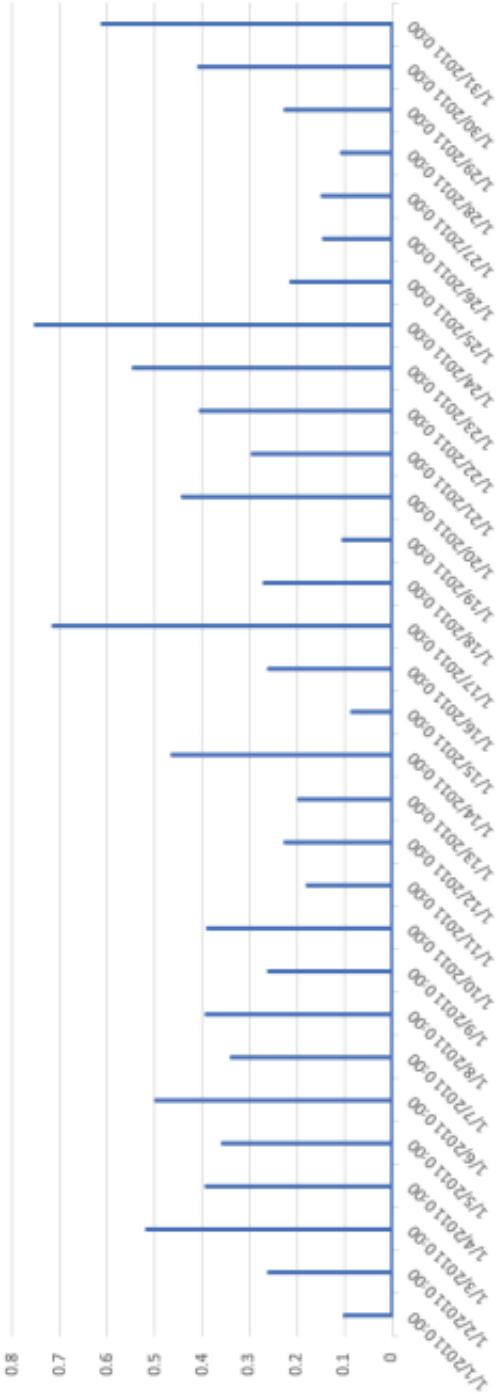


Solar_load



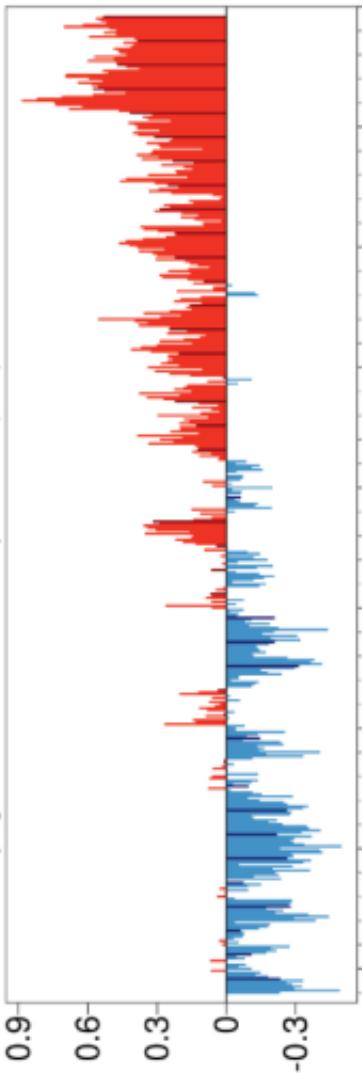
potential_hourly_solar_electrified_load
Data is provided by Quadracci Sustainable Engineering Lab in Columbia University.



Copernicus ΔT

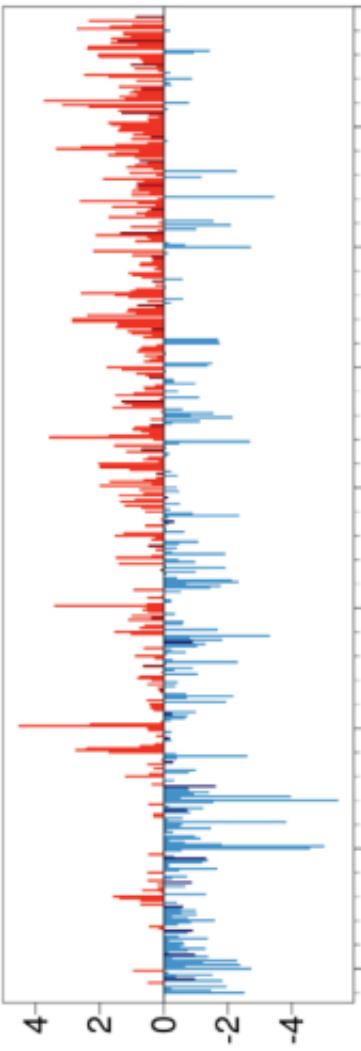


Monthly global surface air temperature (° C) relative to 1981-2010



1980 1985 1990 1995 2000 2005 2010 2015 2020

Monthly European surface air temperature (° C) relative to 1981-2010



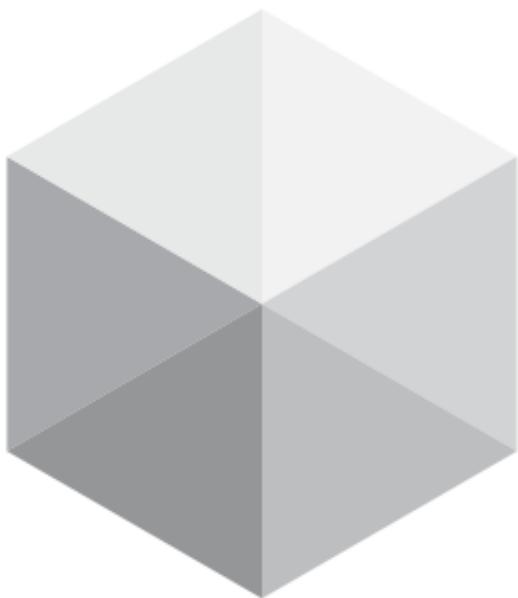
1980 1985 1990 1995 2000 2005 2010 2015 2020

kw_cost_2018

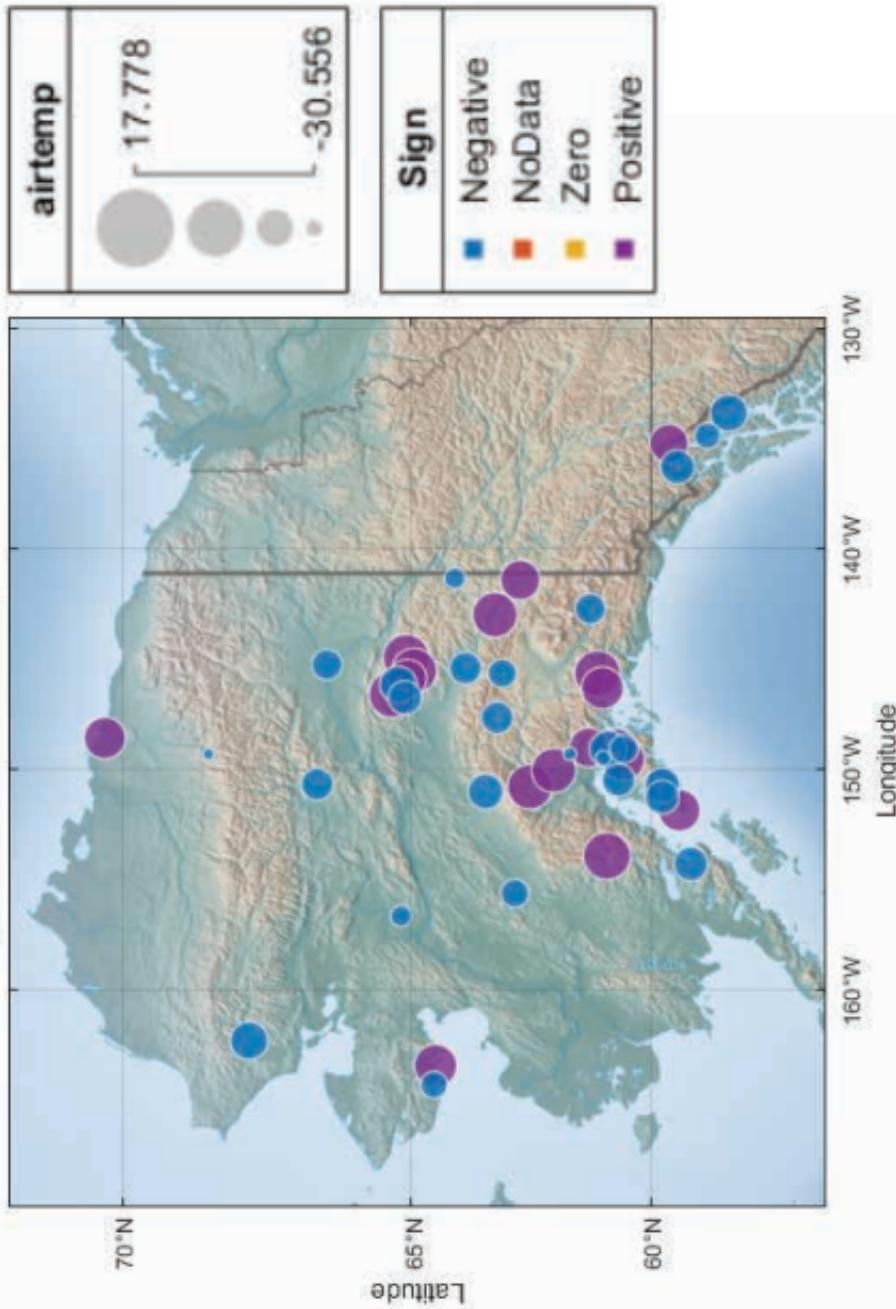


community_name	kilowatt_price	longitude	latitude
Juneau	0.13	-134.4066397	58.29983971
Koyuk	0.51	-161.1648736	64.93066131
Koyukuk	0.95	-157.7027019	64.88178878
Kwethluk	0.52	-161.4375467	60.81122837
Kwigillingok	0.67	-163.1576184	59.87709667
Larsen Bay	0.41	-153.9814353	57.53706833
Levelock	0.85	-156.8575019	59.11246319
Lime Village	1.77	-155.4370226	61.35538888
Lower Kalskag	0.51	-160.3644017	61.51236297
Manley Hot Springs	0.89	-150.6371652	64.99588683
Manokotak	0.55	-159.05493	58.97954187
Adak	1.37	-176.6402959	51.86824598

SNOTEL 2020



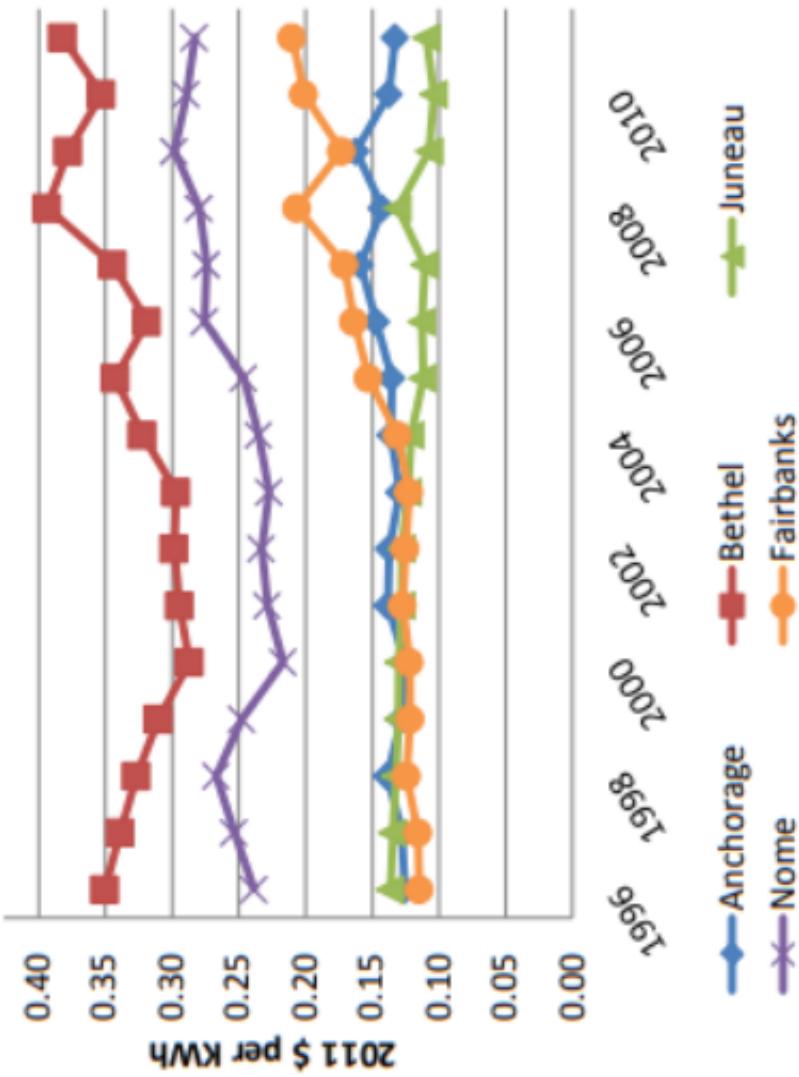
SNOTEL Air Temperature (C)



Alaska Energy Statistics Report



**Figure 4. Average Residential Price of Electricity,
Selected Alaska Communities, 1996 – 2011**



Regional mix 2011



AEA Energy Region	Oil	Gas	Coal	Hydro	Wind	Total ¹³
Aleutians	60,717	0	0	3,140	1	63,860
Bering Strait	52,470	0	0	0	2,624	55,090
Bristol Bay	50,865	0	0	3,566	88	54,520
Copper River/Chugach	51,723	0	0	62,949	0	114,670
Kodiak	23,381	0	0	114,528	12,364	150,270
Lower Yukon-Kuskokwim	93,035	0	0	0	3,114	96,150
North Slope	28,640	51,686	0	0	0	80,330
Northwest Arctic	34,305	0	0	0	1,610	35,920
Railbelt	559,426	3,731,561	387,160	398,747	1,394	5,078,290
Southeast	32,649	0	0	757,433	0	790,080
Yukon-Koyukuk/Upper Tanana	33,071	0	0	0	0	33,070
Total	1,020,280	3,783,250	387,160	1,340,360	21,190	6,552,250
Percent of Total	16%	58%	6%	20%	0.3%	100%

Installed community solar list



Community	Year	Organization/Installer	Capacity (KW DC)
Alatna		Tanana Chiefs Conference	
Allakaket	2019	Alaska Native Tribal Health Consortium (ANTHC)	11.7
Ambler	2013	Northwest Arctic Borough	8.4
Ambler	2013	Northwest Arctic Borough	2.2
Arctic Village	2018	ANTHC	3.2
Arctic Village		Tanana Chiefs Conference	
Arctic Village	2019	ANTHC	5
Beaver		Tanana Chiefs Conference	
Beaver		Yuut Elitnuarviat	9
Bethel	2012	Tanana Chiefs Conference	10
Bettles		Deerstone Consulting/ Box Power	
Buckland	2018		45

Seward 2021

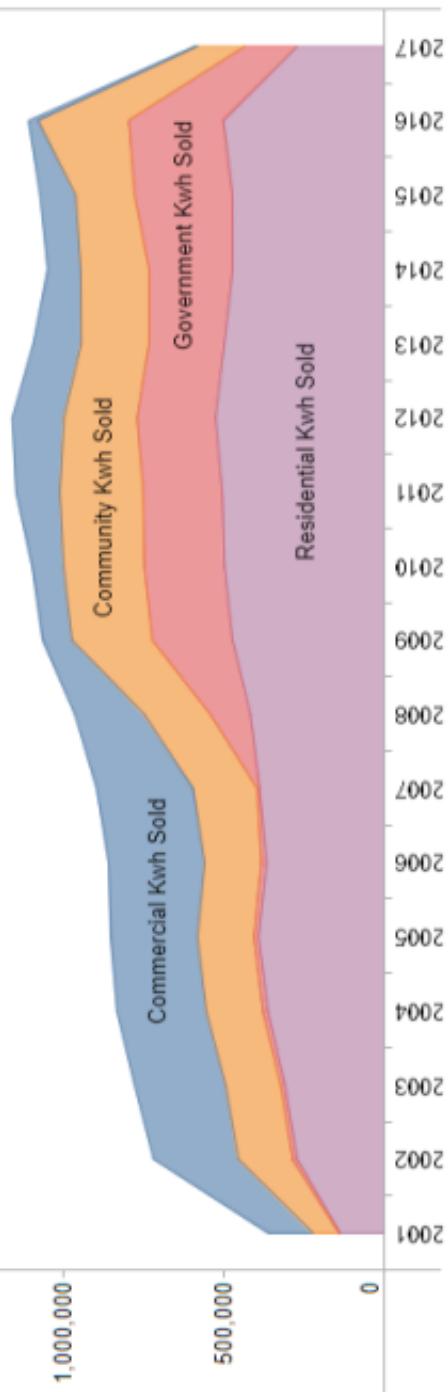


Date-Time (AKDT)	Temperature (°C)	Temperature Avg(°C)	Light(lux)	Light Avg(lux)
10/11/2021 16:00:00	8.92	8.92	3274.24	3274.24
10/11/2021 17:00:00	8.32	8.32	2991.36	2991.36
10/11/2021 18:00:00	8.32	8.32	6871.04	6871.04
10/11/2021 19:00:00	8.62	8.62	6704.64	6704.64
10/11/2021 20:00:00	8.92	8.92	7439.36	7439.36
10/11/2021 21:00:00	9.01	9.01	4544.00	4544.00
10/11/2021 22:00:00	8.71	8.71	4486.40	4486.40
10/11/2021 23:00:00	8.32	8.32	3294.72	3294.72
10/12/2021 00:00:00	8.11	8.11	6041.60	6041.60
10/12/2021 01:00:00	8.53	8.53	7992.32	7992.32
10/12/2021 02:00:00	9.01	9.01	7846.40	7846.40
10/12/2021 03:00:00	9.35	9.35	7764.48	7764.48
10/12/2021 04:00:00	9.69	9.69	7797.76	7797.76
10/12/2021 05:00:00	10.08	10.08	7744.00	7744.00
10/12/2021 06:00:00	10.34	10.34	7833.60	7833.60
10/12/2021 07:00:00	10.55	10.55	7260.16	7260.16
07/11/2022 21:00:00	-13.00	-13.00	3.88	3.88
07/11/2022 22:00:00	-13.00	-13.00	4.52	4.52
07/11/2022 23:00:00	-12.92	-12.92	5.60	5.60

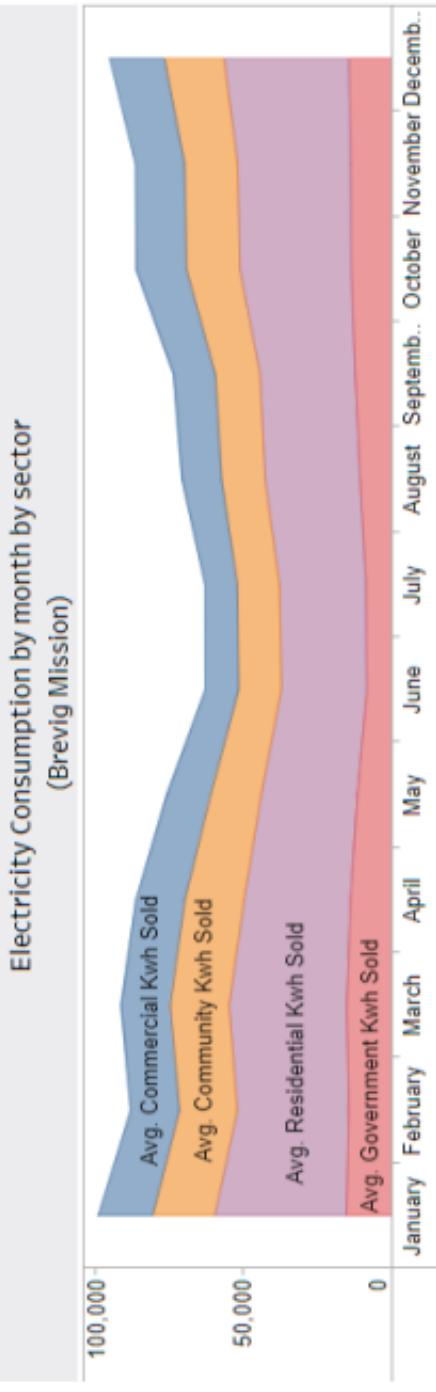
RACEE Profiles



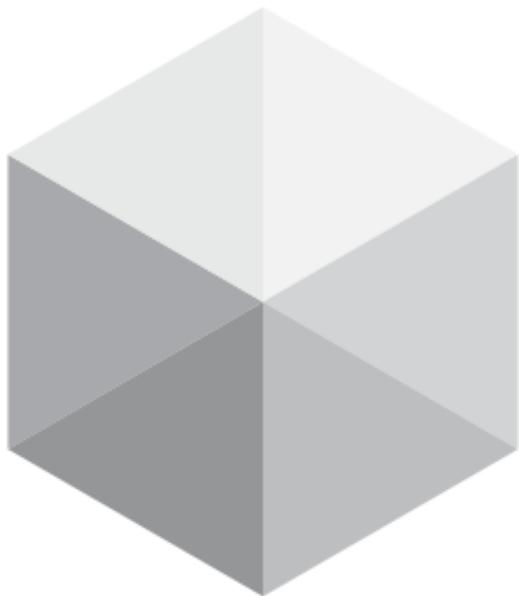
Electricity consumption by sector (Brevig Mission)



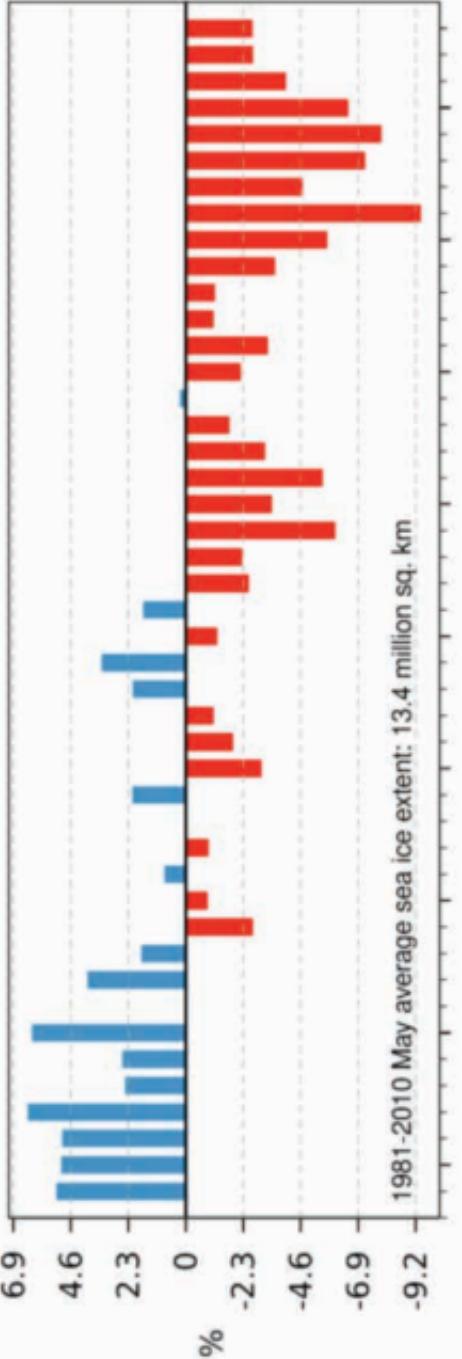
Electricity Consumption by month by sector (Brevig Mission)



2020-06-03



May Arctic sea ice extent anomalies

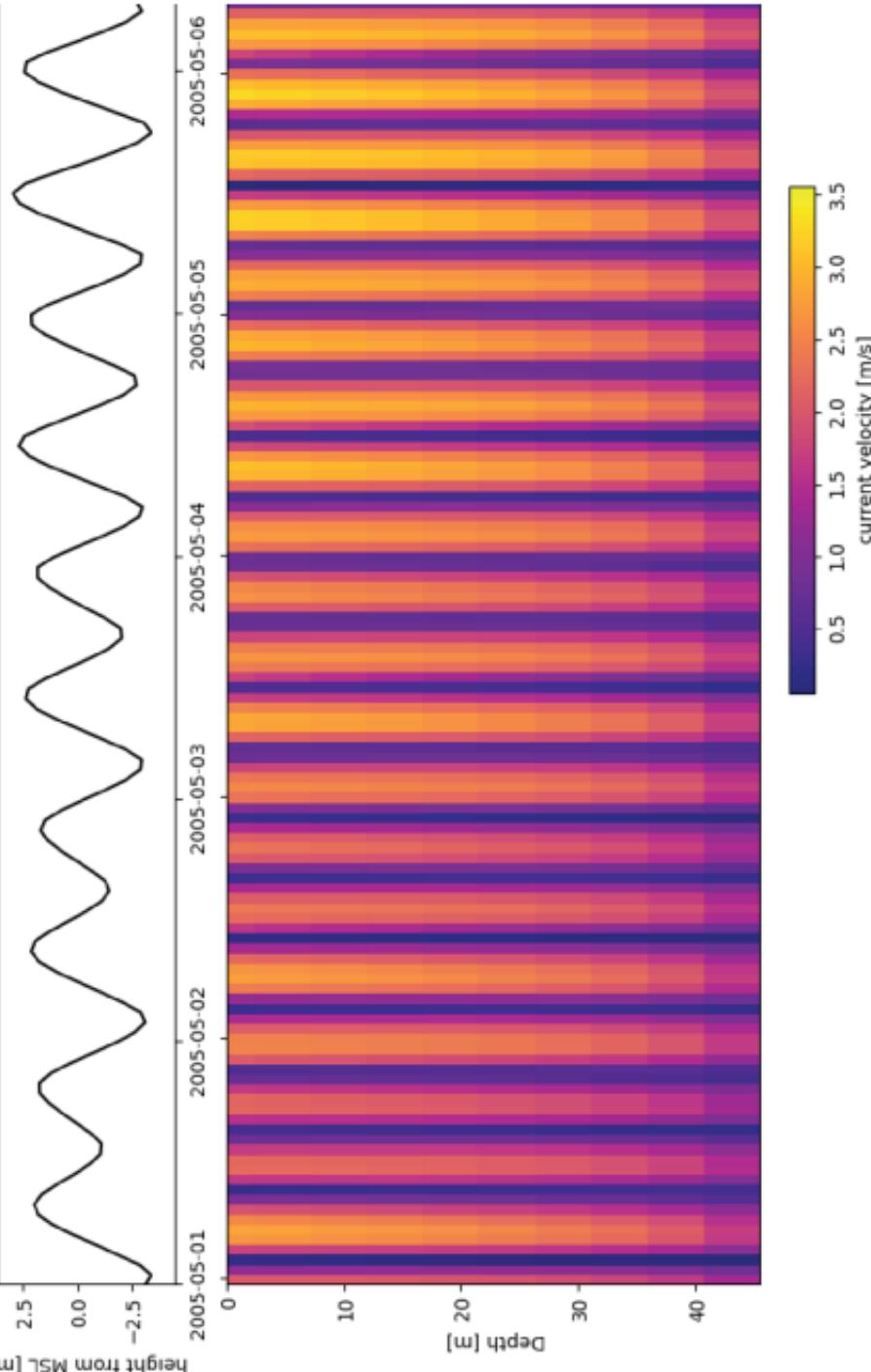


1981-2010 May average sea ice extent: 13.4 million sq. km
(Data: OSI SAF Sea Ice Index v2.1. Reference period: 1981-2010. Credit: C3S/ECMWF/EUMETSAT)

Tidal_Chars_Vel



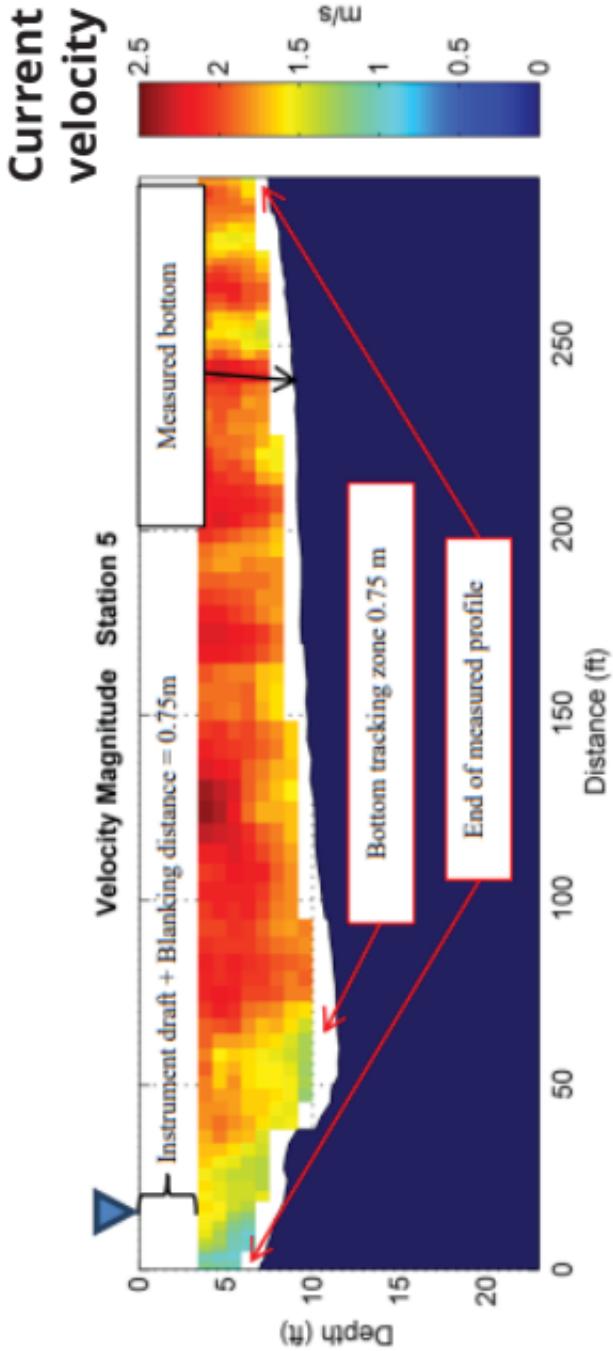
Tidal characteristics at East Foreland, 1 week



Kvichak River



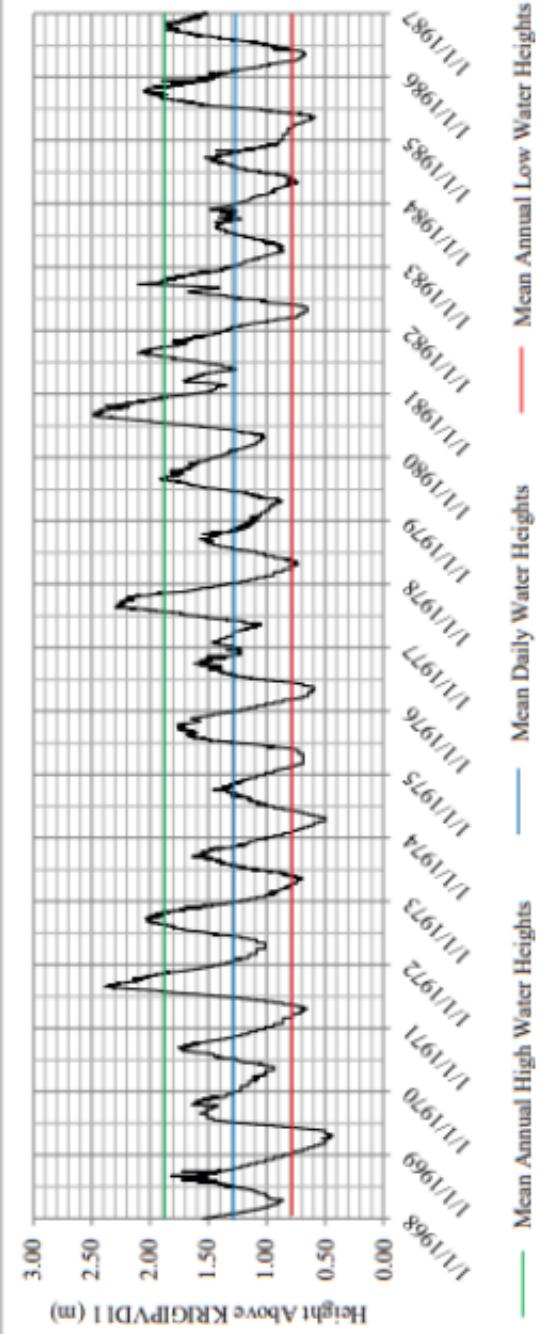
Kvichak River Flow Profile



Cook Inlet 2017



Figure 62 – Daily flow velocities.



Euro_Geography

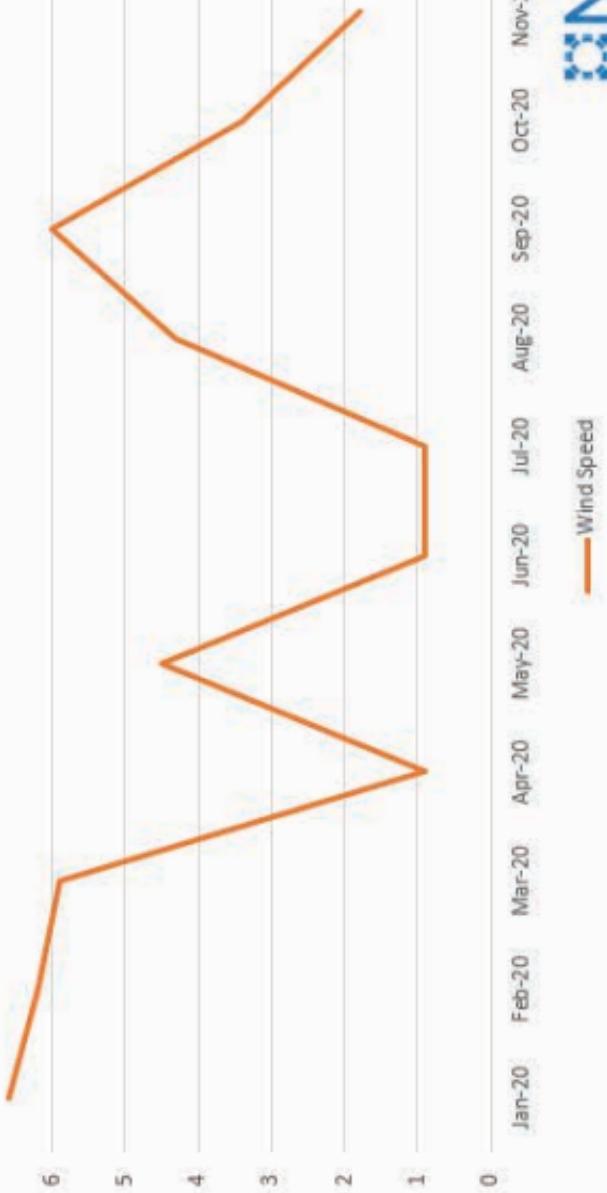


Location	Latitude (°N)	Longitude (°E)	Height (in m a.g.l.). Time averaging	Data period
Cape Town, South Africa	-33.9787	18.5998	10. hourly	1993-2011
Durban, South Africa	-29.9641	30.956	10. hourly	1993-2011
Beaufort West, South Africa	-32.3476	22.5733	10. hourly	1995-2011
Bloemfontein, South Africa	-29.104	26.298	10. hourly	1995-2011
Brandvlei, South Africa	-30.4648	20.4785	10. hourly	1995-2011
Aberport, UK	52.133	-4.5505	10. hourly	1974-1981
Dungeness, UK	50.9167	0.9667	10. hourly	1974-1979
Bell Rock, UK	56.4342	-2.3873	40. hourly	1970-1979
Westermarksdorf, Germany	54.44	11.1	10. hourly	1961-1990
Horns Rev I, Denmark	55.5333	7.9833	45. 10 minute	8 years
Horns Rev I, Denmark	55.5333	7.9833	45. N/A	8 years
Tystofte, Denmark	55.2547	11.3334	39. N/A	32 years
Cabauw, Netherlands	51.971	4.927	200. 10 minute	13 years
Cabauw, Netherlands	51.971	4.927	200. 10 minute	13 years

Renewable Resource Report



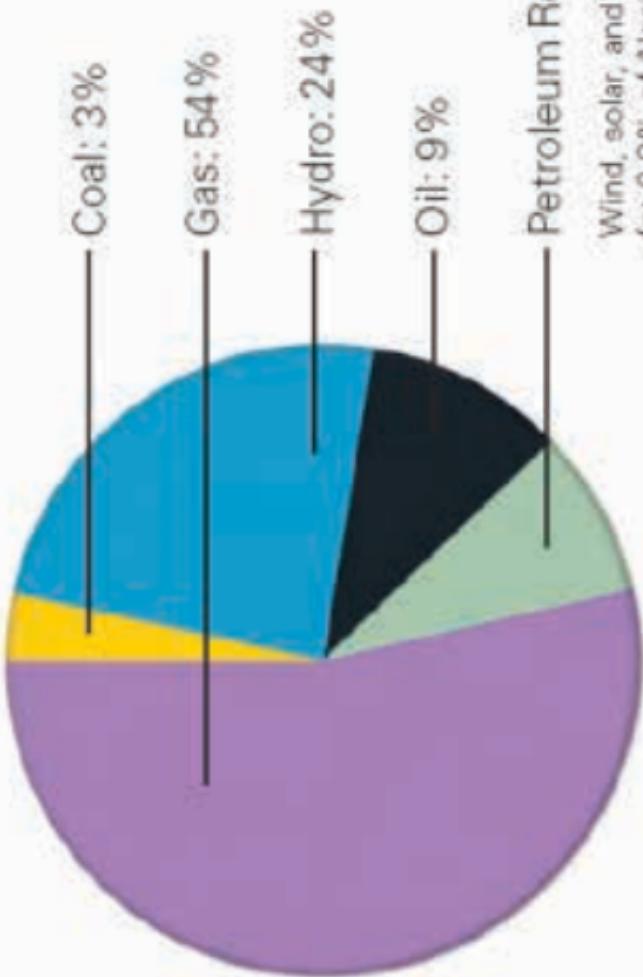
2020 Wind Speed NSRDB



Energy Atlas



Statewide Electrical Generation in Alaska by Energy Source



From Alaska Energy Authority, Energy Atlas

Wind, solar, and biomass account
for 0.2% of Alaska's energy generation.

Renewable Resource Report



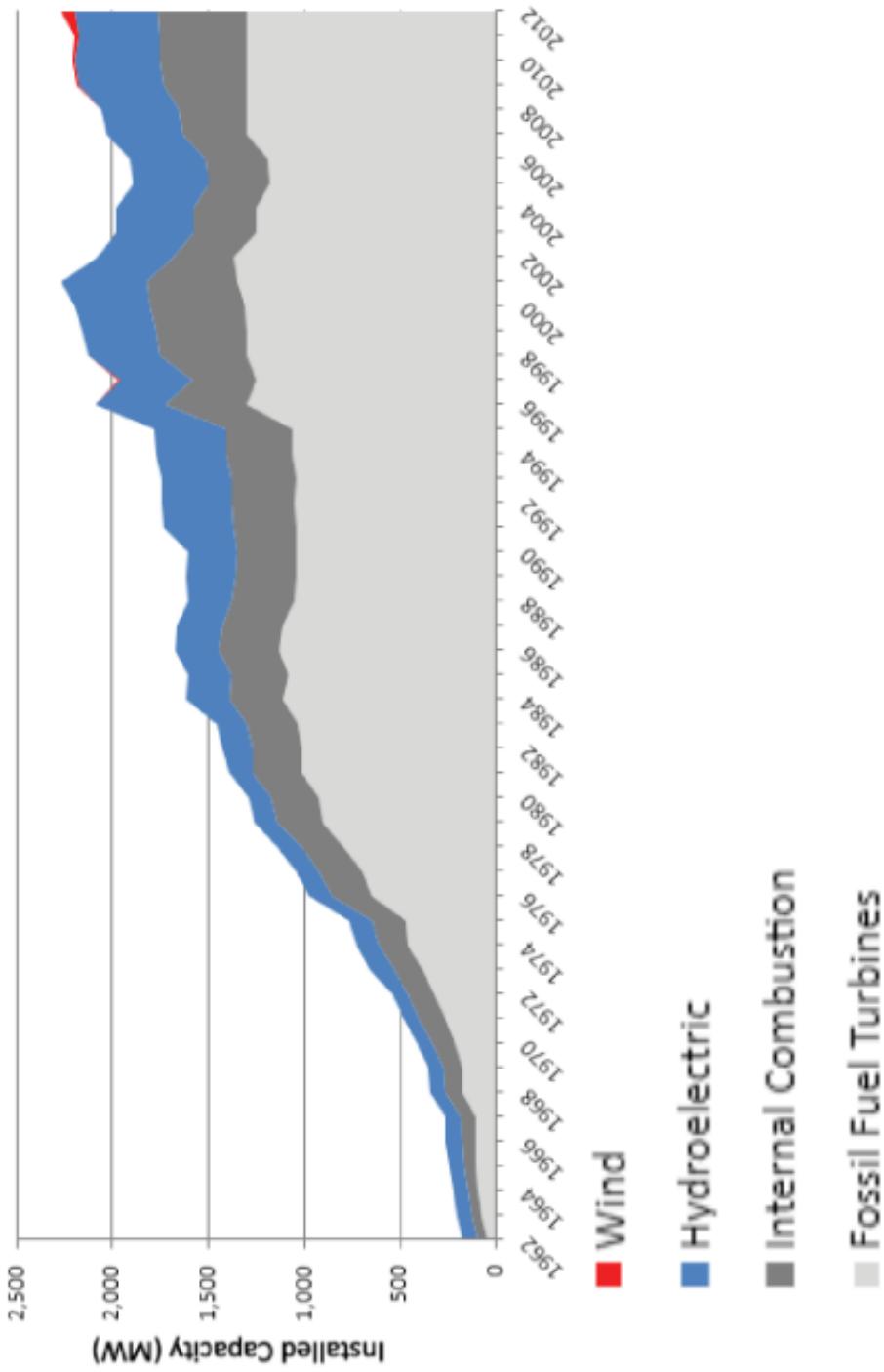
2000 Wind Speed NSRDB

3



inst_cap_62-12







GOAL

Wind Resource Comparison

2 data sets containing

Monthly

Wind Speed

1

2





GOAL

Coal Census

Percentage of

Electrical Generation

from coal in the state
of Alaska



GOAL

Public Access

Data from the

National Renewable
Energy Laboratory
(NREL)



GOAL

Southeast Affordable Energy

Data containing

Energy Price

in

Juneau



GOAL

Arctic Warming Comparison

Data containing

Temperature

from



Before 2021

AND



During/After 2021





GOAL

Arctic Solar Effectiveness Report

Data containing

Solar Capacity

installed by

Northwest Arctic
Borough



GOAL

3D Imaging Feasibility Assessment

Data containing

Latitude/Longitude

of

Bell Rock, UK



GOAL

Alaska Renewable Development History

2 data sets spanning

Over 30 Years

1 2





GOAL

Load Response

Data containing

Monthly

Energy Usage

divided by

Energy Sector



GOAL

Tidal Mapping

Data containing

Water Current
Velocity



GOAL

Sea Level Rise

Data containing



Tidal Height

AND data containing



Sea Ice Anomalies





GOAL

Rural Microgrids

Data from



Brevig Mission

AND data from



Koyuk

