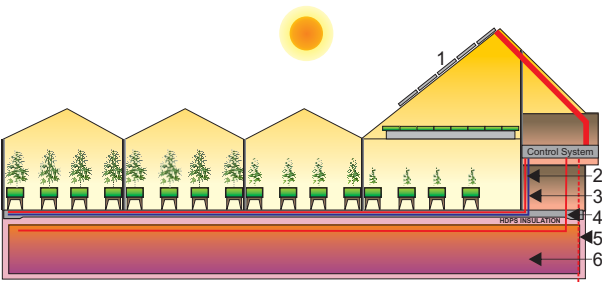


DSH AGRICULTURAL SOLUTION

Benefits:

- ✓ Reduce/offset heat energy & drying budget
- ✓ Offset an equal amount of Carbon Emissions/GHG
- ✓ Extend Greenhouse Growing season
- ✓ Animal temperate wash and comfort to animals
- ✓ Reduce impact on winter storage of equipment
- ✓ QBackup Heat ensures heating continuity
- ✓ Store unused heat energy, reducing summer over heating
- ✓ Automated control system with WiFi & Txt alerts
- ✓ Ability to scale solar, storage, and heat to suit
- ✓ Ability to link near real time data to website

GREENHOUSE EXAMPLE



Low Caloric Heating

- 1 EVT “U” Tube solar Collectors
- 2 In-Slab hydronic heat injection
- 3 In-slab hydronic heat extraction/cooling
- 4 In-Core heat core storage heat exchanger line
- 5 Geo-overheat dump line + Cold extraction line

Control system: Intelligently diverts warm or cool transfer fluid as required to greenhouse or storage core and controls backup heat as required.

Not shown here is a humidifier or the added ability to manage a fan coil unit to pump cool or warm air into the environment on demand.

This system is interchangeable with a non-greenhouse growing environment where multi-level growing with LED lighting is preferred.

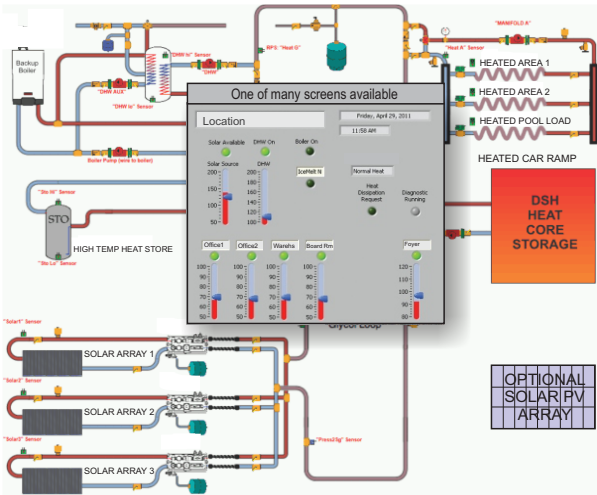
The TES heat core storage is designed to a maximum of 80c at the top of the thermal gradient. Concrete slab can be programmed to operate at typical temperatures of 20-45c with +30c slab being typical.

THE DSH COMMERCIAL SYSTEM

Benefits:

- ✓ Reduce/offset heat energy budget by 50-100%
- ✓ Carbon offset capability.
- ✓ Reduce Carbon Footprint by 100% of the offset
- ✓ A proud indicator of dedication to the environment
- ✓ Solar Collectors work well in -30c sun
- ✓ Quiet and comfortable Hydronic heating
- ✓ Hot water
- ✓ Low Maintenance

COMMERCIAL GRADE DIGITAL CONTROLLER & PUMP STATION



The DSH system utilises Solar Thermal Energy over an entire year. It has a low cost, thermal mass heat core storage design, integrated into the sub-foundation. Stored thermal density grows over time to provide more summer heat for use in winter. It incorporates a standard backup heat such as high efficiency or demand boilers. This backup is used less and less over time as the ‘thermal battery’ charges up.

This massive heat core storage allows DSH to engineer the solar array to more closely match the overall winter demand and still provide safe thermal injection during the summer.

While it is sometimes possible, based on individual technical assessment, to install these systems in an existing facility/building, it is best installed in new facilities; the heat storage core is integrated into foundation and slab, but can often be offset to an existing building given enough lateral room.

HOW IS DSH SPECIAL?

Carbon offset: Carbon offset is also defined as a credit for greenhouse gas reductions achieved by one party that can be purchased and used to compensate (offset) the emissions of another party. Every Kwt generated = 100% carbon offset.

Interseasonal Storage: Massive, low cost, thermal storage allows solar arrays to increase to meet winter demands. During summer, all excess heat is piped to the massive inter-seasonal heat core storage system Heat accumulates over time, and is extracted on demand to the insulated slab, heat exchanger etc. Thus the key question always asked: ‘What about solar heating during dark times’. has been answered.

Preferred Installation - New buildings, in order to install the heat core storage system. It is also possible to retrofit existing buildings with hydronic heating systems, if enough room is available to laterally install a storage system.



A typical rooftop solar thermal installation, one of several arrays, shown with optional PV

NET DELIVERABLES

>50% yearly estimated reduction in heating energy and OpEx
~100% yearly offset of solar heating related Carbon Emissions

In addition:

- ✓ Standard Hydronic slab heating with atypical backup heat
- ✓ Online Data logging in real time for website display
- ✓ Improved perception of helping the environment
- ✓ Integration of other Heat Reclamation Systems
- ✓ Solar Panels that function well down past -30c
- ✓ Solar panels that work well in any reasonable insolation,
- ✓ Bonus: Solar hot water or steam

EXAMPLE USES FOR SOLAR HEAT:

Carbon offset R.O.I.

Heating homes and buildings

Heating swimming and therapy pools

Heating warehouses & offices

Heating steps and driveways

Heating Ag-buildings and Greenhouses

Heating & preheating hot water for hospitals

Heating hot water for car/truck washes

Heating hot water for laundry facilities

Heating retirement centres, hotels & motels

Heating schools and gymnasiums

Heating shopping malls

Heating military bases

Pre-heating for industrial processes

Or just simply heating hot water

**I Support Thermonuclear
Carbon-Free
Heat!**



Any building with a concrete slab floor will benefit.



A RARE WIN-WIN

Imagine: Slashing heating energy budgets by 50% or more, while at the same time offsetting heating related GHG carbon emissions. It's a rare win-win. To be clear: One average aquatic centre by itself can emit over 200 tCO₂e annually if not equipped with a DSH system.

It makes good environmental and economic sense to include the DSH system in any new build.

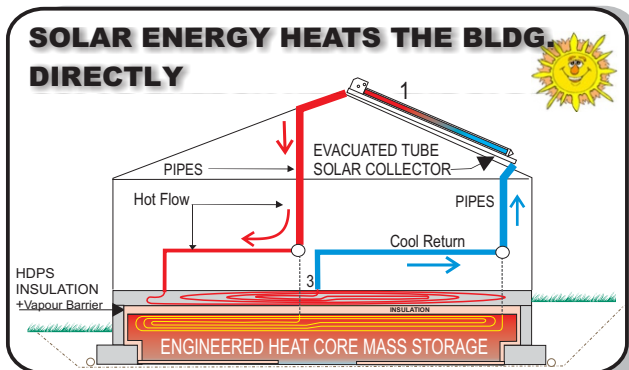


Contact Your Local Dealer:

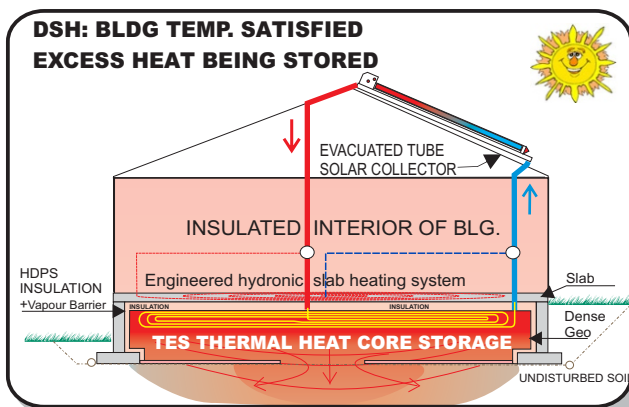
or email: info@DigitalSolarHeat.com
www.DigitalSolarHeat.com

Solar Heating since 2006

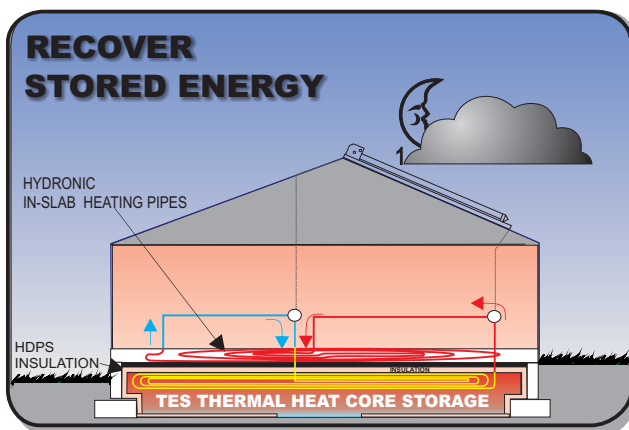
How DOES IT WORK?



Using a custom DSH controller, free solar energy heats the bldg.



When building temp. satisfied, solar energy is stored in the TES heat core



During dark times and winter, heat is extracted from storage to slab

The low cost TES heat core storage system is made up of engineered dense geo-excitation, sand blinds, and heat exchange pipes and is capable of storing MWt of thermal energy per 20M² of solar collector.

IS <10YR PAYBACK FEASIBLE?

It is inevitable solar energy will mostly replace fossil fuels. And, given the vast free solar energy resources available to us, solar would seem to make good sense to heat and power any facilities, up to and including aquatic and recreation centres. The only limitation was energy storage, now resolved by DSH. It is high time we begin to reduce buildings' environmental impact using a free energy source, that is currently being wasted. That is the long answer, the short answer is YES.

FYI: Solar thermal is >350% more efficient than Solar PV. Solar PV can still be optionally integrated as required.

DSH is seeking a partner to launch a significant DEMONSTRATION PROJECT. DSH will provide a solar heating system at cost for a new facility. DSH would monitor the system in near real time, and use this historical data to assess how well the system functions.

OPTIONS?

The DSH 'SYSTEM' is scalable to suit a multitude of heating and pre-process heating options from 20c-100c with EVT, and 100c->500c with CSP. Other options might include:

- Most backup heat sources such as boilers and heat pumps
- CSP (Concentrated Solar Power)solar array
- Other heat sources such as:
 - ☑ Uncontrolled flame boilers such as wood fired boilers,
 - ☑ Refrigeration and other heat recovery methods
 - ☑ High temperature storage systems for process heat
- Fan coil extraction
- Low temperature high thermal heat provision for pools, driveways, storage facilities etc.

MORE DETAILS

Key recorded metrics will include: Energy offset, accumulated carbon OpEx savings, and more. Much of the data generated will be available almost live to clients, for online web display, in near real time.

A standard backup system ensures constant heat energy is available. If most heating is based on free solar heat, the economies of scale become obvious year round.

The size of the solar array is predicated on the budget, the expected loading & array space available. The design of the solar system allows for heating efficiencies down past -30c, during any reasonable solar insolation. The thermal absorber system sits surrounded by a vacuum, much like a thermos bottle, losing very little heat even in extreme cold, as long as there is direct sun.

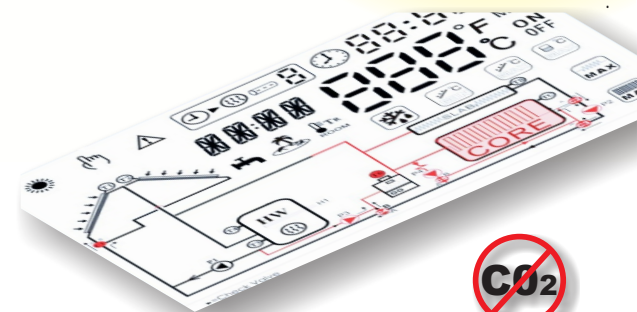
GHG Example: A recent aquatic centre assessment in Canada indicated a related GHG/carbon offset of over 200 tCO₂e.

Thus, yes, on a yearly basis it is entirely possible to have a <10yr payback with the bonus of greatly reduced carbon emission.

A rare win-win.

Simultaneously Reduce OpEx,
& Carbon/GHG Emmissions

Introduction to The Digital Solar Heating System



Commercial/Governmental Applications

Be a part of the solution & not a part of the problem

Primarily Interested Parties:

- ✓ Architects & Designers,
- ✓ Engineers,
- ✓ Governments,
- ✓ Developers,
- ✓ New Building Development
- ✓ Any carbon offset user

CARBON OFFSET CAPABILITY:

Definition: A carbon offset is a reduction in emissions of carbon dioxide or greenhouse gases made in order to compensate for or to offset an emission made elsewhere.

