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Photovoltaic Cooling as Waste Heat Recovery Method

Q: What California industries have large volumes of ultra-low (temperature (>1,600Âº F) waste heat?

A: The Commission may wish to consider accelerating technologies that recover waste heat from photovoltaic (PV) panels. PV panels recover only a fraction of solar radiation as electricity, the majority of this radiant energy results in waste heat. This heat is typically low-grade heat (

Benefits associated with PV waste heat recovery:

- Is currently wasted in most PV installations
- Increases the electrical efficiency of the PV panels (PV prefers to operate at lower temperatures)
- Uses existing infrastructure (i.e. is built into the PV array and makes use of the existing mounting and racking systems)
- Can be retrofitted in existing PV arrays
- Can be used in reverse for cooling heat exchange at night
- PV electric generation can drive heat pumps in order to increase/stabilize the output heat temperature