



CONSOLFOOD 2020 23 Jan 2020

Solar Cooking in the Canadian Arctic



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Agenda:

1. Green Sun Rising Inc - Who we are
2. Paulatuk NWT
3. Solar Cooking in Paulatuk
4. Summary





Renewable Energy Technology

1. Green Sun Rising In - Who we are

Windsor's longest operating solar company.

Founded in January 2008, before the Ontario Green Energy Act. Professional engineering company, for solar PV and solar thermal. Over 300 solar projects across Canada completed. Well over 2,800 kW of implemented grid-connected PV systems, over 3.0 MW of solar mounting systems, and ST. Manufacturing our own solar mounting system.



2. Paulatuk NWT



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2. Paulatuk NWT

Ca 300 residents
mainly indigenous (Inuit)
member of the Inuvialuit Group
no road connection
one annual sea freighter visit
three weekly scheduled flights



2. Paulatuk NWT

Climate [edit]

Climate data for Paulatuk (Nora Aliqatchialuk Ruben) Airport														[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	
Record high humidex	-1.4	-3.0	-0.7	9.4	21.8	29.8	33.4	29.1	22.7	15.5	3.2	1.3	33.4	
Record high °C (°F)	-0.9 (30.4)	-1.6 (29.1)	0.5 (32.9)	10.5 (50.9)	18.0 (64.4)	27.5 (81.5)	30.3 (86.5)	30.0 (86.0)	22.3 (72.1)	16.5 (61.7)	7.6 (45.7)	-1.5 (29.3)	30.3 (86.5)	
Average high °C (°F)	-21.8 (-7.2)	-22.2 (-8.0)	-19.2 (-2.6)	-9.4 (15.1)	0.0 (32.0)	10.3 (50.5)	14.4 (57.9)	12.2 (54.0)	6.0 (42.8)	-3.3 (26.1)	-14.4 (6.1)	-18.3 (-0.9)	-5.5 (22.1)	
Daily mean °C (°F)	-25.6 (-14.1)	-26.2 (-15.2)	-23.5 (-10.3)	-14.3 (6.3)	-3.9 (25.0)	5.9 (42.6)	10.1 (50.2)	8.7 (47.7)	3.3 (37.9)	-6.0 (21.2)	-17.9 (-0.2)	-22.0 (-7.6)	-9.3 (15.3)	
Average low °C (°F)	-29.3 (-20.7)	-30.0 (-22.0)	-27.7 (-17.9)	-19.1 (-2.4)	-7.7 (18.1)	1.5 (34.7)	5.7 (42.3)	5.1 (41.2)	0.7 (33.3)	-8.6 (16.5)	-21.3 (-6.3)	-25.7 (-14.3)	-13.0 (8.6)	
Record low °C (°F)	-42.0 (-43.6)	-44.4 (-47.9)	-46.9 (-52.4)	-36.8 (-34.2)	-31.0 (-23.8)	-6.4 (20.5)	-3.0 (26.6)	-3.2 (26.2)	-11.0 (12.2)	-34.1 (-29.4)	-37.5 (-35.5)	-38.7 (-37.7)	-46.9 (-52.4)	
Record low wind chill	-57.0	-56.7	-58.9	-45.7	-35.9	-11.4	-6.7	-7.9	-18.5	-50.4	-48.6	-53.1	-58.9	
Average precipitation mm (inches)	12.0 (0.47)	10.3 (0.41)	13.3 (0.52)	9.5 (0.37)	14.4 (0.57)	14.3 (0.56)	21.9 (0.86)	34.5 (1.36)	24.7 (0.97)	25.4 (1.00)	18.1 (0.71)	14.4 (0.57)	212.9 (8.38)	
Average rainfall mm (inches)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	3.1 (0.12)	13.6 (0.54)	21.9 (0.86)	34.1 (1.34)	18.7 (0.74)	1.4 (0.06)	0.1 (0.00)	0.0 (0.0)	92.9 (3.66)	
Average snowfall cm (inches)	14.2 (5.6)	10.7 (4.2)	15.5 (6.1)	11.3 (4.4)	11.5 (4.5)	0.7 (0.3)	0.0 (0.0)	0.4 (0.2)	6.1 (2.4)	25.1 (9.9)	19.3 (7.6)	17.1 (6.7)	131.8 (51.9)	
Average precipitation days (≥ 0.2 mm)	8.9	7.7	8.7	6.8	7.5	6.7	8.6	13.1	11.4	12.1	10.8	9.5	111.5	
Average rainy days (≥ 0.2 mm)	0.0	0.0	0.0	0.0	1.4	6.3	8.6	12.9	8.4	0.8	0.1	0.0	38.4	
Average snowy days (≥ 0.2 cm)	8.9	7.7	8.7	6.8	6.2	0.7	0.0	0.6	3.4	11.6	10.9	9.7	75.0	
Average relative humidity (%)	79.5	77.0	80.5	85.3	88.9	86.0	69.9	78.6	79.6	82.5	80.2	76.9	78.0	

Source: Environment Canada Canadian Climate Normals 1981–2010^[28]



Capex/Factor	11.4%
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2. Paulatuk NWT



3. Solar Cooking in Paulatuk



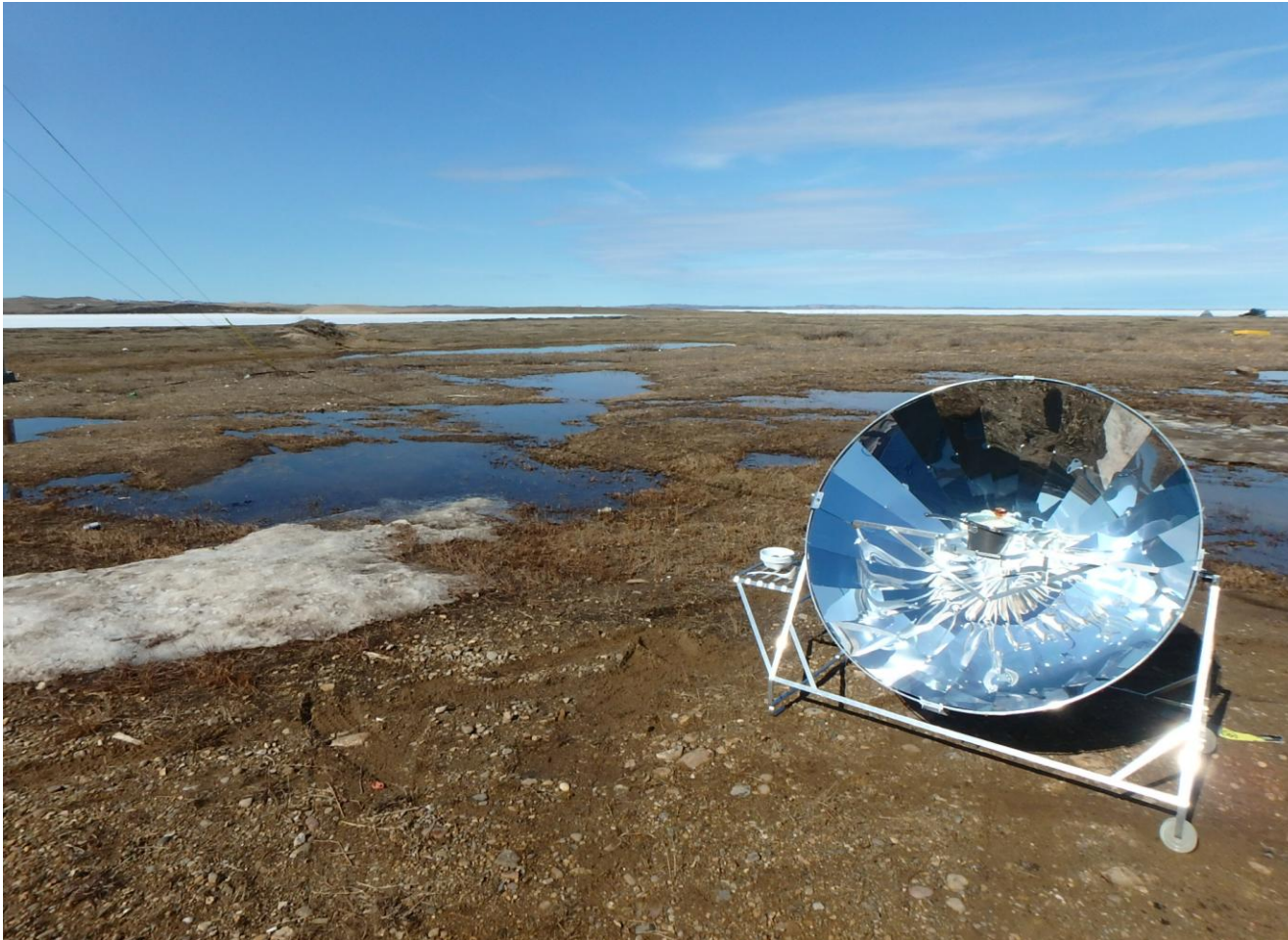
3. Solar Cooking in Paulatuk



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4. Summary

Solar cooking is feasible in the Canadian Arctic under good sunny summer conditions

Good conditions can be extremely good, better than at lower latitudes

Bad conditions tend to be extremely bad

