

High Latitude Solar Workshop Country Report: United States

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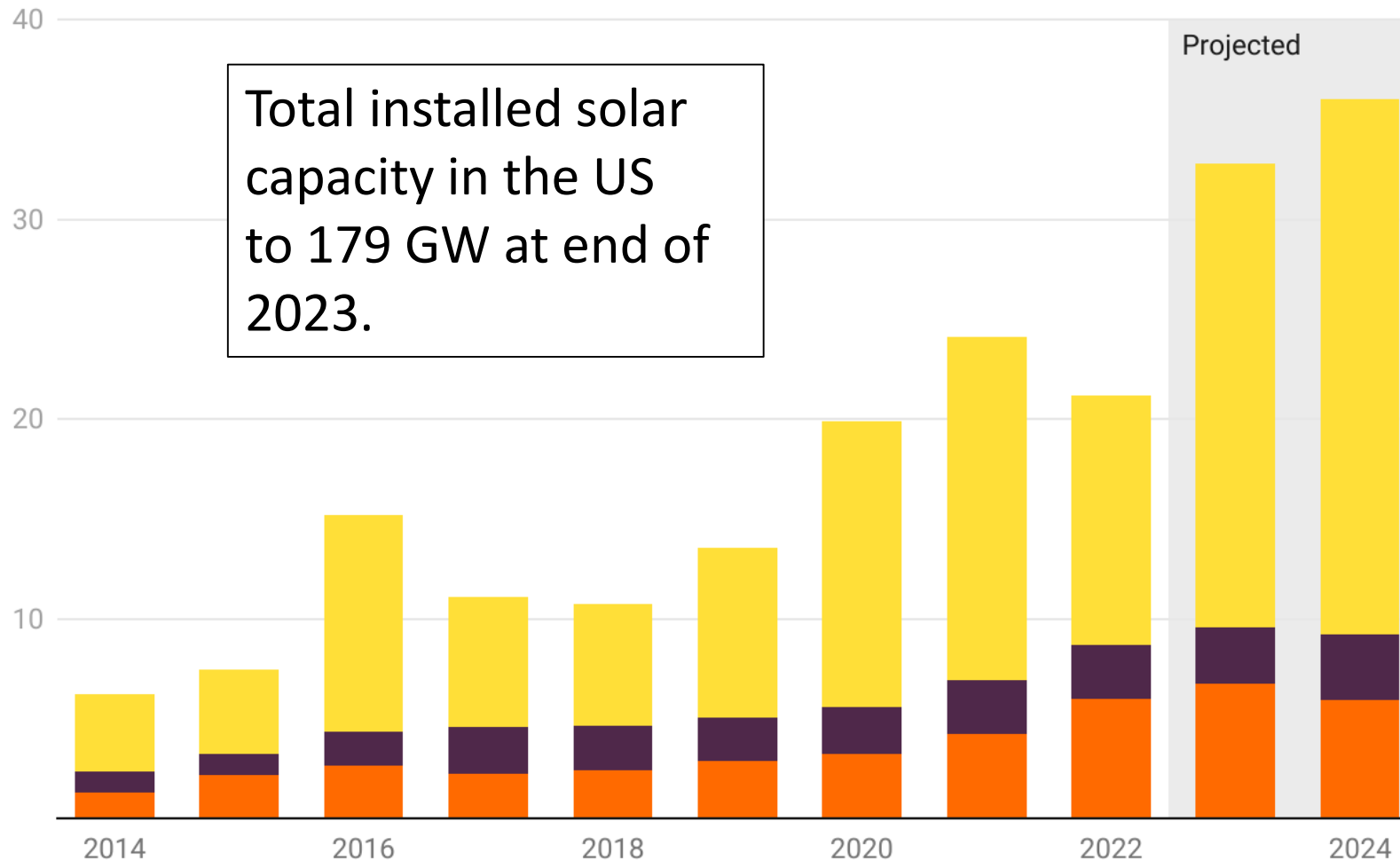
ACEP
Alaska Center for Energy and Power



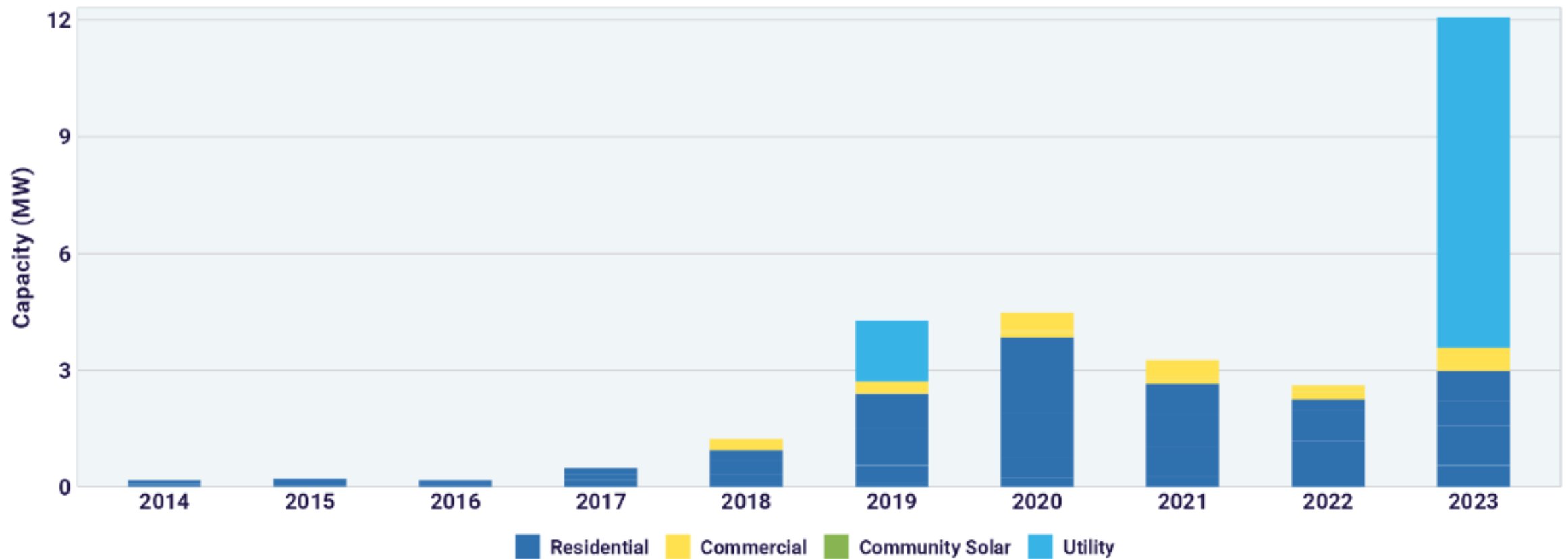
The U.S. is set to hit a new record for solar installations

Solar photovoltaic capacity installed by segment, in gigawatts

Residential Non-residential Utility



Alaska Annual Solar Installations



From: Solar Energy Industry Association

Installed Now

- Net metered behind the meter (rooftop): 16 MW
- Utility scale: 12.3 MW
- Other: ~ 300 kW

- 8 PV arrays larger than 100 kW have been installed
- Many microgrids that allow operation without diesel.
- Largest size installed to date is 8.5 MW.

Behind the meter rooftop solar is still the largest sector



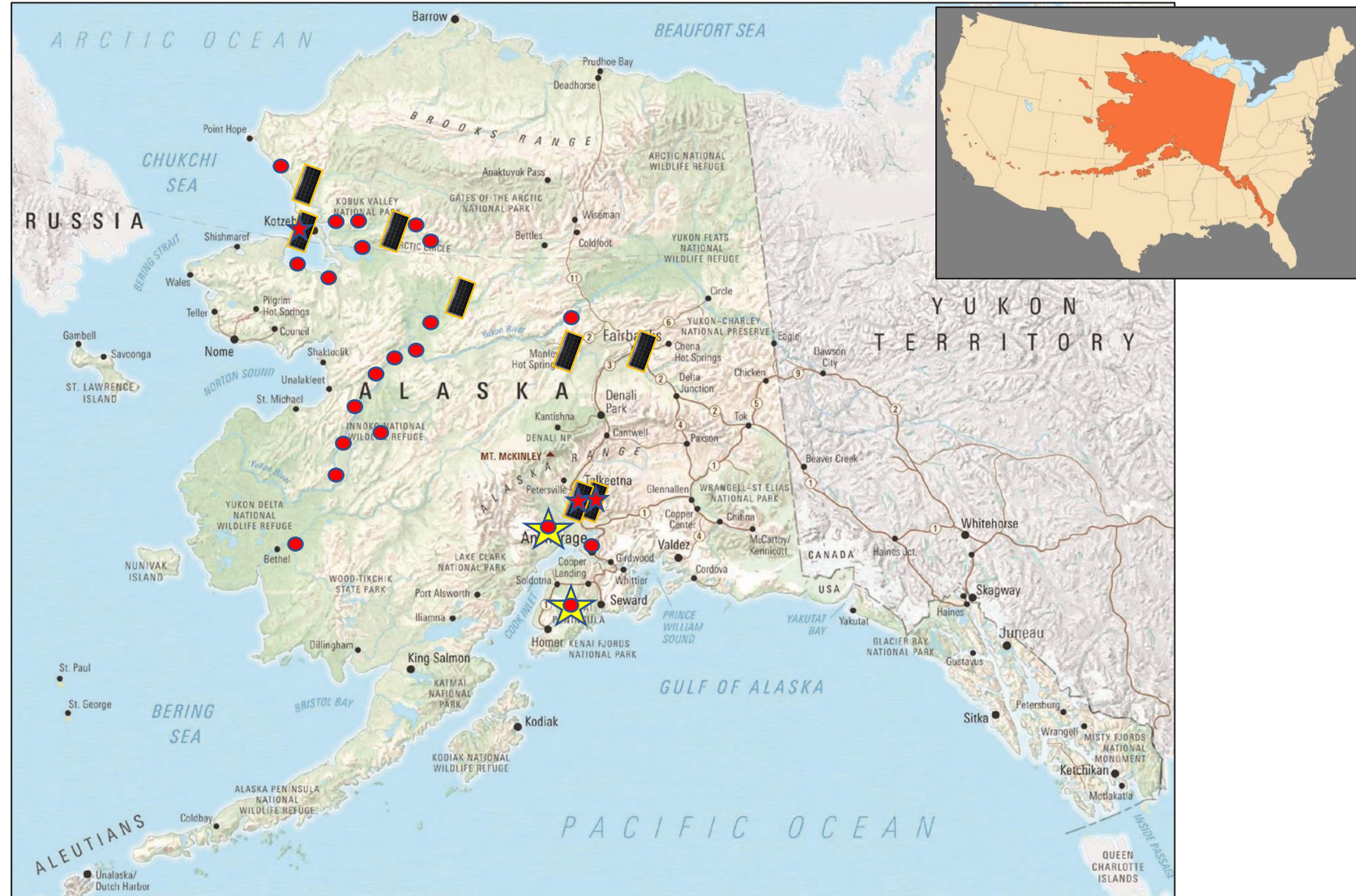
▬ = PV greater than 100 kW

★ = PV greater than 1 MW

http://www.alaska.org/assets/content/maps/Alaska_Map.pdf

Coming Soon

- At least 21 new arrays greater than 100 kW with several in the 10's of MW size.
- 18 of the planned arrays will enable diesel off operation in microgrids
- Likely to see greater than 100 MW deployed by 2030



http://www.alaska.org/assets/content/maps/Alaska_Map.pdf

 = PV arrays greater than 100 kW

 = Planned PV arrays greater than 100 kW

 = PV arrays greater than 1 MW

 = Planned PV arrays greater than 1 MW

Pricing and Production

- Utility Scale on Road System: <\$1.30/ watt
- Microgrid diesel off enabling = near \$10/watt (includes storage, microgrid controller, and PV)
 - Recent bids for 1.5 MW array came in as low as \$2.30/watt for solar + racking only
- Residential Rooftop = \$3.40/watt for 8kW rooftop system near Anchorage
- Monofacial production = 940 kWh/kW
- Bifacial production = 1098 kWh/kW

Important Policies

- Inflation Reduction Act Expands tax credits to 30% until 2032 year
- Government Grants (Department of Energy, Department of Agriculture, REAP, and many others)
- State of Alaska low interest loans
- Net Metering (monthly)
- Possible future renewable standard
- Natural gas supply is declining

Early systems were all utility owned

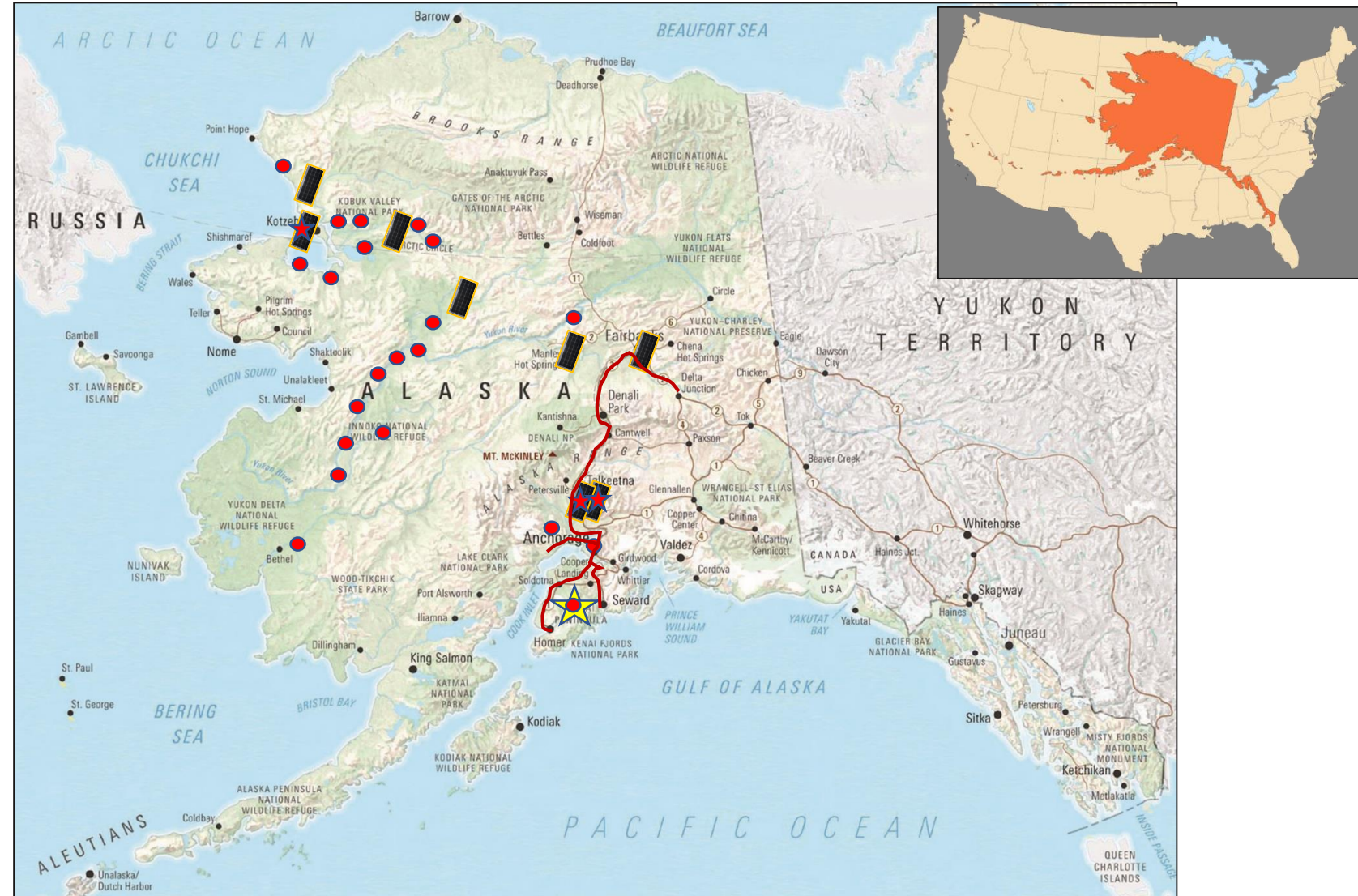


Newer systems are almost all Independent Power Producers



Land access issues

Lots of land, but limited infrastructure; roads, transmission, etc.



http://www.alaska.org/assets/content/maps/Alaska_Map.pdf

— = Railbelt Transmission



= PV arrays greater than 100 kW



= Planned PV arrays greater than 100 kW



= PV arrays greater than 1 MW



= Planned PV arrays greater than 1 MW

Future High Latitude Cooperation Opportunities

- Racking challenges for steep south facing, vertical E/W, and permafrost
- Snow
- Unique PV array orientations
- Examining opportunities for solar in a winter peaking grid



Thank You

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