and operated Crafty Construction and was the project manager on the Delta Wind Farm. He now serves as the Emerging Energy Technology Fund Manager and Wind Program Manager with ten years of experience working on energy projects throughout Alaska.

Isaac Vanderburg • Managing Director, Launch Alaska

Isaac leads Launch Alaska and is the fund manager for Launch Alaska Fund II — a $3m fund that invests directly in the accelerators’ cohort companies. Isaac previously served as Executive Director of the Alaska Small Business Development Center (SBDC), where he worked with hundreds of early stage companies, and pushed the organization to support entrepreneurs responding to Alaska’s energy challenges. Before joining the SBDC Isaac was part of the founding team of Chispa Group (now Afina Holdings) an import-export firm in Philadelphia that specializes in trade between the Delaware Valley and Chile. He completed the Energy Executive Leadership Program at the National Renewable Energy Lab (NREL) in Golden, CO in 2016, as well as the Energy Innovation and Emerging Technologies program at Stanford. Vanderburg played four years of NCAA Division I soccer and served as a Peace Corps Volunteer in El Salvador (2002).
Gwen Holdmann • Director, Alaska Center for Energy and Power

Gwen is the founder and Director of the Alaska Center for Energy and Power, an applied energy research program based at the University of Alaska Fairbanks, which focuses on community-scale fossil and renewable/alternative energy technologies. Specific areas of emphasis include power systems integration for microgrids, hydrokinetic energy, low temperature geothermal, and diesel efficiency. Prior to joining the University of Alaska, Gwen worked in the private sector as a design engineer and project manager, including the design and construction of the only operating geothermal power plant in Alaska at Chena Hot Springs. This project received several awards including a R&D 100 award (R&D Magazine) and Project of the Year in the Renewable Energy Category (Power Engineering Magazine). Gwen has been inducted into the Alaska Innovator’s Hall of Fame, and was selected as a member of Alaska’s Top Forty Under 40. In 2015-16, she served as a Fulbright Scholar as part of the Arctic Fulbright Initiative. Gwen lives in an off-grid home with her family and 35 dogs, using a combination of solar, wind, battery storage, diesel generation, and wood heat. She has competed in the Yukon Quest and Iditarod sleddog races.

TUESDAY, APRIL 10 — LUNCHEON

Nils Andreassen • Executive Director, Institute of the North

Nils has a degree in Peace and Development from the University of Bradford in England, with a background in rural and international development. Alaska and Arctic policy issues fit well within the Institute’s mission to inform public policy as it relates to natural resource development, and specifically to result in improved living and economic conditions for northern residents. Nils has been involved with the Institute of the North since moving to Alaska in 2003 and has led the organization as Executive Director since 2012.

WEDNESDAY, APRIL 11 — PLENARY 2

Robert Venables • Executive Director, Southeast Conference

Robert Venables is the Executive Director for Southeast Conference, Alaska’s Regional Development Organization for southeast Alaska. He has over 30 years of public service in Alaska, serving on many local, regional and state boards and commissions with a passion for sustainable communities and healthy economies. Robert’s involvement with Southeast Conference began in 1997 through the Haines Chamber of Commerce. In 2001, he joined the board of directors and is a past president. Robert has been very involved in community energy planning, both in southeast and in rural Alaska, working with utilities and community stakeholders to develop regional energy plans developed with support from the Alaska Energy Authority. Robert lived and worked from Haines for over 30 years where he was previously employed as the Borough Manager and Economic Development Director, before moving to Juneau in 2016. He continues to serve on several boards, including the state’s Marine Transportation Advisory Board and is a member of the state’s Municipal Advisory Gas Project Review Board.

Janet Reiser • Executive Director, Alaska Energy Authority

Janet Reiser joined the Alaska Energy Authority as its Executive Director on January second of this year. Prior to that, she served on the Chugach Electric Board of Directors for 9 ½ years serving as Board Chair for 6 ½ of those years. Janet served as a Director on the Alaska Railbelt Cooperative Transmission & Electric Company (ARCTEC) since its inception in 2011. She continues to serve on the Board of Directors of the Cooperative Leadership Network, an organization dedicated to helping rural electric cooperative directors explore and share successes in the consumer-centric utility model for cooperatives. Janet has been in Alaska for over thirty years, serving in technical and executive management roles in the telecom, construction, and engineering industries. She holds a Bachelor of Science degree in Chemical Engineering from the University of Colorado, Boulder.
Ryan Hennessey • Senior Energy Planner, Yukon Government

Ryan Hennessey has 15 years of experience working with small communities to plan and implement projects at the local level in Nova Scotia, Newfoundland, British Columbia and in Yukon. He is currently a Senior Energy Planner for the Government of Yukon where he leads the Government-to-Government Community Green Energy Initiative, a capacity enhancement program designed to support the implementation of energy efficiency and small renewable energy projects in Yukon’s communities. The program secures funding, provides support for energy planning and policy development, and provides project management services where requested. Prior to his work with Yukon government, Ryan worked with communities to develop and implement climate change adaptation plans and conservation policy. Ryan is a registered professional planner with the Planning Institute of British Columbia and a Member of the Canadian Institute of Planners.

April 11 — Luncheon

Byron Mallott • Lieutenant Governor, State of Alaska

Alaska Governor Bill Walker and Lt. Governor Byron Mallott took office in December of 2014 as the first non-partisan administration in Alaska history. They are also the first Alaska-born Governor and Lt. Governor to serve together. Mallott oversees the Alaska Division of Elections; is chair of the state’s Climate Action for Alaska Leadership team, which focuses on mitigation, adaptation, research and response; serves as the Governor’s Fisheries Advisor, as well as the Administration’s lead on stewardship of transboundary waters. He co-chairs the federal Denali Commission, and serves on numerous other boards including the Governor’s Opioid Task Force. His focus on elections includes the landmark settlement of an Alaska Native language assistance case and expansion of language outreach to Alaska voters, as well as leading a coalition of Alaskans on issues such as future ballot delivery options and ensuring robust elections security. As chair of Alaska’s Historical Commission, he spearheaded the 150th Anniversary of the Treaty of Cession of the State of Alaska, which included events in Washington, D.C. as well as statewide.

Tuesday, April 10 — Plenary 3

Shaina Kilcoyne • Deputy Director, Renewable Energy Alaska Project

Shaina Kilcoyne leads education and outreach efforts around energy efficiency programs and initiatives in the state. Shaina works with energy service providers, state and federal organizations, businesses, schools, and other organizations to promote and expand energy efficiency and conservation efforts. Her goal is to cultivate Alaska as a leader in the energy sector with smart, business-based policies and programs. Follow her Southeast Alaska efforts through the Sustainable Southeast Partnership. Previous to her work at REAP, Shaina spent two years organizing a coalition of renewable energy businesses and organizations in order to advance renewable energy policy at the state level in Wisconsin. Kilcoyne is a veteran; during high school and college she spent six years with the Army National Guard. This took her to Iraq where she was a heavy equipment operator within an engineering unit. Through experience serving in our military, Kilcoyne learned to respect the significance of a secure and sustainable energy economy. Shaina and her husband enjoy camping, hiking, biking, and gardening.
Tim Meyers • Meyers Farm, Bethel

Tim Meyers moved to Bethel in 1976 as a commercial pilot. He met his wife Lisa and they had four daughters. To feed their family they began growing vegetables and raising poultry and pigs to supplement the rural subsistence lifestyle. From 1980 to the early 2000's Tim worked building energy efficient homes and commercial buildings at the Bethel airport. Meyers Farm was established in 2002 and to date has grown to 17 acres, Tim and Lisa have come to be known as the “Permafrost Farmers”. Their farming practices are all sustainable and free of pesticides and herbicides. Tim’s experience in carpentry has helped him to design equipment and infrastructure that sustainably maximizes the use of natural resources, reducing operating costs and optimizing production. They sell their produce year-round from their own farmers market, through the local grocery store and ship produce to schools, stores, and individuals in the surrounding villages. With over 30 years experience farming Alaska’s frozen terrain, Tim has become an expert in small-scale farming and agriculture practices for the Arctic and it is his intention to continue to provide the Yukon-Kuskokwim Delta with the highest quality local produce year-round.

Karen Petersen • Biomass Coordinator, Southeast Conference

Karen Petersen is the Biomass Coordinator for Southeast Conference. She lives and works from Thorne Bay on Prince of Wales Island. Karen coordinates the Alaska Wood Energy Development Task Group, and organizes that bi-annual Alaska Wood Energy Conference. She has a Master’s Degree in Rural Development from the University of Alaska, Fairbanks, and an undergraduate degree in Agronomy from Washington State University. Karen is a Returned Peace Corps Volunteer who spent 3 years as an Agricultural Extension agent working in rural Ecuador.

Jeff Bringhurst • Igiugig’s Local Foods Program Manager, Igiugig Greenhouse

Jeff Bringhurst is the Manager of Igiugig’s Local Foods Program, run by the Igiugig Village Council. The program aims to integrate farming with the harvesting of traditional foods in order to promote healthier eating and combat the high cost of shipping and the low quality of produce that often arrives spoiled and depleted of it’s nutrients. The Local Foods Program partners with Igiugig School to provide educational opportunities that the whole community is encouraged to take part in. As a result of years of community engagement, it has changed many people’s relationship to food, how it’s cared for, harvested, and consumed.

Erin Whitney • Data Collection & Analysis Program Manager, Solar Technology Initiative Manager, Alaska Center for Energy & Power

Erin is a faculty member at the Alaska Center for Energy and Power (ACEP) at the University of Alaska Fairbanks (UAF). Her research focuses on the performance and integration of solar photovoltaic technologies in remote Arctic environments. She also manages data collection and analysis for the state’s Emerging Energy Technology Fund (EETF) and Renewable Energy Fund (REF) programs, and recently led ACEP’s work on the Alaska Affordable Energy Strategy with respect to technology-specific energy developments for Alaska. Before her time working with ACEP, Erin spent almost a decade as a staff scientist at the National Renewable Energy Laboratory (NREL) working in next generation solar photovoltaics, energy analysis, energy storage, electrochromic windows, and vehicular hydrogen storage. Erin grew up in Anchorage and holds a B.A. in Chemistry from Williams College in Massachusetts and a Ph.D. in Physical Chemistry from the University of Colorado.
CONFERENCE ACRONYMS

ACP Alaska Center for Energy and Power
AE Aurora Energy, LLC
AEEC Alaska Electric & Energy Cooperative, Inc.
AEA Alaska Energy Authority
AEL&P Alaska Electric Light and Power Company
AFE Alaska Forum on the Environment
AFN Alaska Federation of Natives
AGDC Alaska Gasline Development Corporation
AHFC Alaska Housing Finance Corporation
AIDEA Alaska Industrial Dev. & Export Authority
AKAES Alaska Affordable Energy Strategy
ANSCA Alaska Native Claims Settlement Act
ANTHC Alaska Native Tribal Health Consortium
AP&T Alaska Power and Telephone, Inc.
APA Alaska Power Association
ARENA Arctic Remote Energy Networks Academy
ARUC Alaska Rural Utility Collaborative
ASHP Air Source Heat Pump
ASRC Arctic Slope Regional Corporation
AVCP Association Village Council Presidents
AVEC Alaska Village Electric Cooperative
AVI Alaska Village Initiatives
AVTEC Alaska Vocational and Technical Center
BBNA Bristol Bay Native Association
BBNC Bristol Bay Native Cooperatives
BFU Bulk Fuel Upgrade
BSNC Bering Strait Native Corporation
BUEC Barrow Utilities & Electric Cooperative, Inc.
CCIRC Cold Climate Housing Research Center
CEA Chugach Electric Association
CEE Cordova Electric Cooperative, Inc.
CHP Combined Heat and Power
CIRI Cook Inlet Region, Inc
CRE Current River Electric
CVEA Copper Valley Electric Association
DC Denali Commission
DCCED Dept. of Commerce, Community & Econ Dev.
DEC Dept. of Environmental Conservation
DERA Diesel Emission Reduction Act
DGGS Division of Geophysical and Geological Survey
DNR Department of Natural Resources
EE Energy Efficiency
EEIF Emerging Energy Technology Fund
EP Environmental Protection Agency
EPS Electric Power Systems, Inc
FCVB Fairbanks Convention and Visitors Bureau
FEDC Fairbanks Economic Development Group
FNDB Fairbanks North Star Borough
GSE Gray Stassel Engineering, Inc
GVEA Golden Valley Electric Association
HAE Homer Electric Association, Inc
HDL Hattenburg, Dilley, and Linnell Intelligent Energy Systems
INNEC INN Electric Cooperative, Inc.
IRHA Interior Region Housing Authority
IRP Integrated Resource Plan
IPEC Inside Passage Electric Cooperative
ISER Institute of Social and Economic Research
KEA Kodiak Electric Association
KOTZ Kotzebue Electric Association
KWAAN Kwaan Electric Transmission Intertie Coop.
LED Light Emitting Diode
LNG Liquefied Natural Gas
MAT Alaska Matanuska Electric Association, Inc
MKEC Middle Kuskokwim Electric Cooperative
ML&P Municipal Light and Power
MLPC McGrath Light & Power Company
NC Nushagak Cooperative, Inc.
NEA Naknek Electric Association, Inc
NETL National Energy Technology Laboratory
NJUS Nome Joint Utility System
NPS Northern Power Systems
NERCA National Rural Electric Cooperative Association
NREL National Renewable Energy Laboratory
NSB North Slope Borough
NSBPL North Slope Borough Power & Light
NEDC Norton Sound Economic Development Corporation
NWAB Northwest Arctic Borough
ORC Organic Rankine Cycle
PV Power Cost Equalization
PV Photo Voltiac
RACEE Remote Alaska Community Energy Efficiency
RAFS Rural Alaska Fuel Services, Inc
RCA Regulatory Commission of Alaska
REAP Renewable Energy Alaska Project
REF Renewable Energy Fund
REFACT Renewable Energy Fund Advisory Committee
REGA Railbelt Electrical Grid Authority
RIRP Regional Intergrated Resource Plan
RPSU Rural Power System Upgrade
RUBA Rural Utility Business Advisor
SBDC Small Business Development Center
SEAPA Southeast Alaska Power Agency
SEC Southeast Conference
SNL Sandia National Labs
SWAMC Southwest Alaska Municipal Conference
T&D Transmission and Distribution
TCC Tanana Chiefs Conference
TCSA Tuntutuliak Community & Service Association
TDX TDX Power
TEC Tanalian Electric Cooperative, Inc.
TPC Tanana Power Company
U of A University of Alaska
UAA University of Alaska, Anchorage
UAF University of Alaska, Fairbanks
UAS University of Alaska, Southeast
UCM Usibelli Coal Mine
ULSD Ultra Low Sulfur Diesel
USCG United States Coast Guard
USDOE United States Department of Energy
USD A United States Department of Agriculture
USDA-RD Rural Development
USDA Rural Development
UVC UC Unalakleet Valley Electric Cooperative
VEEP Village Energy Efficiency Program
WSU/DOE Washington State University / Department of Energy
WX Weatherization

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ACEP is part of the UAF Institute of Northern Engineering.

acep.uaf.edu/

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P.O. Box 755910
Fairbanks, Alaska 99775-5910

Anchorage Office:
1901 Bragaw Street, Suite 301
Anchorage, AK 99508

ACEP is part of the UAF Institute of Northern Engineering.
Question asked: What do you want your community’s energy system to look like when you are fifty years old? Answer drawn by Elizabeth Edwards from Allakaket.