Ana Dyreson
PhD. candidate
Mechanical Engineering
Professional Engineer (P.E.)

Room: 1337 ERB

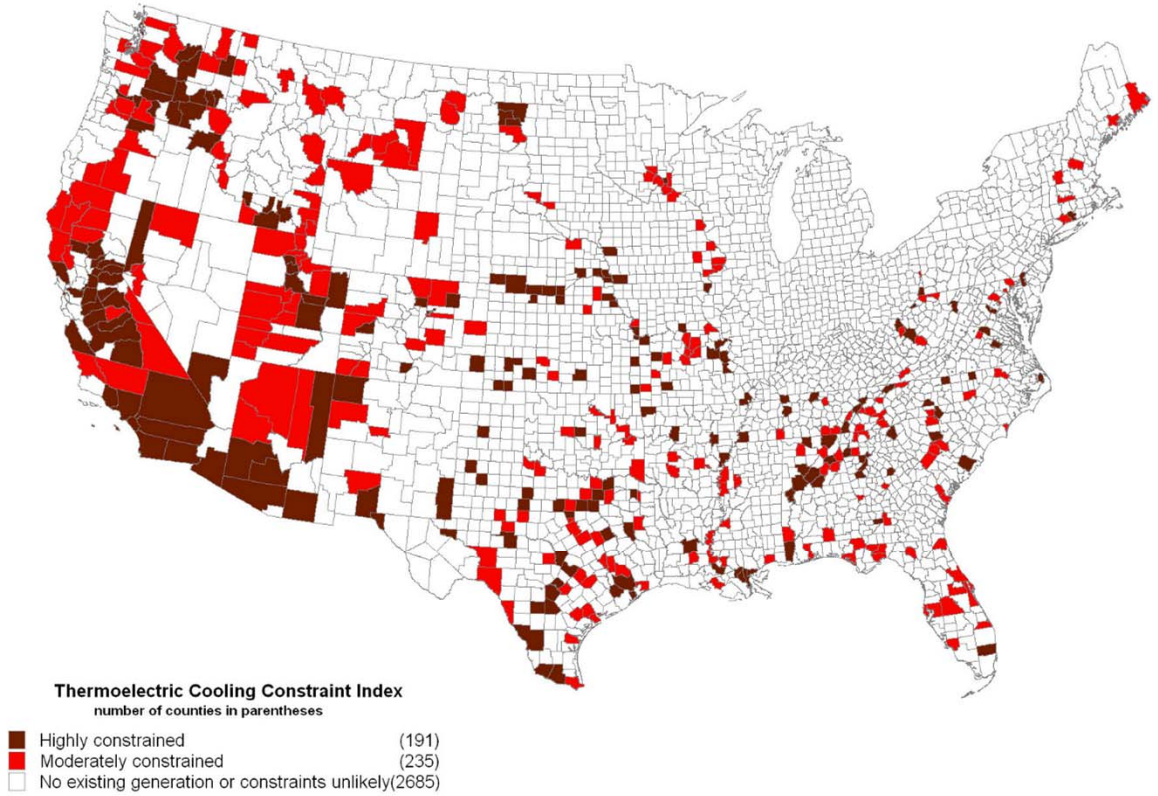
Email: adyreson@wisc.edu
Hometown: Portage, WI

Concentrating solar power and the energy-water nexus

Power plant cooling solutions for the desert

CSP and the energy/water nexus

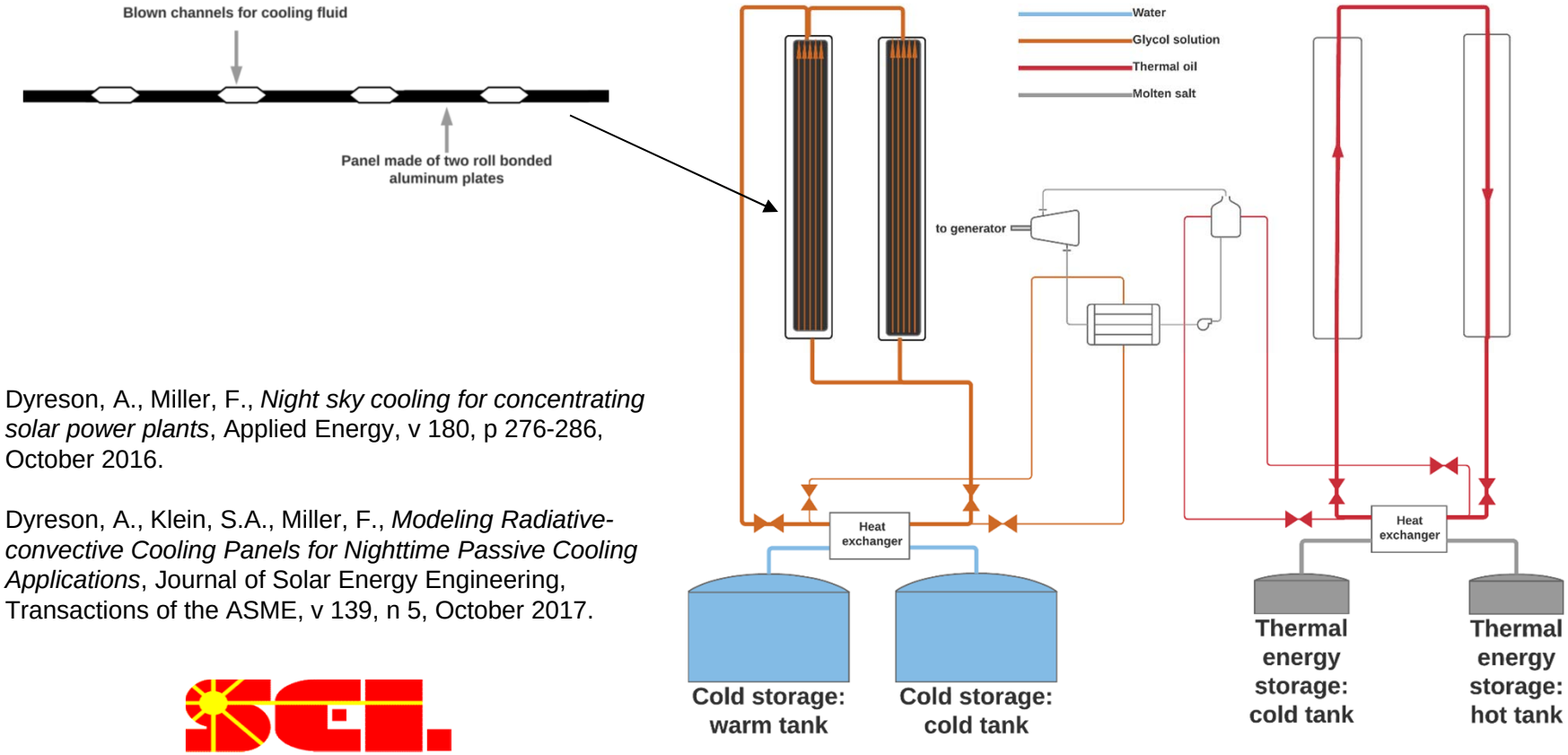
- Water availability limits thermoelectric power plant operation.
- Concentrating solar power, because of typical arid location, is moving away from wet-cooling.



EPRI, “A Survey of Water Use and Sustainability in the United States With a Focus on Power Generation,” 2003.

Radiation enhanced dry cooling

- A cooling system is proposed where cooling fluid is pumped over a blackbody-like surface and cooling is accomplished via radiation to the night sky and convection to ambient air.



Dyreson, A., Miller, F., *Night sky cooling for concentrating solar power plants*, Applied Energy, v 180, p 276-286, October 2016.

Dyreson, A., Klein, S.A., Miller, F., *Modeling Radiative-convective Cooling Panels for Nighttime Passive Cooling Applications*, Journal of Solar Energy Engineering, Transactions of the ASME, v 139, n 5, October 2017.