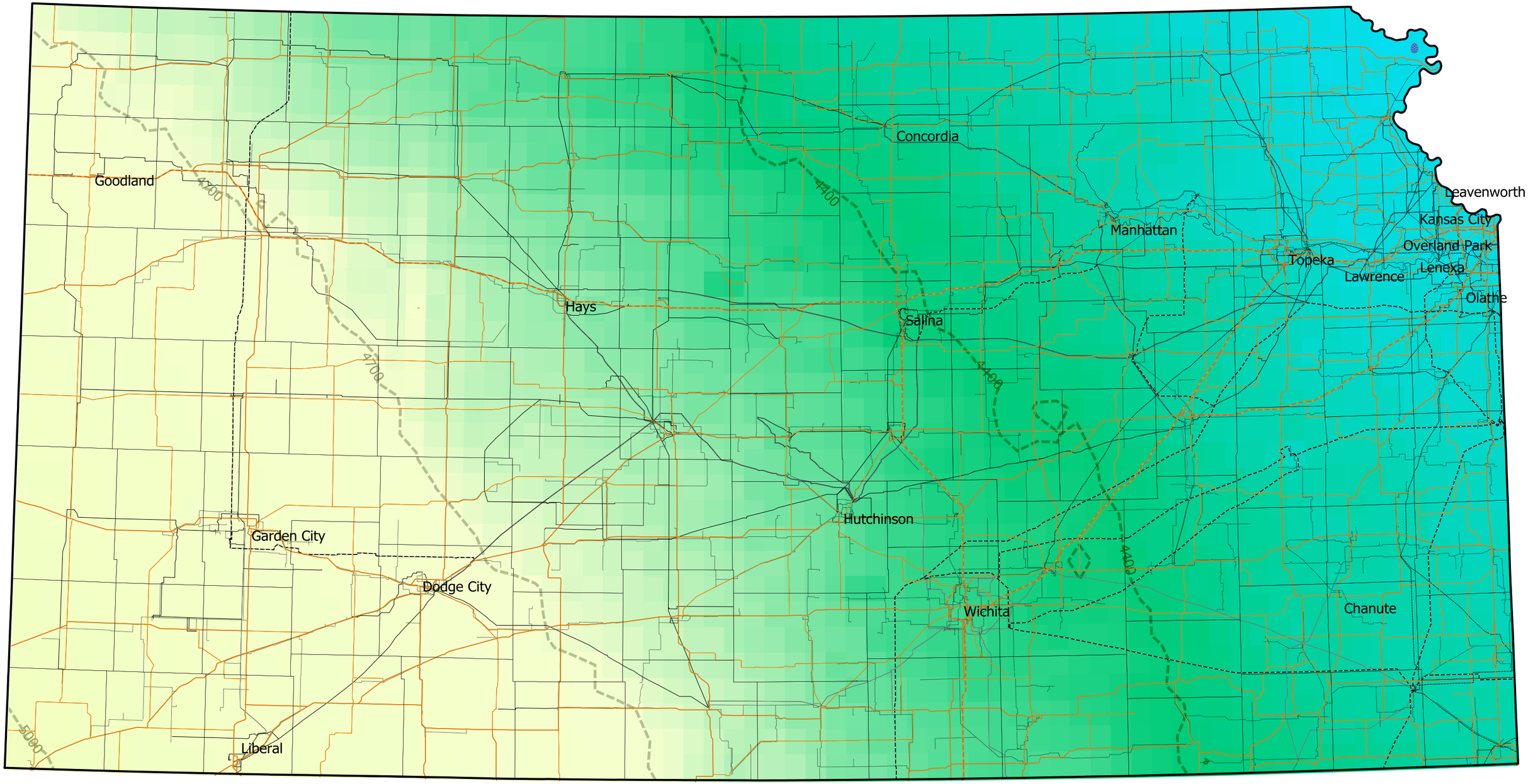
Kansas Solar Resource Map



voltage in kV	Kansas Roads	Solar Radiation
34.50	State Route	W-Hr/m^2
69.00	US Route	Value line
115.00	Interstate Route	4100
138.00		4400
161.00		4700
230.00		5000
345.00		

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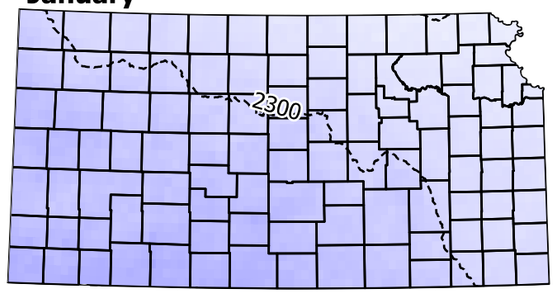
Map printed in Lambert Conformal Conic coordinate system. page center:-98.33

Kansas Solar Resource Map

January



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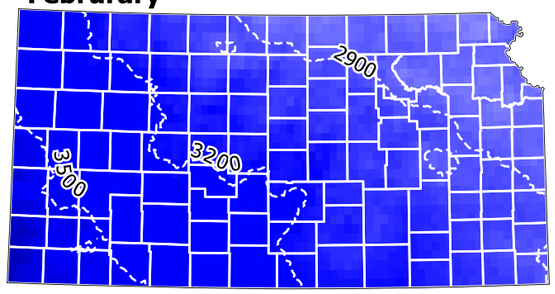

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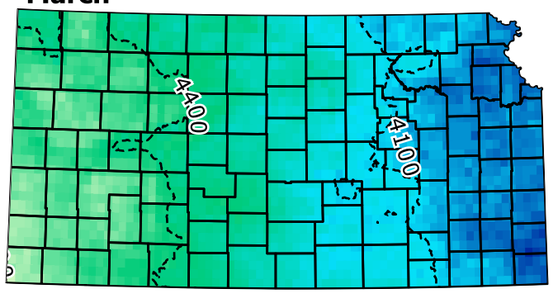

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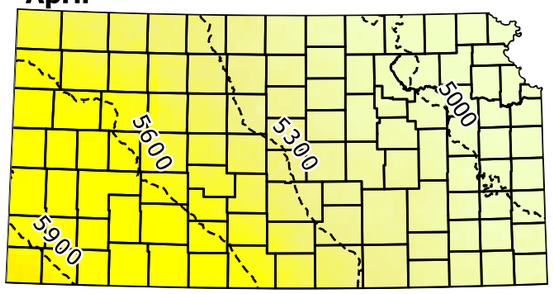

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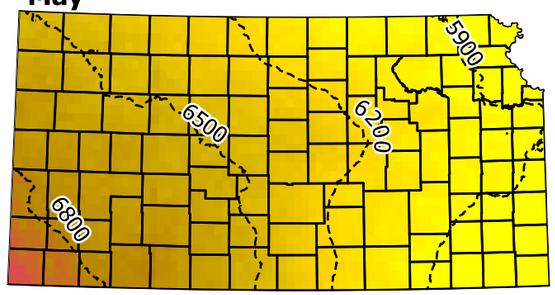

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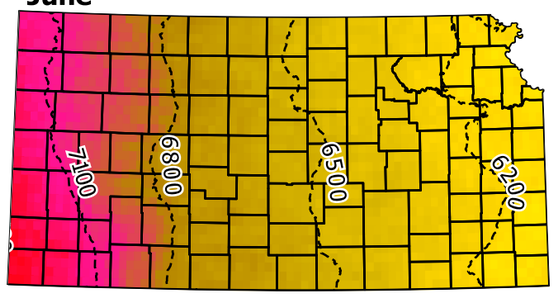

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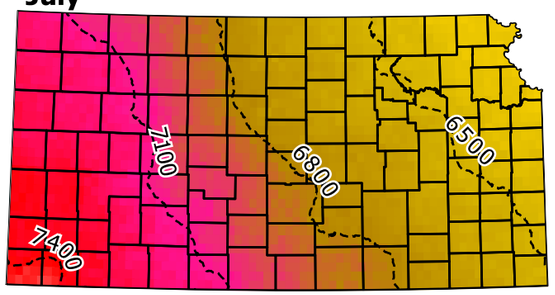

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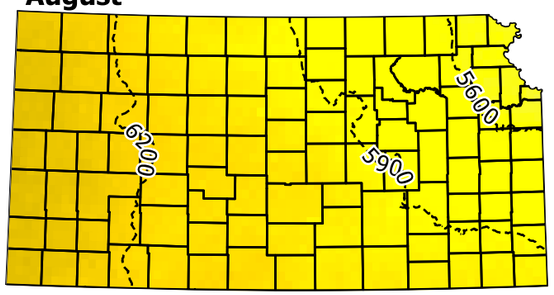

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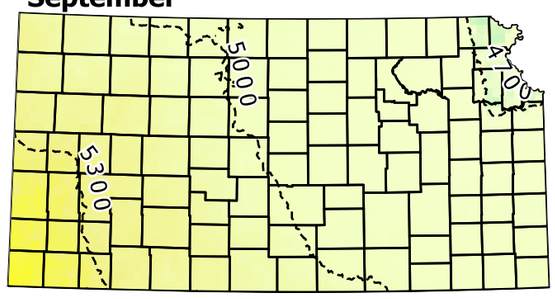

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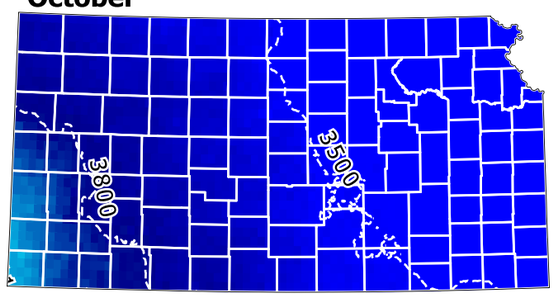

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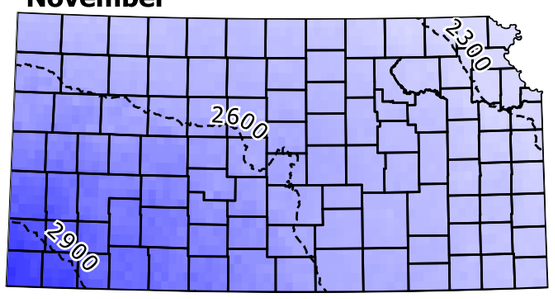

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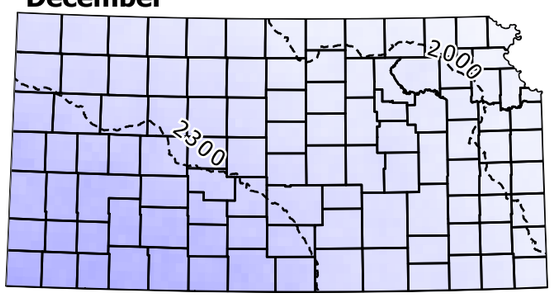

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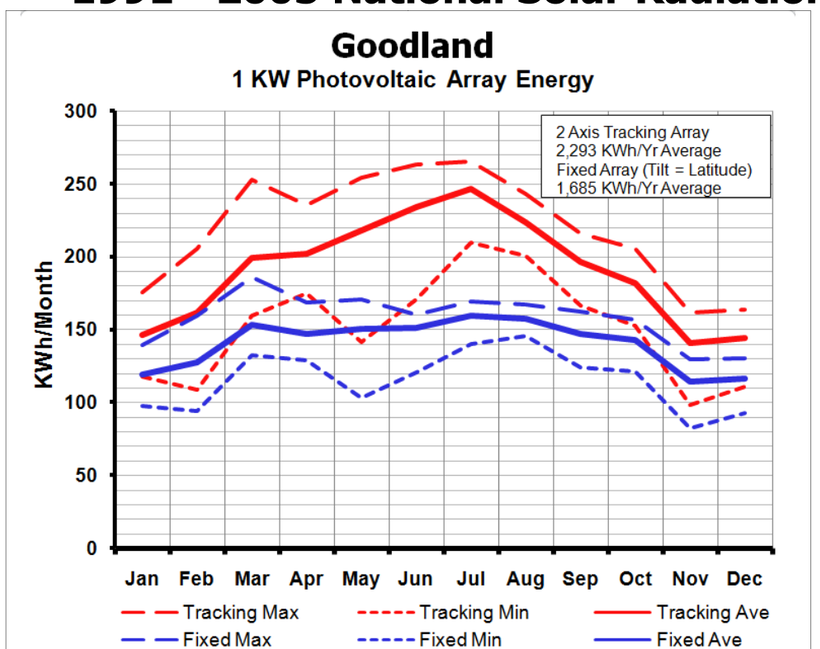
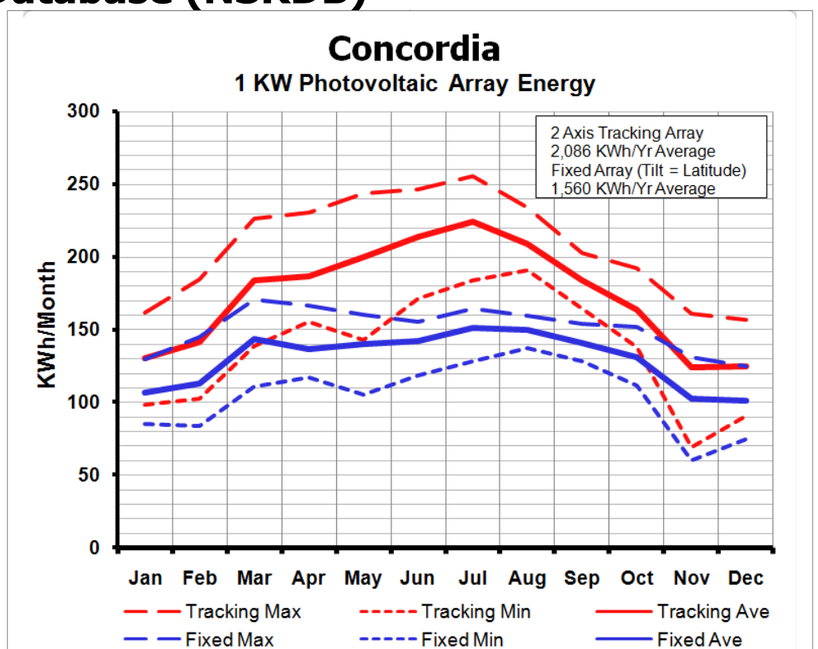
Solar Radiation W-Hr/m^2							
1700	2900	4400	5900	7100
2000	3200	4700	6200	7400
2300	3500	5000	6500	7700
2600	3800	5300	6800	
	4100	5600		

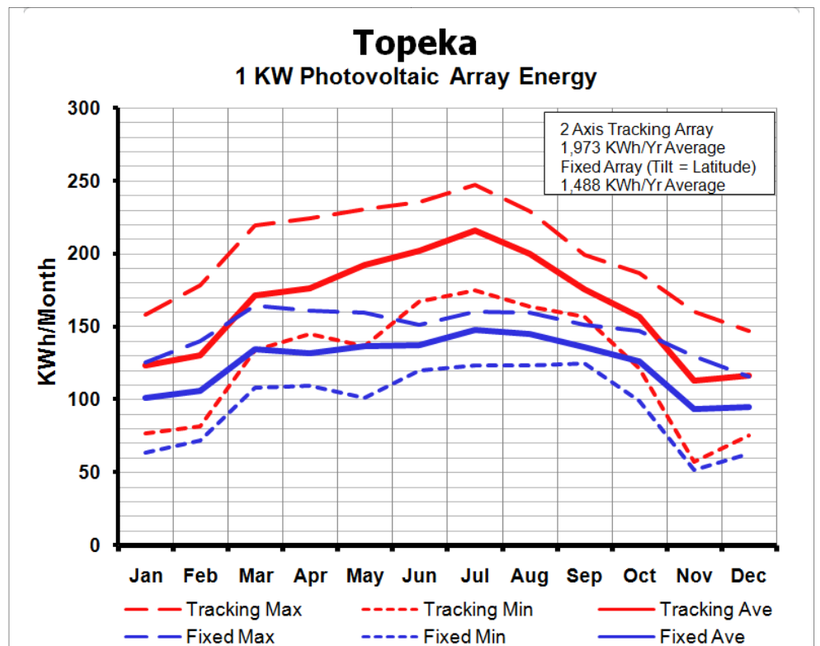
The average annual solar energy falling on one square mile in central Kansas is about four billion KWh or fifteen trillion Btu, the equivalent of two and one-half million barrels of oil. About 70 square miles receive solar energy equal to Kansas's annual energy consumption. Plants using photosynthesis might convert 1% or lessof this energy to biomass. Solar thermal systems might convert 30-40% to useful heat, and solar photovoltaic systems might convert 5-20% to high value electricity. Matching the availability of the resource to the demand for energy is an important factor in making solar energy systems feasible, technically and economically. The maps above show monthly solar energy in Watt-hours per square meter for Kansas.

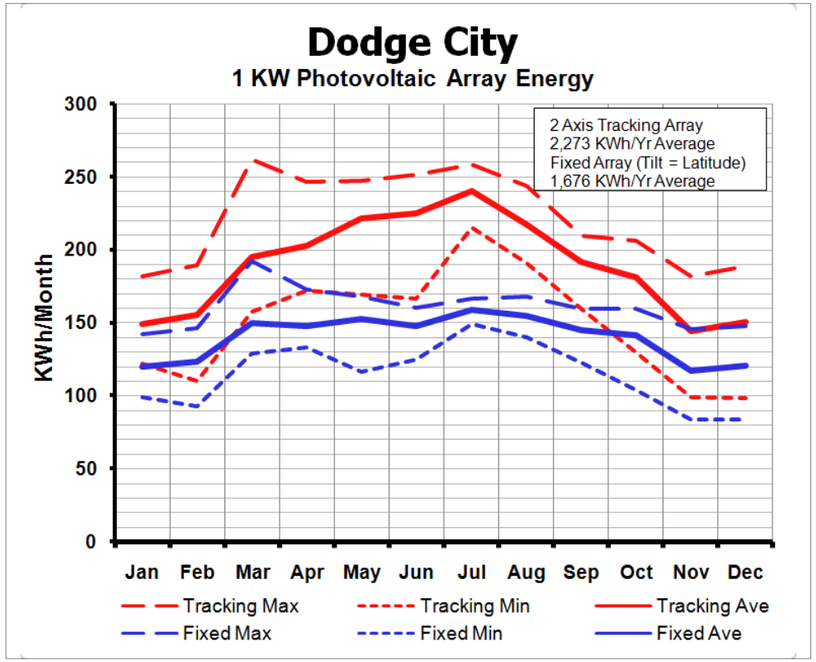
Photovoltaic Electrical Energy Production in Kansas

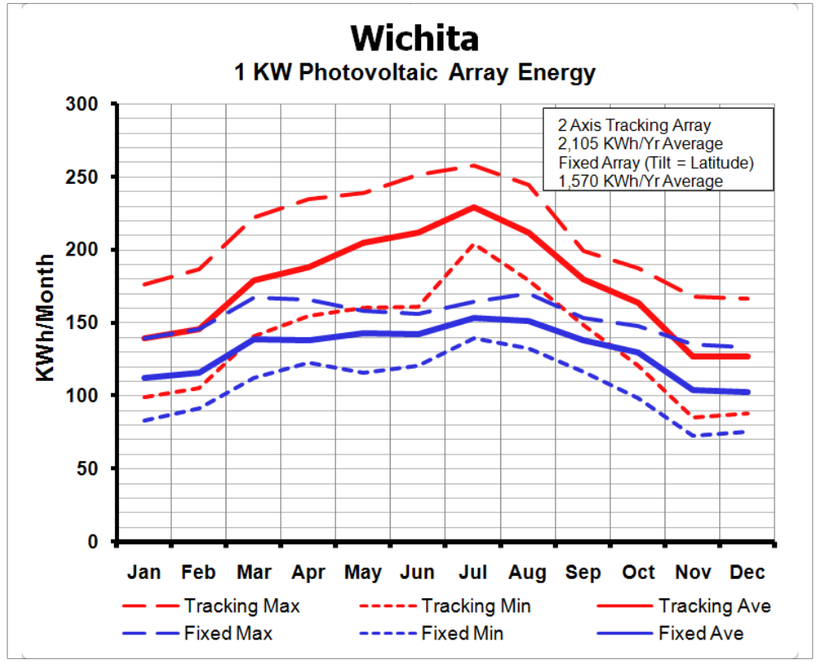
1991 - 2005 National Solar Radiation Database (NSRDB)

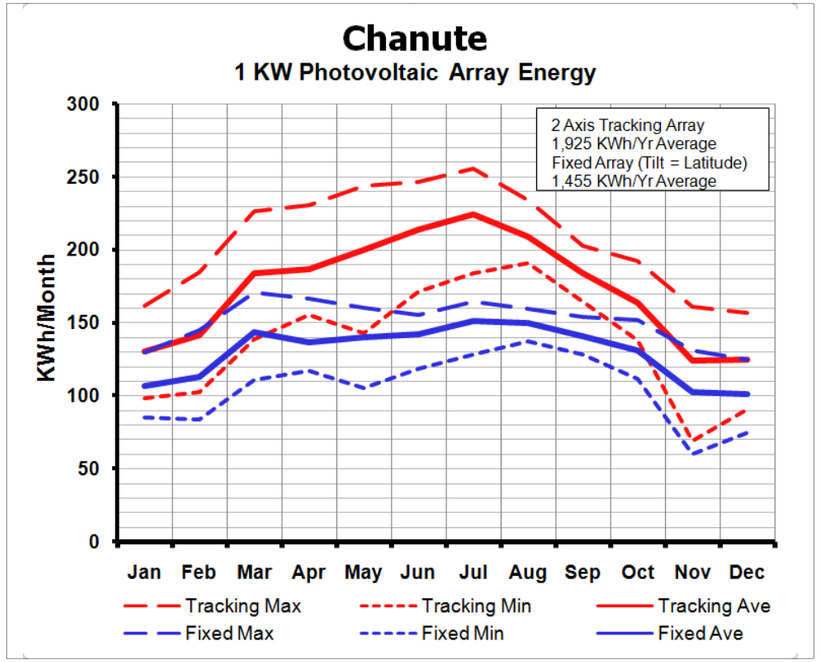












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Photovoltaic (PV) production of electricity is one way to produce high value renewable energy from sunlight (solar insolation). The graphs above show the estimated monthly electricity production from a one kilowatt (KW) PV system for six representative Kansas communities. The analysis was based on 15 years (1991-2005) of hourly solar insolation data contained in the National Solar Radiation Data Base (NSRB) acquired through the National Renewable Energy Laboratory at http://rredc.nrel.gov/solar/old_data/nsrdb/1991-2005/. The analysis was based on a commonly available PV panels using PV-DesignPro software available from Maui Solar Energy Software Corporation at http://www.mauisolarsoftware.com/. Inverter losses for converting DC to AC current are included. Other system losses were assumed to be minimal. Maximum, minimum, and long term average values are shown for two panel mounting conditions, one fixed at a tilt equal to the latitude of the site, the second on a two axis tracker that keeps the panels perpendicular to the sun.