Written Testimony Submitted to the United States Senate Committee on Energy and Natural Resources

On

Energy-related challenges and opportunities in remote and rural areas of the United States

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Respectfully Submitted by Robert Venables Executive Director Southeast Conference



Chairman Murkowski, Ranking Member Cantwell, and Members of the Committee, thank you for the opportunity to testify on the energy-related challenges and opportunities in remote and rural areas of the United States.

My name is Robert Venables, Executive Director for Southeast Conference, the federally recognized Economic Development District for southeast Alaska and the State of Alaska's Regional Development Organization (ARDOR) for that region. I have worked for many years on energy challenges facing rural Alaska and collaborated with many of the state and federal agencies committed to the cause of reducing the cost of energy to rate payers. I have also served as an "Energy Ambassador" for the Department of Energy's Indian Energy Office and provided technical assistance for many of their programs including the most recent RACEE competition that supported community goals of energy efficiency.

The Southeast Conference mission is to help develop strong economies, healthy communities and a quality environment in Southeast Alaska. Our vision for Southeast Alaska is to reduce, to the maximum extent possible, the use of imported diesel as a primary fuel source for the generation of electricity, space heat and transportation.

Our organization was formed over 50 years ago in response to the region's need for improved transportation and was an advocate for the formation of the ferry system. Since then, our member communities have worked through Southeast Conference on issues ranging from transportation, economic development, timber, fisheries, mining, environment, health care, tourism and energy. Our energy committee first gathered in 1997 as the Intertie Committee and produced the study in 1998 called the Southeast Alaska Electrical Intertie System Plan, which this committee's predecessor and the 106th Congress (1999-2000) endorsed, authorizing up to \$384 million to be spent with a 20% local match). To date no funds have been appropriated and the region struggled to implement the most economic portions of the intertie system which has saved millions of dollars in displaced diesel consumption. That study has been the guiding document for the concept of a region-wide interconnected intertie system that could provide energy security and electrical redundancy for the communities of Southeast.

However, as construction costs for proposed interties continue to escalate, and time passes, our focus is turned toward the resources at hand and the extreme need that still exists in many communities such as: Kake, Angoon. Metlakatla and Hoonah. But, Southeast Alaska is resilient

and has a plan. Each of our communities have short-term and long-term objectives that, if constructed, can go a long way toward meeting the needs of our region.

At the peak of energy prices, the unsubsidized cost of heating oil was as high as \$9 per gallon in some regions of Alaska, while electricity reached \$1.50 per kilowatt hour in some of the state's remote communities. In southeast Alaska prices in our rural villages reached approximately two-thirds of those costs.

One of the many success stories in rural Alaska is how the Southeast Island School District (SSID) took a tree from the Tongass and turned that renewable energy resource into a child nutrition program and school lunches while displacing diesel, creating more sustainable communities and economies and growing the best crop in the nation – our youth!

The plentiful energy resources in our region are primarily hydro from our perched lakes and mountain streams which is utilized for electrical generation whenever possible. However, the greatest energy burden in rural Alaska is heating our homes and facilities. Schools are often the largest energy consumers in the community.



In 2007 SISD built two new schools on Prince of Wales Island, in Naukati and Coffman Cove and chose a biomass cordwood system due to the abundant supply of wood and the simplistic nature of operations and maintenance.

The Coffman Cove conversion was very successful in more ways than anticipated. The school saved money – BUT the social benefit soon became the major selling point. The school began purchasing cordwood from local firewood suppliers, including students and their families. This was money that had been leaving the community to fossil fuel companies Outside. The district



paid \$200 per cord and bought as much fire wood as possible. They soon had a 3-year supply, which was about \$30,000 infused directly into the local economy.



The second thing that happened was that the district needed to hire a local person to put cordwood into the boiler. This was a part time job but needed to be done daily. The district hired a local girl that had been in a car accident and needed a low stress job while she recovered from her head injury. This also helped to gain the district support from the entire community.



Riding on the success of Coffman Cove, the School District next installed cordwood boilers in the other schools on the Island. The Thorne bay school displaces 9,000 gal. diesel per year and helps parents and students raise money for activities by splitting and stacking wood.

Not only does the biomass heat the school, a greenhouse was constructed to utilize excess heat and be used as part of the school curriculum, teaching science, math and economics. The students take responsibility to grow the vegetables which are then served in the school lunch program with the extra produce sold locally.



There are many community and economic benefits with wood energy. The following is excerpted from a USFS briefing paper and lays out many key points: Community economic benefits of wood energy are compelling from multiple perspectives and explain why it is the nation's fastest growing renewable energy source for heating.

1. Competitive – Locally-sourced wood fuel competes strongly with other energy sources on a cost basis.

2. Captured Dollars – Money spent on wood fuel remains in the community rather than leaving the local economy.

3. Economic Impact – Community economic benefits induced by using local wood are more than double the direct financial benefits of fuel cost savings. The benefit of additional jobs in forestry, processing, transportation, and other activities cascade throughout the local economy.

4. Rural Relevance – Wood energy for heating is especially attractive in rural Alaska communities where jobs may be scarce, local economies are often more fragile, energy costs are higher, but local wood resources are abundant.

5. Forest Management Tool – Timber harvest for wood fuel can serve as a tool for improving local forest health.

6. Fire Prevention – Reducing excess hazardous forest fuels surrounding communities to avoid local economic devastation from wildfires cannot be emphasized enough, as demonstrated by the tragic wildfires in California, other western states, and Canada.

Northeastern states have a long history of promoting wood energy conversations and also studying related economic impacts for communities and local economies. In Alaska, wood energy is particularly relevant with the high and turbulent cost of competing fuels, remote communities, and harsh climates, although additional studies related to the economic impacts are still forthcoming.

The Northeast States of Maine, New Hampshire, and Vermont have been particularly active in studying the economic consequences of converting to wood energy.

1. 116 New Hampshire public and commercial buildings heat with wood. The direct annual fuel savings are \$11.8 million and \$5.8 million in energy money is fed back into the economy through buying locally-sourced wood fuel. The total economic activity, direct and induced, is \$35.9 million (source: New Hampshire Wood Energy Council).



2. Vermont (highest penetration of wood energy in US) sees about \$100 million in economic benefits annually from displacing heating oil with wood heat. They estimate 1.45 FTE jobs in the wood fuel supply chain per 1,000 tons of wood fuel – this does not include the jobs created from installing and operating the heating systems (source: Biomass Energy Resource Center)

Another example project in the town of Harney, Oregon demonstrates local benefits: This district energy system, fueled by locally-sourced wood chips, will serve nine of the largest buildings in town. In additional to eliminating the expense of each building operating and maintaining its own heating system, the direct fuel savings are \$135,000 annually.

Alaska differs significantly from Lower 48 state because the climate is harsher, communities are more isolated, heating fuel prices are higher, and jobs are often scarce. Small economic benefits have much larger community impacts.

1. A 2008 University of Alaska study found that while a typical affluent household in Anchorage spends less than 2% of household income on residential energy (i.e., heating and electricity), low income households in remote communities spend as much as 47% of household income for the same services.

2. High residential energy costs in some of the more rural regions in Alaska contribute to household overcrowding levels 12 times the national average. This can lead to adverse outcomes for health and childhood education.

3. Downstream benefits of increased energy security and enabling infrastructure such as swimming pools and greenhouses also have positive, albeit largely unquantifiable, impacts for rural communities including affordable produce availability, childhood nutrition, and STEM education opportunities.

4. While each Alaskan community is unique, several communities have observed quantifiable economic benefits from transitioning to wood energy. Galena, a rural village in interior Alaska, highlights community wood energy impacts:

a) Galena (population: 488) is in one of the poorest regions of the state, where household incomes are about half of the Alaska average. The community recently fired up a large district heating system that serves a school campus, fueled by locally-produced wood chips.

i. \$330,000 is directly retained in the local economy as a result of reduced heating oil usage annually.

ii. One fulltime and 5 to 7 part-time system operator, forestry technician, and heavy equipment operator jobs have been created.



iii. Using an established economic multiplier of 2.1 (source: Northern Forest Center), the annual community economic benefits are approximately \$693,000. That is equivalent to about \$1,475 per local resident, or to put it into a more familiar Alaskan metric, nearly one and a half times the value of the annual permanent fund dividend that each Alaskan resident receives.

iv. Additionally, the harvest of the wood has allowed the Gana-A 'Yoo Limited Native Corporation to enhance local wildlife habitat and browse to improve subsistence harvest of game. A greenhouse is being contemplated as well. These yield economic benefits beyond those typically experienced in the Lower-48.

This is just one example among many great opportunities in rural Alaska. However, the vast forests that surround our communities are not under local control and access to resources is often difficult. The federal government owns and controls over 96% of southeast Alaska land. And for too many years our region has faced the hurdles of regulatory barriers and administrative rule making that diminishes the opportunities that abound.

Over the past two decades more and more areas of the natural resources (energy, timber, mining) have become off limits, extremely difficult to access or permit, or when permitted, become uneconomical to pursue and utilize. The Tongass land Management Plan is problematic on many fronts – especially when decisions are being made in D.C rather than locally.

There are two main Tongass land management layers, adversely affecting the timber, the mining, and the renewable energy industries and Southeast Alaska transportation, that need to be removed: 1) the Transition Plan; and 2) the Roadless Rule.

Timber: The Tongass Transition Plan and Roadless Rule are interlocked. It will do no good to remove one without removing the other. Each prohibits the harvest of old growth timber in the unroaded portions of the Tongass. Over 15 years the Transition Plan phases out the harvest of old growth timber on the roaded portions of the Tongass. The Roadless Rule and other set asides already prohibit old growth harvest on unroaded portions of the Tongass. Mining: The Tongass Transition Plan and Roadless Rule create practical access problems to mining claims and hydro projects. Even though the Roadless Rule specifies: "Reasonable rights of access may include, but are not limited to, road construction and reconstruction, helicopters,

or other non-motorized access (FEIS Vol. 1, 3-329 to 3-350),¹ the experience of the mining community is that Special Use Permits permitting road access in or near Roadless Areas are very difficult to obtain. For example, in 1977 the Forest Service denied a Special Use Permit to U.S. Borax to construct a road for a bulk sample of 5,000 tons of ore at the Quartz Hill Project, requiring access to be by helicopter. *SEACC v. Watson*, 697 F.2d 1305 (9th Cir. 1983). Reasonable access has to be defined as road access.

Renewable Energy: Chapter 5 of the EIS states: "When a written proposal is submitted, beyond the initial stage, for a renewable energy project, the Chapter 5 plan components [Renewable Energy Standards and Guidelines] take precedence if there is a conflict with management direction in Chapters 3 and 4." However, Chapter 5 also specifies "consideration of the LUD," which indicates that Chapters 3 and 4 have precedence. The total effect is circular reasoning that is resolved through discretion of the Forest Service "on a case by case basis" rather than through some sort of predictable, repeatable, and objective process. This often leads to permitting requirements that result in projects becoming uneconomic.

Thus, the new Renewable Energy Direction for areas outside IRAs leaves all decision-making power in the Forest Service without criteria for deciding. Saying that suitability as a renewable energy site "is only an indication that the use might be appropriate," cannot be interpreted in any other way.

Southeast Transportation: Chapter 5 of the 2016 Tongass Transition Plan removed the Transportation Utility System (TUS) Land Use Designation (LUD), which formerly allowed roads and powerlines that crossed numerous land classifications to be processed and approved under a single review standard. Without the TUS LUD, the Forest Service reviews each segment of a development proposal under the restrictions for every land classification (including Roadless Areas) through which the facility may pass, which only serves to increase the probability of rejection of the proposal. Restoring the TUS LUD would provide more certainty in Forest Service decision-making on power transmission lines for renewable energy projects and on road building to construct and maintain those projects.

It is heartening to see the more positive posture this Administration has taken in recent months. However, we anxiously await the transition from "positive posture" to enacted policies

¹ 66 Fed. Reg. 3244, 3264 January 12, 2001.



and action. There is no apparent conflict with the law – it is the interpretation of the law by federal employees and agency administrative actions that is the issue.

Another example of unintended barriers and energy-related challenges to rural Alaska is the interpretation of "Indian Land" and the intent of the law to enable agencies to fulfill their mission. Our colleagues at the Tlingit Haida Regional Housing Authority articulated the issue in the following white paper issued on February 24, 2018:

Encouraging Small Hydro Projects and Efficient Home Heating in Southeast Alaska by:

- Removing the "Indian Land" Limitation of DOE's Tribal Energy Program; and
- Adequately Funding Key Tribal and Rural Energy Programs

1. The Home Heating Challenges in Southeast Alaska Villages

The Tlingit Haida Regional Housing Authority ("THRHA") owns or manages 543 assisted housing units in Southeast Alaska. THRHA's mission is to provide *affordable* housing to our region's Tlingit, Haida and Tsimshian residents, and it is thus of paramount concern that our homes be heated in the most energy efficient manner feasible.

In 2015, and through a U.S. Department of Energy ("DOE") grant, THRHA performed regionwide audits aimed at "[r]educing household energy consumption through…energy upgrades…" One principal finding of this audit was that modern air-source heat pumps ("ASHPs") were up to 4-times more efficient in heating homes than either of the two other widespread regional options for home heating (electric resistance and diesel fuel). ²/ For that reason, the hydroelectric Southeast communities of Sitka, Juneau, Wrangell and Petersburg have offered incentives for homeowners to convert to ASHPs. For heat pumps to become a viable village option, the village needs a substantial, dependable and affordable electric power source to run the pumps. With the high rainfall, steep topography, and the lack of any large electric grid linking our isolated island communities. small

topography, and the lack of any large electric grid linking our isolated island communities, small local hydroelectric generation plants are the most cost-effective means of providing clean, renewable and low-cost electric power in SE Alaska. There is no natural gas or coal available

² / A heat pump operates in this way: through modern refrigerant technology using a compressor and condensers, a heat pump extracts heat from one place (like the air outside a building) and transfers it to another place (like the air inside a building), similar to a modern refrigerator in reverse. There are various types of heat pumps: air source heat pumps, ground source heat pumps, and water source heat pumps, depending on the source where they draw their heat. All types of heat pumps use electricity to operate.



for heating in our region. And while heating oil has traditionally been the most common source of energy for heating, it must be imported by barge from the "lower 48" at extremely high cost. The McDowell Group's 2016 survey of Southeast Alaska energy needs found that, while 95% of Southeast's electricity was hydropower generated, virtually all of the remaining 5% represent diesel generation in Native villages. ³/ Even today, the Native villages of Angoon and Yakutat generate 100% of their energy through diesel generators. And, while Kake and Hoonah have recently expanded their hydro capabilities, neither generates sufficient power to handle the load associated with heat pump conversion.

Besides diesel's vulnerability to wild oil price swings, delivery and storage challenges, and environmental damage, the cost of reliance on oil heat substantially exceeds the cost of hydropower. The McDowell Report, for example, noted that:

- Ketchikan, which also provides power to the Native village of Saxman, and which relies exclusively on hydropower, reported residential rates of \$.10/kwh; while
- The Inside Passage Electric Cooperative ("IPEC"), which serves villages that substantially rely on diesel, reported rates of \$.59/kwh. ⁴/

The actual village consumer cost of diesel reliance is reduced by Alaska's Power Cost Equalization program. PCE subsidies begin when rates exceed \$.22/kwh—or twice Juneau's or Ketchikan's rates. This means that the economic burden of villages' reliance on diesel is felt both by the villagers themselves, and by Alaskans as a whole through the PCE program.

2. The Difficult Current Funding Environment

Our villages' ability to continue the conversion to hydropower and heat pumps is cloudy. Two examples:

• Although Angoon's Thayer Creek project is far along the regulatory process, it is stalled for the want of \$7-8 million in additional funding. The dam would produce enough power to allow all of village homes to convert to heat pumps. Kootznoowoo, Inc., the Angoon ANCSA village corporation, projects that the hydro project, coupled with the resultant conversion to residential heat pumps, would halve Angoon residents' home heating and electrical costs.

³/<u>http://www.mcdowellgroup.net/wp-content/uploads/2016/09/Southeast-Energy-Update.pdf</u>

 $^{^{4}}$ / The IPEC sets its rates according to the blended cost of providing electricity to all of its client villages. Some of those villages have access to hydropower (*i.e.* Klukwan), while others rely exclusively on diesel (*i.e.* Angoon). If a rate were separately established for the diesel-only villages, that rate would be considerably higher than \$.59/kwh, since the blended rate is driven down by hydropower generation.



As the next section discusses, one formidable barrier to grant funding for Thayer Creek is the limitation of the Department of Energy's Tribal Energy Program grants to projects on "Indian land." Thayer Creek is located on U.S. Forest Service land; and

• THRHA has, and hopes to continue, an aggressive program of installing air source heat pumps in Native-owned village homes. A heretofore significant source of funding for the program has been Alaska's state-funded weatherization program. However, that program has been ensnarled in Alaska's larger budget controversy, and the program has been omitted from the Governor's proposed FY 2019 capital budget.

THRHA had hoped to apply for grant funding under DOE's most recent Notice of Availability ("NOA") of Tribal Energy Program grant funds. ⁵/ However, the NOA is subject to the same "Indian Land" limitation that disqualifies Thayer Creek. The homes receiving heat pumps under THRHA's plan would be owned by tribal members living in a Native village; however, the individual owns the home, not the Tribe.

3. Steps to Encourage Efficient Energy Generation and Home Heating in our Region THRHA respectfully requests our delegation to consider the following steps to help our region's villages achieve energy security and affordability:

A. Repeal DOE's "Indian Land" Limitation

DOE's Office of Indian Energy Policy and Programs" was created by the Energy Policy Act of 2005. Sec. 502, P.L. 109-58; 42 U.S.C. §7144e. The stated duties of the Office extended beyond benefitting Indian land projects, and included the duty to: bring electrical power and service to Indian land and the homes of tribal members located on Indian lands or acquired, constructed, or improved (in whole or in part) with Federal Funds. *Id.,* 42 U.S.C. §7144e(b); *emphasis added.*

Thus, the Office was charged to bring electricity **to** Indian lands, whether or not the project was **on** Indian lands. And, separately, the Office was tasked with providing power to federally-funded (in whole or part) Tribal members' homes—again, whether or not the project was on Indian land.

A principal means for discharging that broadly-framed duty was the grant statute found at Section 503, P.L. 109-68; 25 U.S.C. §3502(b). Disregarding the Office's broader purpose, that statute limits grant authority to projects "on Indian land." In essence, there is a

⁵ / Energy Infrastructure Deployment On Tribal Lands - 2018 . Funding Opportunity Announcement (FOA) Number: DE-FOA-0001847, February 16, 2018.



disconnect between the Office's goals and the means that Congress has given the Office to achieve those goals.

The "Indian lands" limitation:

- is arbitrary. What possible difference does the underlying land ownership of a hydroelectric dam make in electrifying Indian country;
- renders DOE's Tribal Grant Program of limited utility in Alaska, and especially in Southeast Alaska. In THRHA's region, village corporation ANCSA land selections are limited to 23,040 acres, which must be in compact contiguous tracts neighboring the village. 43 U.S.C. §1615(b). The likelihood of finding a suitable hydropower site within that geography is slim; and
- is especially debilitating to Angoon. In ANILCA, Kootznoowoo traded away most of its Admiralty Island selection rights. Section 506, P.L. 96-487. In that same trade legislation, Congress granted the corporation the right to construct a hydroelectric facility specifically (and only) at Thayer Creek. *Id.* at §506(a)(3)(B). Angoon simply has no other hydroelectric alternative within the Admiralty Island National Monument.

B. Assure Adequate Funding for Rural/Tribal Energy Grant Programs

USDA's High Energy Cost Program.

Because of Alaska's high rural electricity costs, Native Alaskan organizations have vigorously participated in this program. ⁶/ Funding for this program is via a carveout from the appropriation for USDA's Rural Water and Waste Disposal Program Account. That carve-out has been flatlined at \$10 million/yr. for several years; and, the carveout does not appear at all in the House agriculture bill. *See* H.R. 3268, pp. 43 *et seq.*

DOE's Tribal Energy Program.

With the removal of the "Indian lands" limitation, this program will provide an important tool for Alaska village energy projects. As part of ensuring adequate funding for this program, THRHA recommends that the authorization for appropriations for grants under this program be amend to cover the years FY 2019—FY 2029.⁷/

iii. Denali Commission

i.

ii.

The Denali Commission has historically played a critical role in addressing village infrastructure needs. THRHA supports the proposed \$15 million FY 2018 appropriation in the Senate energy

⁶ / See <u>https://www.rd.usda.gov/newsroom/news-release/16-million-high-energy-cost-grants-alaska</u>

^{(&}quot;16 Million in High Energy Cost Grants for Alaska"), June 23, 2016.

⁷/ The current law covers the years 2006-2016. 25 U.S.C. §3502(b)(6).



and water development budget bill (S. 1609). ⁸/ And, we support both houses' resistance to the administration's proposal to abolish the Commission. Indeed, we believe that Alaska's interests are disserved by forcing the Commission to waste limited resources in preparing a shutdown plan in response to the administration's position.

 iv. <u>HUD's Indian Community Development Block Grant Program</u> Currently, THRHA is engaging in extensive home renovation in its Native villages through \$3.6 million in ICDBG grant funding. Among the projects is the installation of air source heat pumps in 46 more village homes. That undertaking is indicative of the cornerstone role that IHDBG grants play in providing Alaska's villages with decent and affordable housing.

While, again, the administration has proposed eliminating this program, THRHA is heartened by the \$60,000,000 Indian set aside for this program provided for in both the House (H.R. 3354) and

Alaskan Road Belt Inter-Tie Project

Another opportunity for rural Alaska is the Alaskan Road Belt Intertie Project (RBIT). There are approximately 30 communities along the Road Belt Intertie Project route that currently are on a series of small, diesel generated microgrids. Communities along the proposed project route currently pay between 300% to 700% more than the national average for electricity (\$0.36/kwh to \$0.88/kwh) for the unsubsidized residential rate. Commercial rates for small businesses run between (.48/kwh to .88/kwh). Most communities fall far below the Federal poverty level and have unemployment as high as 54%.

The Military has multiple installations and bases that would strategically benefit from a redundant electrical loop and cheaper energy costs. Mining, timber, pipeline and other natural resources, accessible by the road system, would be feasible to develop with the abundant and cheaper energy. Economic and small businesses development would flourish and emerge with the new found inexpensive energy according to the Regional CEDS (Comprehensive Economic Development Strategy), U.S. EDA. This project has been vetted and listed as the number one priority of the Regional and Statewide Energy Plan, Alaska Energy Authority(AEA), the number one priority for Tanana and Ahtna Tribal Energy Plans, DOE-OIE, and a priority for the Alaska Statewide CEDS, U.S.EDA.

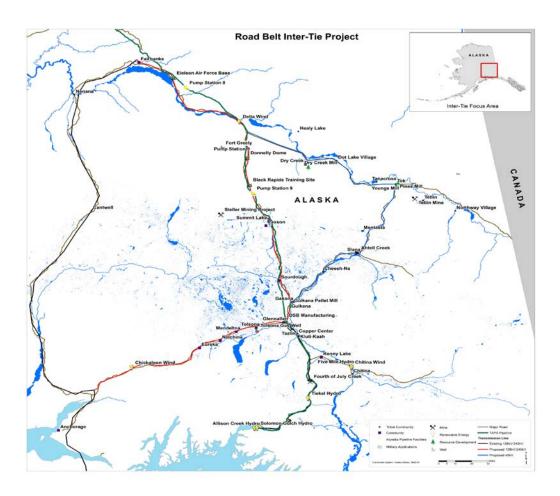
⁸ / The House bill, H.R. 3266, would reduce the Commission's budget from FY 2017 levels (\$15 million) to \$11 million. THRHA believes that any reduction in the Commission's budget is unwarranted.

This proposed project encompasses an area approximately the size of Montana around the road system of the interior of Alaska. The primary phase of the project would run high voltage line (138kV-245kV) would span approximately 134 miles from Sutton, AK to Glennallen, AK; continue north to Delta Junction, AK (approx. 152 miles) along the Alyeska Pipeline Corridor. Secondary stage of project would be Sub-Transmission lines (45-60kV) connecting Gakona, AK to Tok, AK (approx. 120 miles) and Delta Junction to Tok (approx. 107 miles) would also be run along the existing ROWs. These ROWs with existing lines have approximately 100 miles total in gaps between them. These locations will complete a bus loop around the road system of interior Alaska and connect to the existing "Rail Belt" electrical transmission line.

Historically, this project was considered and studied in the late 1980s and mid-1990s with much of the ground work for this transmission line done. Many of the earlier studies can be found at <u>http://www.cvea.org/aboutUs/projectreports.htm</u>. RBIT has regained momentum with a culmination of stakeholders. Support for the RBIT continues to grow. Currently RBIT has the support of APA (Alaska Power Association), Copper Valley Electric Association, Golden Valley Electric Association, Matanuska Electric Association, Alaska Power and Telephone, Chitina Electric, Ahtna, CIRI, Doyon (3 ANSCAs), and many more (see attached list of current Supporters).

Dryden and LaRue, an engineering firm specializing in transmission line design and environmental engineering has submitted an estimate for the Reconnaissance/ Engineering Report for \$1.4 million. This engineering report will be critical in reviving earlier studies, ascertaining an accurate calculations of equipment/ supplies needed, mitigation of any environmental concerns, and other tailored needs for the project. A current Recon Report is needed to move the project forward for shovel ready, hard cost implementation.





Thank you again for the opportunity to share some of the energy-related challenges and opportunities in the remote and rural areas in our part of the United States.