

Policies That Leverage Thermal Renewable Energies (TRE) for Utility Benefit

SOLAR THERMAL
ALLIANCE OF COLORADO

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TRE Policy Background

Several states have policies to accelerate adoption of thermal renewable energy (TRE). Drivers behind these efforts:

- create new jobs, especially in rural & agricultural areas;
- reduce carbon emissions from heating and cooling processes; and
- help utilities meet regulations, revenue targets without rate impact.

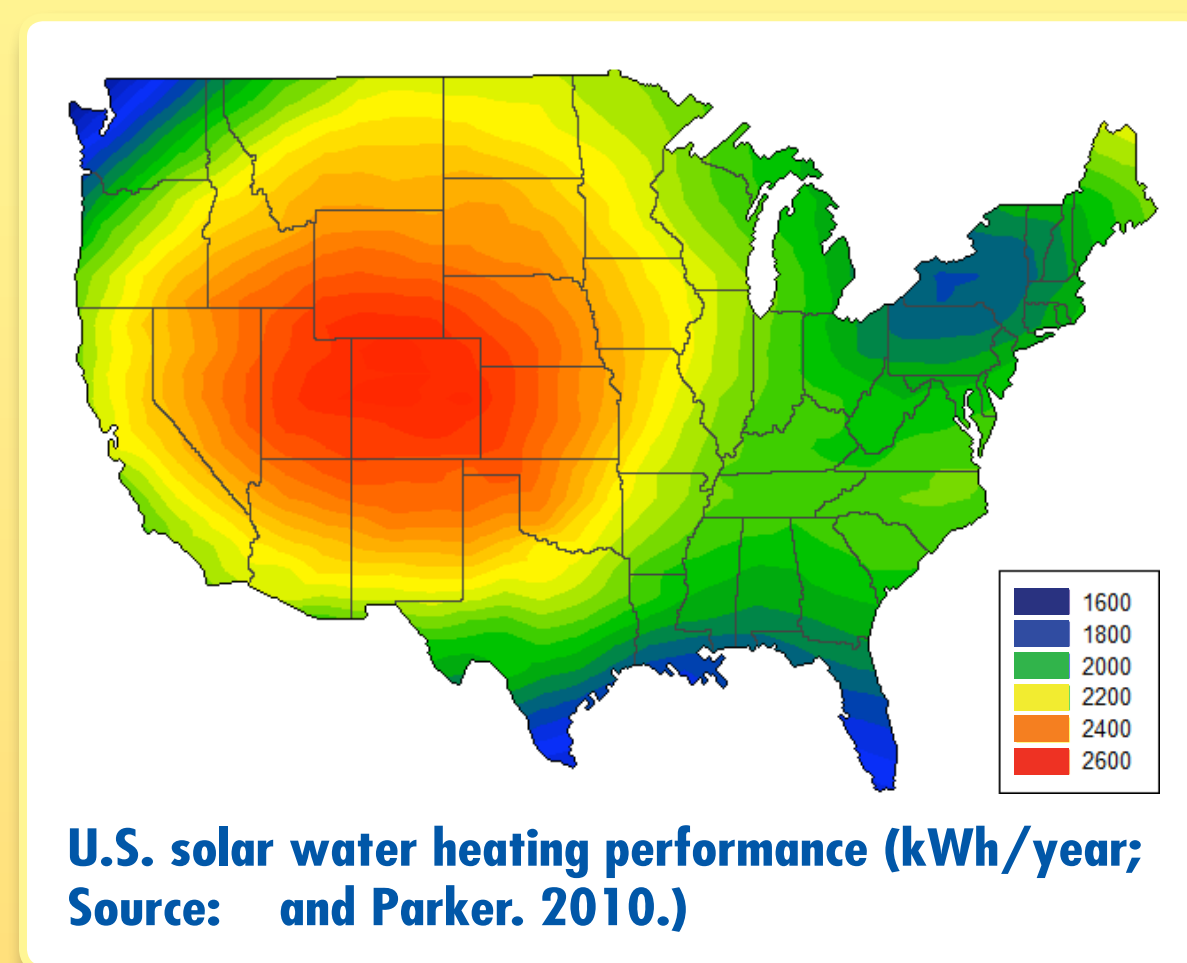
One study finds that “serving customers by using less energy, cleaner energy and emerging technologies [is] taking hold [while] business-as-usual [has] become more expensive, complicated and risky” (Navigant Consulting, 2010). TRE policies help electric utilities with these risks.

Where Does Colorado Stand?

Colorado’s important RES focus on kWh savings does not address the state’s thermal use of fossil fuels, such as space and water conditioning. These end uses account for ~75% of building energy use and ~40% of Colorado’s total energy use. Without a TRE policy that serves consumers and utilities, our economy will be hurt by fossil fuel price volatility.

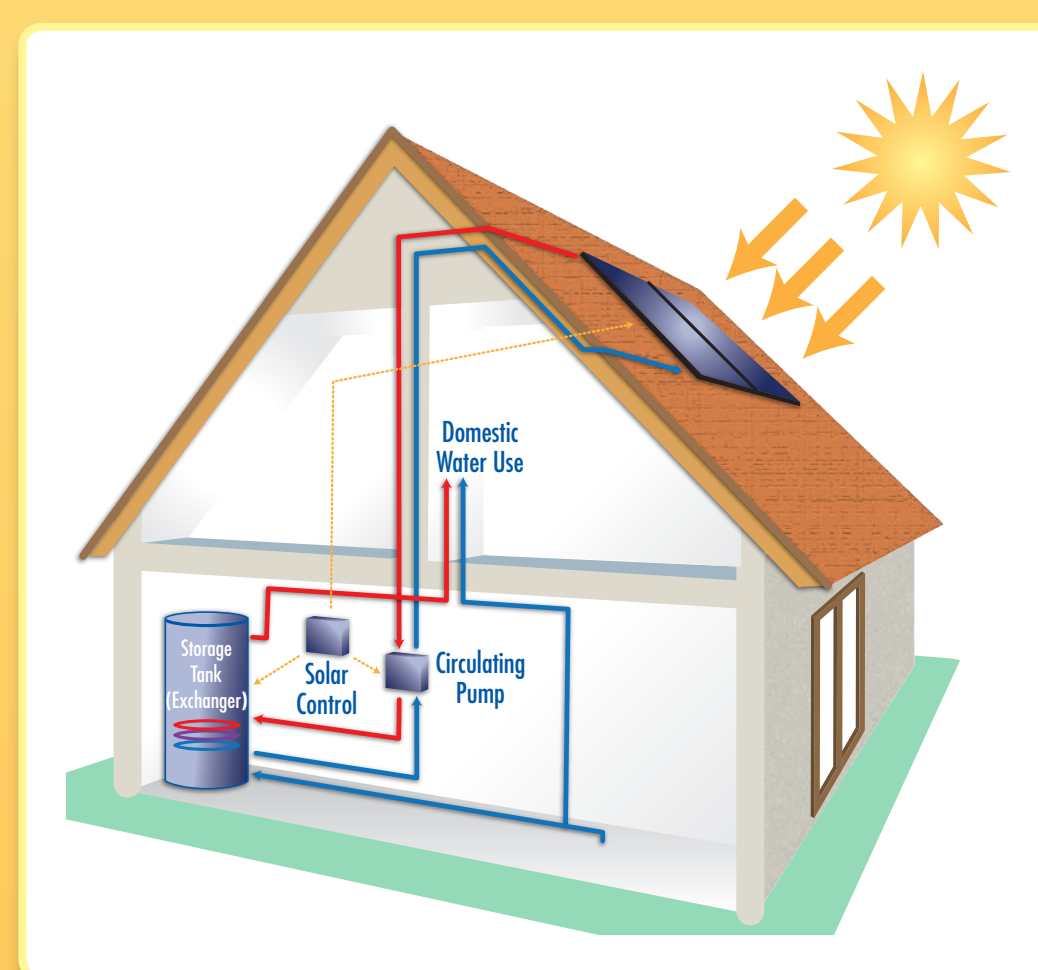
Solar Thermal (ST)

Colorado enjoys an enormous solar thermal (ST) resource. ST technologies are ~70–80% efficient. Solar heated liquid heats a space, water or a process. ST technologies can also cool or provide air heating, drying and ventilation.



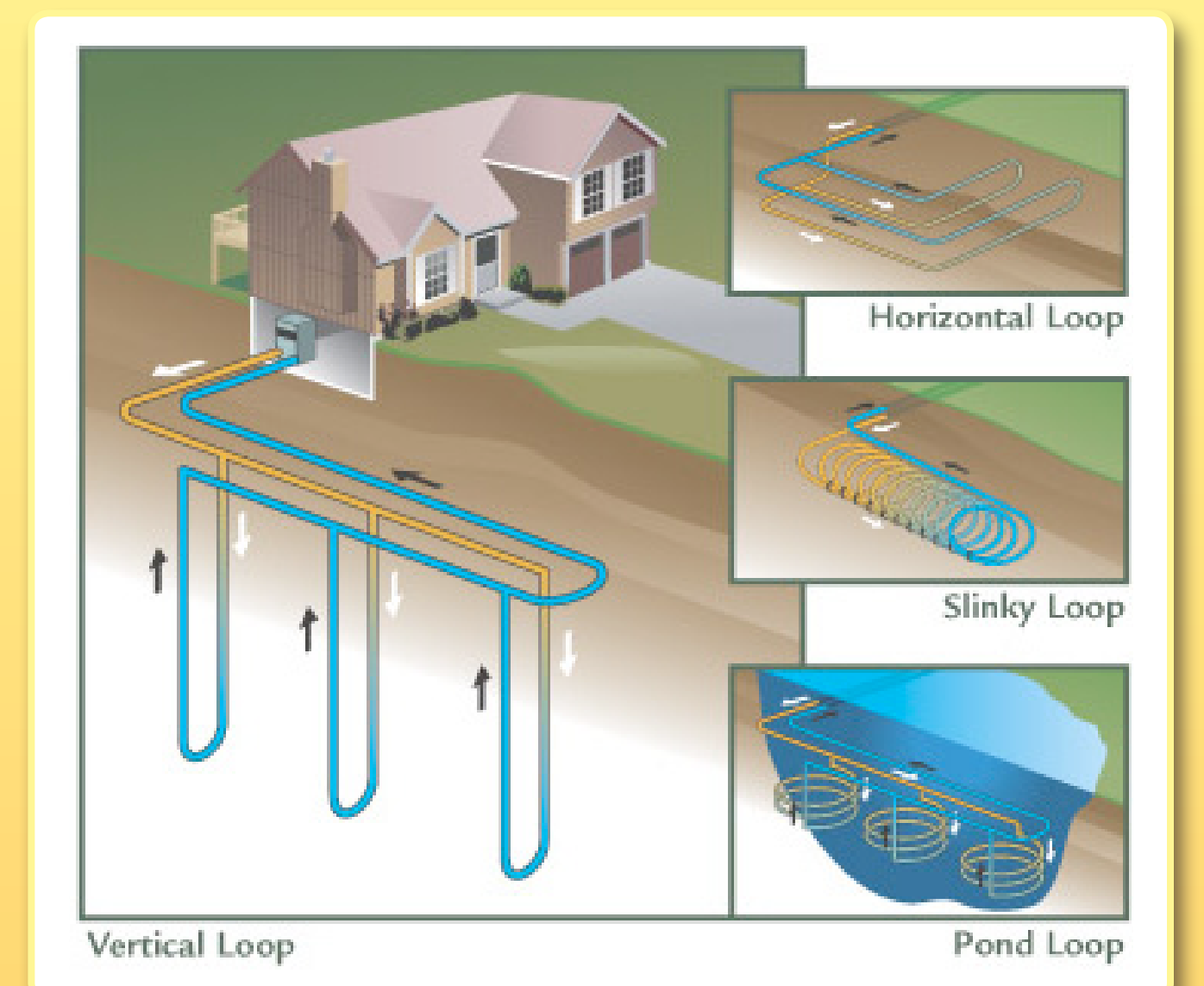
Solar Thermal Benefits to Utilities

- ST systems collect energy 9 AM–3 PM like PV. But, they include storage, dispatching as needed.
- Like other TREs, ST works well sited on residential, commercial, industrial and community locations (helps meet DG if policy changes).
- Opportunity to meet RES requirements (if policy changes) where PV and wind resources are not available.



Geothermal Heat Pumps (GHP)

Because geothermal heat pumps (GHPs) use electricity to move energy between the ground and a structure, they are highly efficient. These systems store heat in the ground in summer, drawing it out to heat in the winter.



Geothermal Heat Pump Benefits to Utilities

- Draws from or stores energy in the ground 24/7 (baseload resource).
- Permanently reduces a building’s peak demand by over 35%.
- Increases load factors during the heating season.
- By owning GHPs or other TRE infrastructure, utilities create new cash flow opportunities (see DMEA, CO and Lakeland Electric, FL).
- For GHPs and other mature TREs, project management, design, installation, and financing expertise is already in place.
- Works with wind, PV, ST, etc. for a complete renewable portfolio.



STAC is a collaboration of the Colorado Renewable Energy Society and the Colorado Solar Energy Industries Association.

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