

Renewable Energy

RESULTS FROM THE MICROFEWS STUDY

RESULTS FROM OUR SURVEYS

Researchers with the Alaska Center for Energy and Power (ACEP) and the Institute for Social and Economic Research (ISER) are exploring the links between food, energy and water security in rural Alaska. In the spring of 2020, we traveled to Igyararmiut (Igiugig), Kangirnak (Kongiganak) and Cordova did household surveys to learn about the renewable energy needs of each community and links between food, energy and water security.



Surveyed Households

Igyararmiut (Igiugig)	13
Kangirnaq (Kongiganak)	51
Cordova	50
Total	114

Thanks to the help of our community research assistants, we spoke with 114 households across the three communities. We are currently analyzing the survey and sharing the results with the engineers on our team to help them design new technology which meets your needs.

We also want to make sure that we share the results of the research with you, the people who made it possible. To this end, below is a summary of your thoughts on renewable energy and visions for the future.. We hope you find this interesting and helpful for planning your future. Please do not hesitate to contact us with any questions or comments.

Key Findings



ALMOST ALL HOUSEHOLDS (99%) WANT MORE RENEWABLE ENERGY.



SOLAR IS THE MOST DESIRED (56%), FOLLOWED BY WIND(26%) AND HYDRO (9%).



SATISFACTION IS MIXED, WITH 65% SATISFIED AND 35% UNSATISFIED.



RELIABILITY IS A BARRIER TO ADOPTION OF RENEWABLE ENERGY.

SNAPSHOTS

REMOTENESS

Anchorage is...

243*miles from Igiugig,

450*miles from Kongiganak,

148*miles from Cordova.

*as measured in a straight line



All 3 communities are off the road system.

Population Overview*

	IGG	KKH	CDV
People	62	441	3,055
% AK Native	92%	97%	10%
Athabascan	11%	-	2%
Aleut	53%	-	5%
Inupiat	-	-	2%
Yup'ik	24%	96%	-

*Data from the American Community Survey (ACS). Unfortunately, ACS only reports membership in certain tribal groups, and does not account for membership in multiple groups.

Energy Prices



Diesel
(\$/gallon)



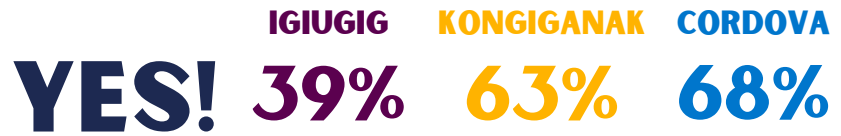
Electricity
(\$/kWh)

IGG	7.55	0.37
KKH	4.58	0.41
CDV	3.40	0.27
ANC	3.08	0.13

Source: DCRA Community Profile, June 2020
Communities

RESULTS

Are you satisfied with renewable energy in your community?



Igiugig. Just over one-third of respondents in Igiugig said they are currently satisfied. One of the main issues raised was the desire to see more production and improved consistency out of the current projects. Currently many types of renewable energy can be found in Igiugig and a new hydrokinetic river generator (RivGen) was installed in July 2019. Residents are excited about the renewable energy projects and one resident hopes the RivGen works as planned and provide independence because the diesel generator may soon break.

Kongiganak. Most (63%) of respondents are satisfied with renewable energy. Reasons given for respondent satisfaction include lowering energy costs (27%) and liking the use of renewable energy (12%). Thirty-seven percent of respondents are dissatisfied. Reasons given for dissatisfaction include that the turbines are unreliable (29%) and in-home heaters are not working or not producing enough heat.

Cordova. Sixty-eight percent of respondents are satisfied with renewable energy usage. Reasons given for satisfaction include that the hydropower decreases their energy costs (20%), they like using renewable energy (18%), the forward-thinking leadership at the electrical cooperative (16%), and a decreased dependence on fossil fuels (12%). The availability of hydropower was one of the reasons one resident moved to Cordova. Like Igiugig, reasons for dissatisfaction include the desire to see more renewable energy in addition to more varied sources of renewable energy (24%). Four-percent of respondents were unaware that Cordova used renewable energy.

RENEWABLES



In Igiugig, energy is produced as the Kvichak river flows through the twin-turbines of the RivGen, a hydrokinetic generator sitting below the river's surface.



In Kongiganak, five 95 kW wind turbines spin year-round, producing electricity to power the community. Excess energy is used to heat thermal bricks, reducing households heating costs.










In Cordova, hydropower produces 70% of the city's energy, reducing the energy expense of residents.

Photo Credit: Jen Schmidt

RESULTS

What type of renewable energy do you want more of?

	IGG	KKH	CDV	ALL
 SOLAR	62%	60%	46%	56%
 WIND	31%	18%	28%	26%
 BIOMASS	0%	2%	4%	2%
 RIVER	15%	0%	2%	6%
 TIDAL	-	-	38%	13%
 HYDRO	0%	2%	26%	9%
 UNSURE	15%	10%	10%	12%

In all three communities, people wanted to see more types of renewable energy used.

"I would like solar tubes to heat my water and decrease the costs"

In **Igiugig**, 62% of respondents were interested in solar, 31% in wind, 15% in river power and 15% were unsure if they wanted more.

"I hope this community gives solar a try - put them on a house and see how they are working"

In **Kongiganak**, 60% of respondents would like to see more solar energy, 18% more wind energy, 6% are unsure of what type, but want more renewable energy and 2% each are interested in biomass, geothermal and hydropower. Two percent did not want more renewable energy, and 4% were unsure.

"I would like to see more energy options"

In **Cordova**, 46% wanted more solar, 38% tidal power, 28% wind, 26% hydro, 8% wanted more but unsure of type, 4% biomass and 2% geothermal. Two percent were unsure if they wanted more.

RESULTS

Community Specific Questions

INDIGENOUS & COMMUNITY VALUES

What has helped Igiugig develop multiple renewable energy projects?

Respondents identified Indigenous values as key to Igiugig's success. Using an Indigenous planning process and formalizing it to be understood by Westerners, helping each other in the community and sharing all help Igiugig. Igiugig's willingness to adopt change, and having people look for opportunities all enable Igiugig's success. Finally, having a track record of successful projects helps obtain new grants.

If the turbines stopped operating in Kongiganak would you be affected? Why or why not? How?

The majority of respondents (60%) said they would be unaffected if the turbines stopped operating. Reasons provided included not using the turbines, the turbines do not currently work well, or not knowing about them. Twenty-two percent of respondents said they would be affected, as this would increase their costs or would make their houses colder.

**MOSTLY
NO**

YES

How would you be affected if hydropower was no longer available for Cordova? Why or why not? How?

Most of the respondents (88%) said they would be affected if hydropower became unavailable in Cordova. Seventy-six percent believed this would increase their living costs. Other reasons given include impact on businesses or that it would increase Cordova's dependence on fuel. Twelve percent of respondents said they would be unaffected, as they are either off-grid (4%), have a backup generator (4%) or didn't know about the hydropower use (4%).

AWA'AHDAH

QUYANA

THANK YOU

HAVE A QUESTION? CONTACT JEN SCHMIDT (JISCHMIDT0@GMAIL.COM) OR BARBARA JOHNSON (BAJOHNSON20@ALASKA.EDU)

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