enerworks
Solar Heating and Cooling

Case Study:
Drake Landing Solar Community

Application: Residential or Commercial Seasonal Heat Storage
The Drake Landing Solar Community is a 52-home subdivision that uses the sun's energy to supply 90% of space-heating and up to 60% of domestic hot water needs. The system uses 800 Premier Efficiency Collectors in conjunction with seasonal storage to store the sun's energy during the summer, and distribute heat to the homes in winter as needed. A two-collector solar water heating appliance is installed on each home to provide solar hot water year-round.

Features:

- **90%** of space-heating needs met by solar thermal
- **5.5 tons (5 tonnes)** of greenhouse gas emisions reduced annually **per home,** a total of 286 tons (260 tonnes) for the 52-home community
- **800 Enerworks Premier Efficiency Collectors** capturing 1.5 MW (5MMBTU/hr) of thermal power on a typical summer day
- **An Enerworks two-HeatSafe Collector appliance** on each home provides domestic hot water
- **First residential solar community** in North America

Site Specifications:

Name of Property:	**Drake Landing Solar Community**
Location:	Okotoks, Alberta, Canada (just south of Calgary)
Type of Property:	Residential subdivision
Operation:	Year-round ground-mass heating with seasonal storage
Displaced Fuel:	Natural gas
Solar Collectors:	• 800 Premier Efficiency Collectors for district heating mounted on roofs of detached garages • 2 HeatSafe Collectors on each home for domestic hot water
Seasonal Storage:	• 144 boreholes, reaching depths of 115ft (35 m); a community park sits on the surface of the borehole field
Solar Energy Uses:	• Space heating • Solar domestic hot water

How it Works: Solar energy is captured by 800 Premier Efficiency Collectors mounted on the neighborhood's garages. The absorbed energy is carried via a heat-transfer fluid to the Energy Centre. The hot fluid passes through a heat exchanger and heat energy is transferred to the Short-Term Thermal Storage (STTS). The cool fluid returns to the collectors to be heated again.

In summer, when space-heating is not required, captured solar energy is stored in the long-term Borehole Thermal Energy Storage (BTES). During winter, when heating is required, the fluid is pumped underground to recapture the stored heat.