



Viridian Solar

Stuart Elmes

solar never looked so good

Background



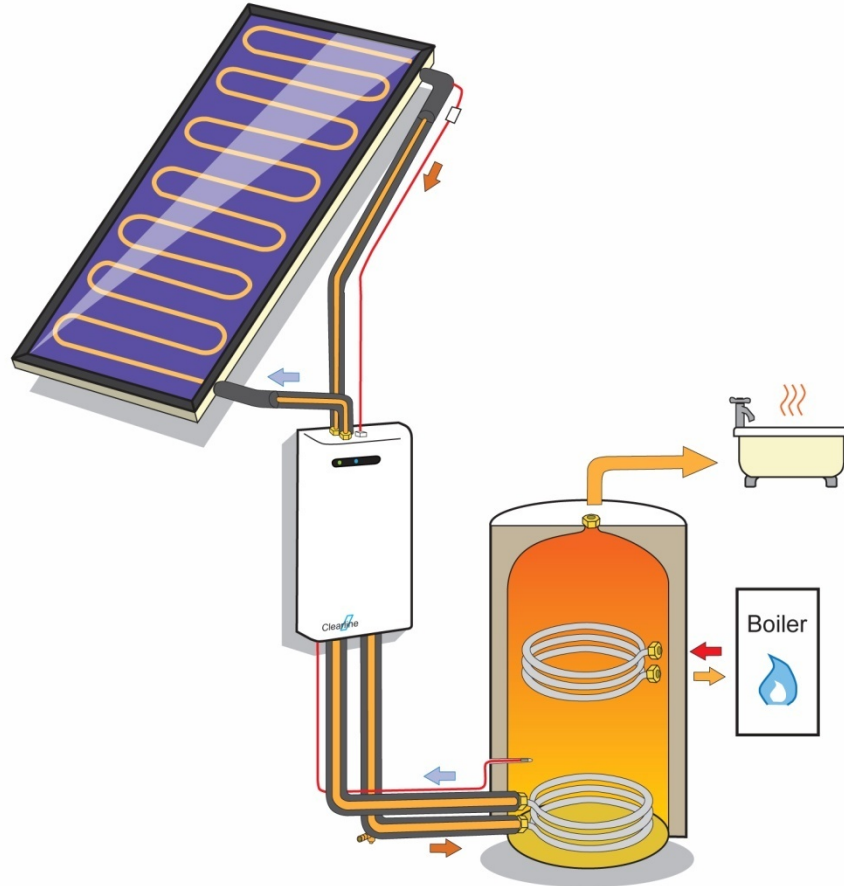
Background



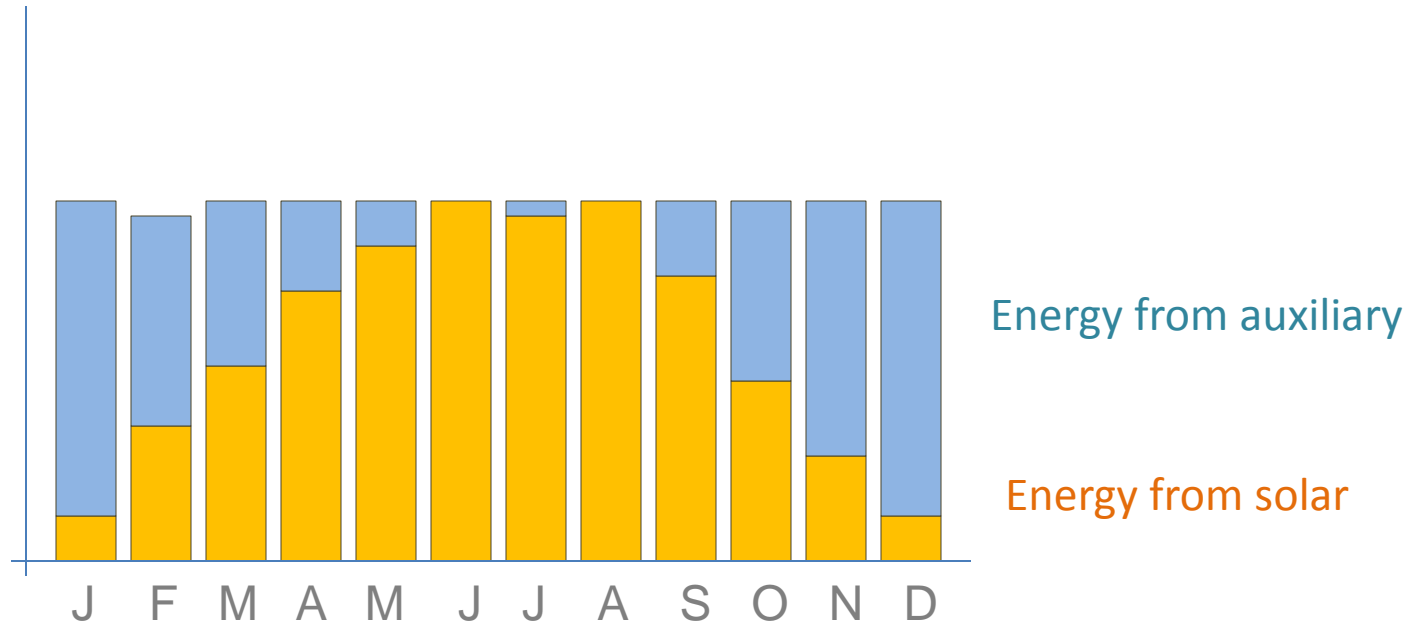
The State of the Art



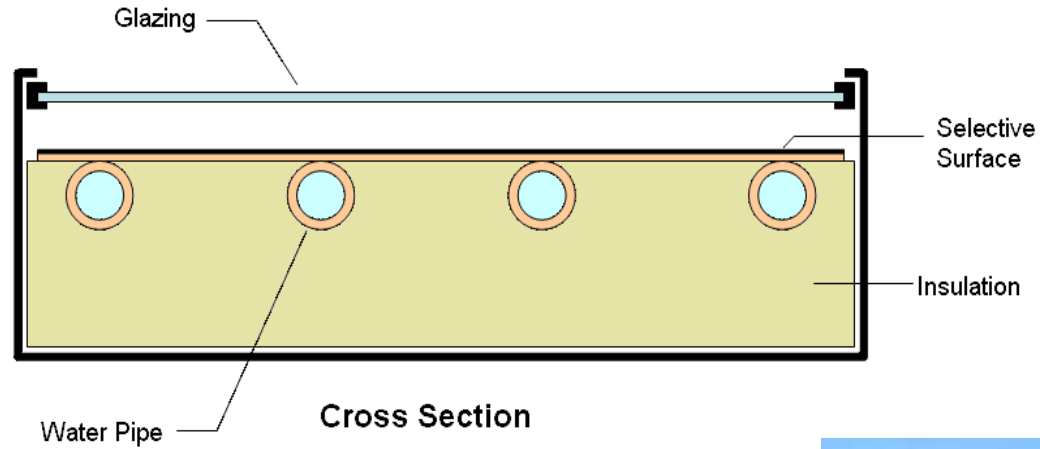
Typical Installation



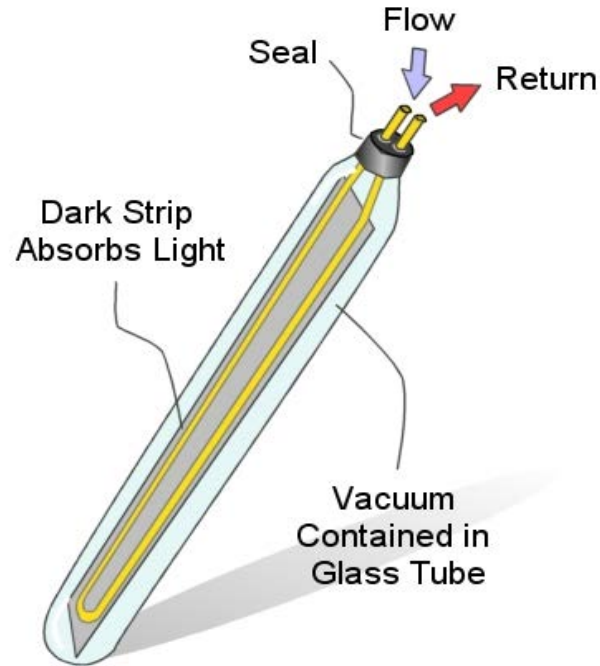
Solar Fraction



Flat Plate Solar Collector



Evacuated Tube



Starting Off



Industry Consultation



BUILDING	HOUSING ASSOCIATIONS	CONSTRUCTION	ARCHITECTS/ M&E
 <p>Countryside Properties Thinking beyond today</p>  <p>MC CARTHY & STONE</p>	 <p>HANOVER HOUSING GROUP</p>  <p>places to people</p>  <p>nenehousing SOCIETY LIMITED</p>  <p>Hastoe</p>  <p>WESTLEA HOUSING ASSOCIATION</p>	 <p>WILLMOTT DIXON</p>  <p>Jackson</p>  <p>STEPNELL</p>	 <p>Browne Smith Baker</p>  <p>Tredgold Associates BUILDING SERVICES (M&E) CONSULTANTS</p>  <p>FABER MAUNSELL</p>  <p>whitbybird</p>  <p>RICKABY THOMPSON ASSOCIATES ARCHITECTS + ENERGY CONSULTANTS</p>  <p>Feilden Clegg Bradley Architects LLP</p>

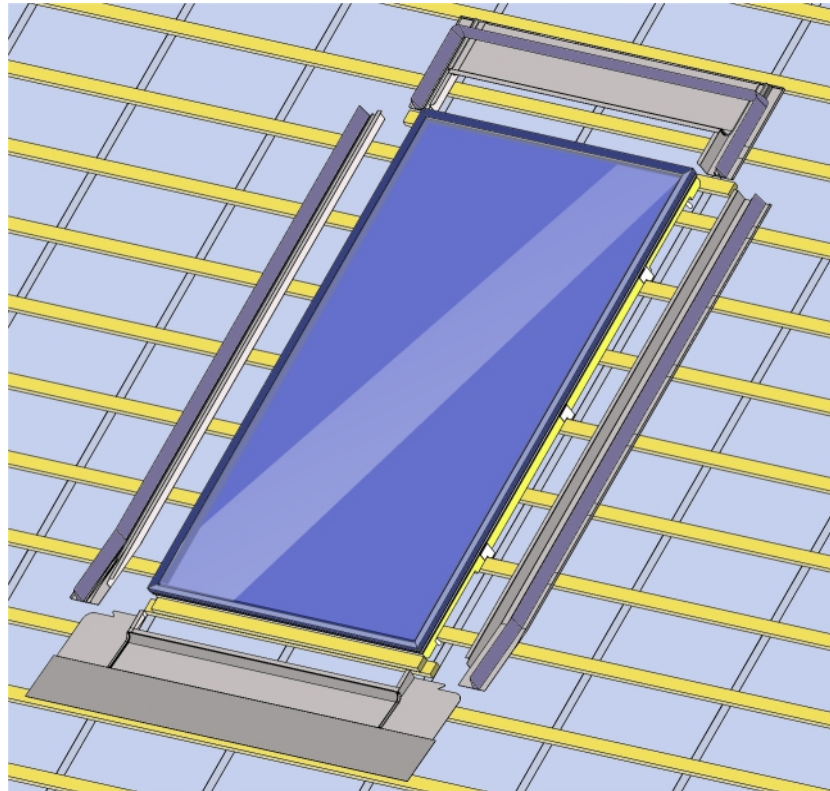
Themes



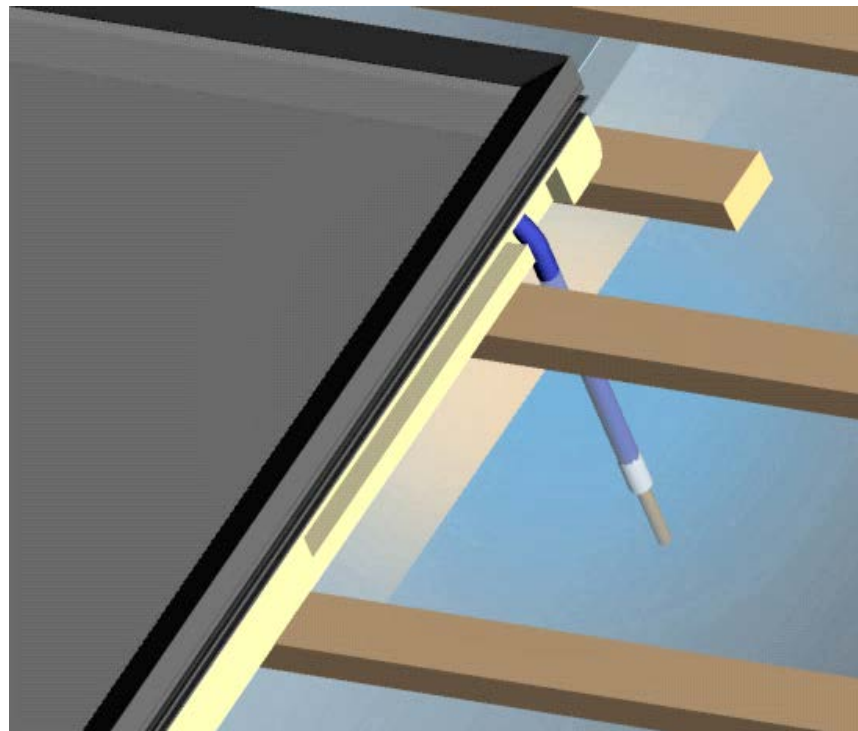
Roofing Installation



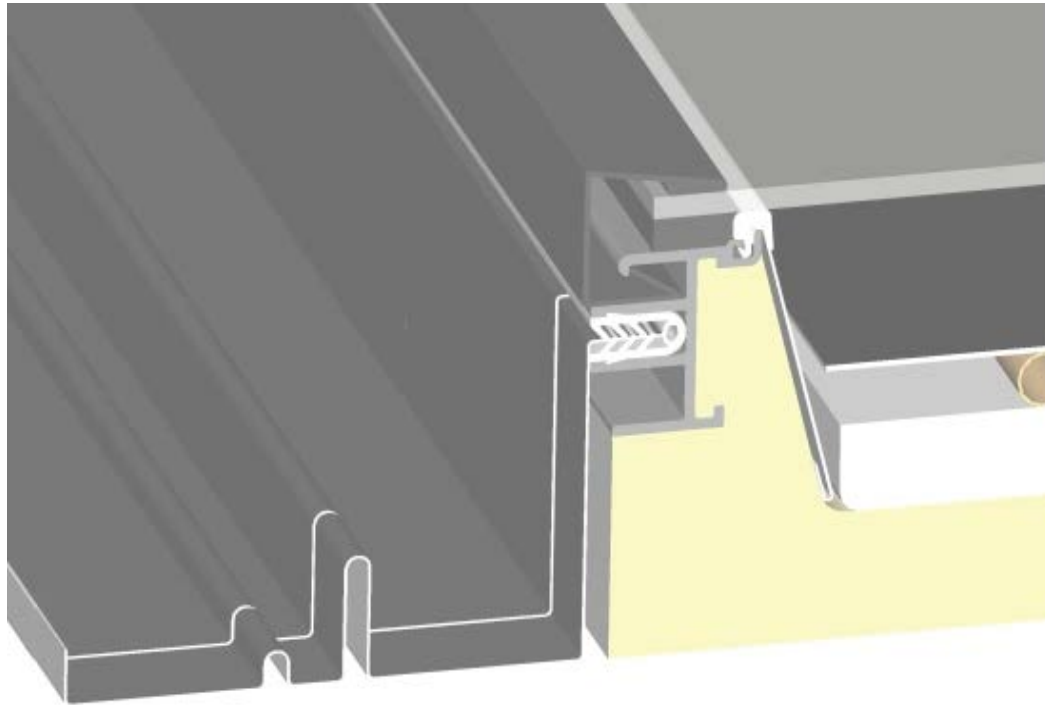
Roofing Installation



Roofing Installation



Roofing Installation



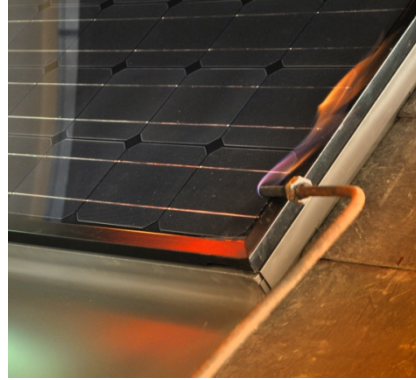
Roofing Installation



Roofing Installation



Accreditation



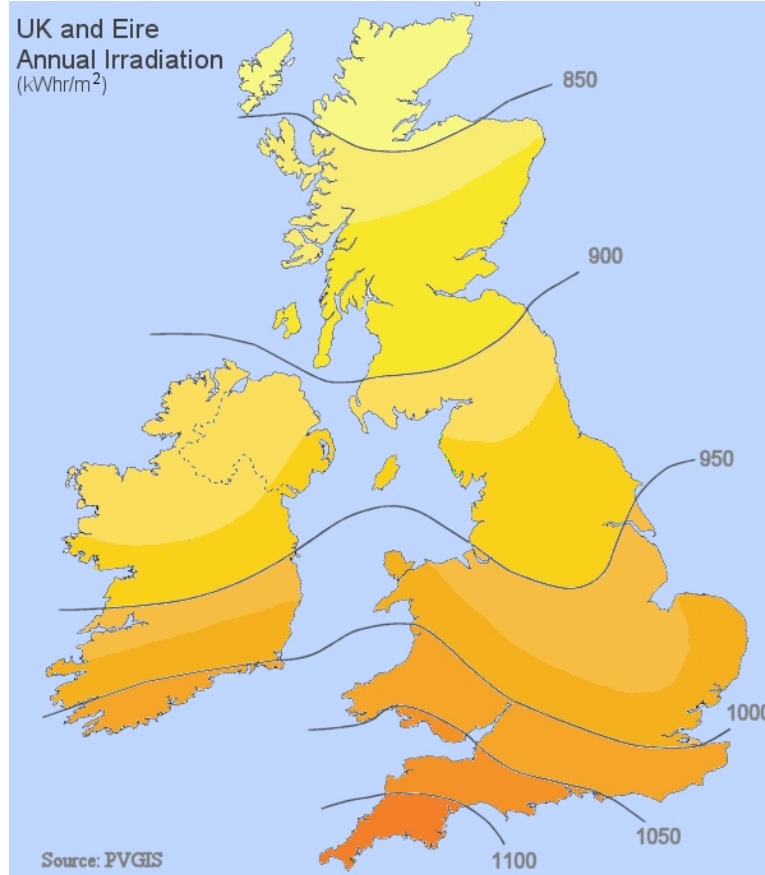
Clearline™



Clearline PV™



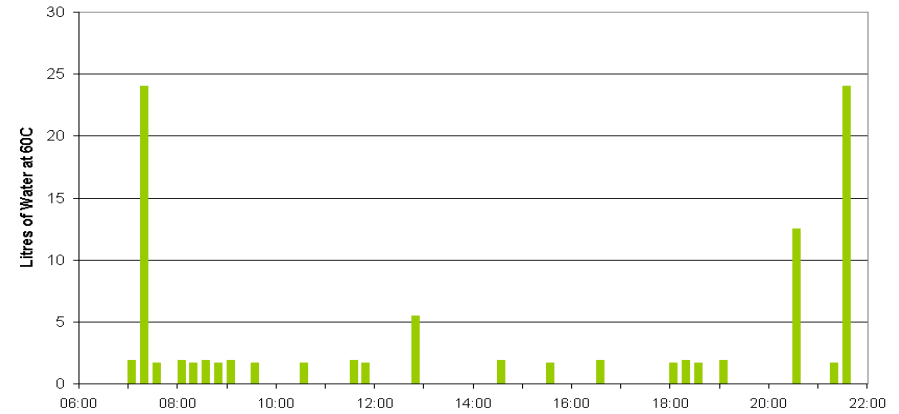
Solar in the UK



Simulation House



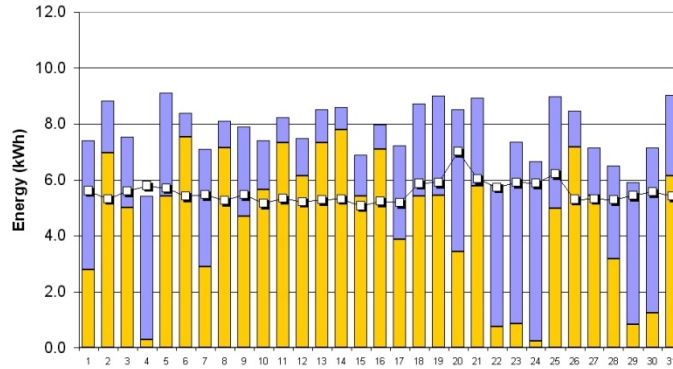
Daily Water Withdrawals



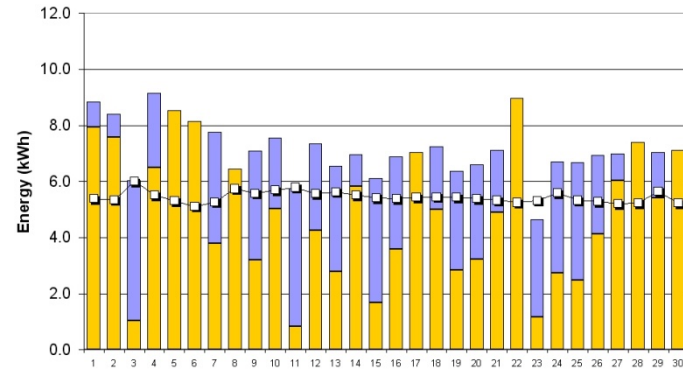
Simulation House



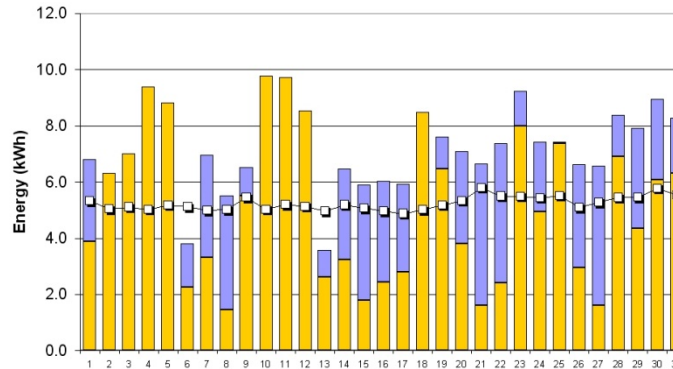
March



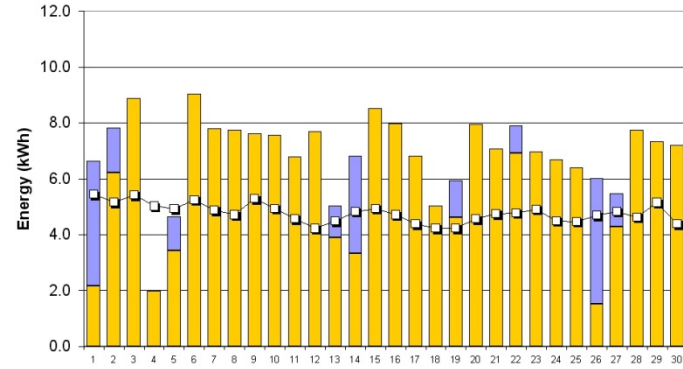
April



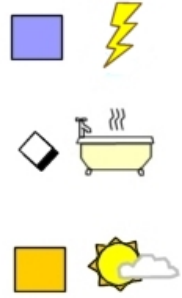
May



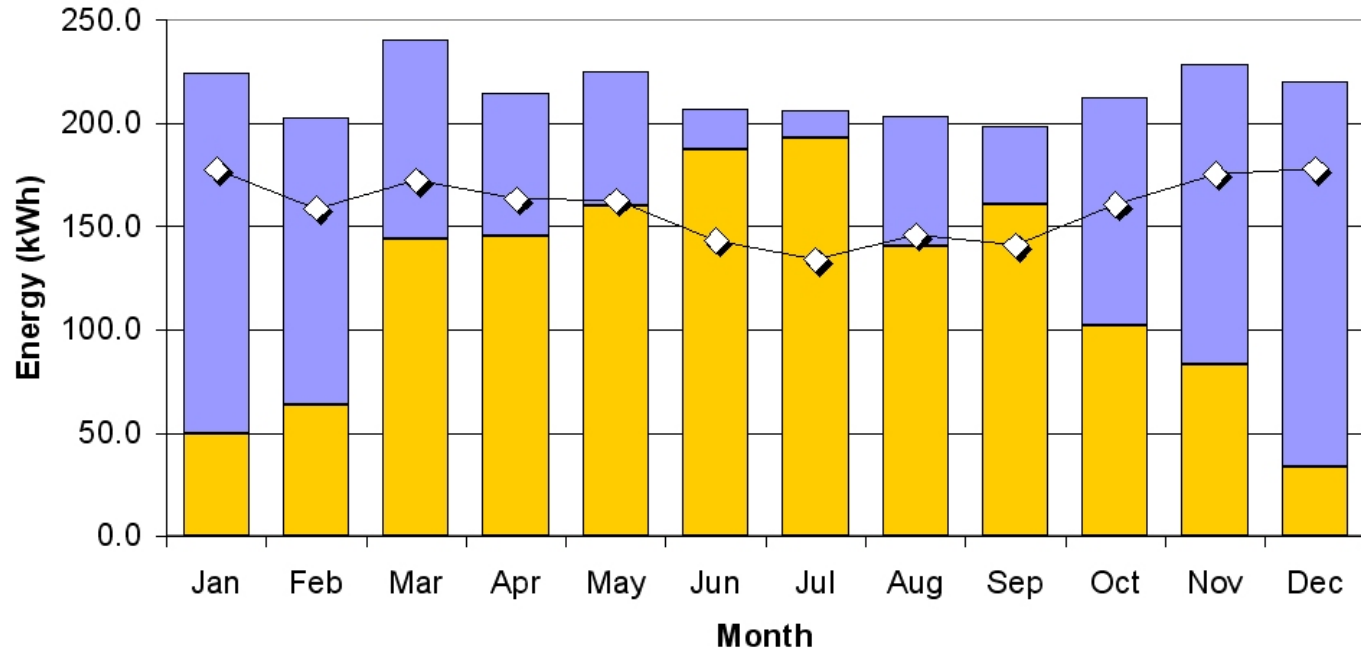
June



Simulation House



Test House Monthly Energy



Pilot Studies



Pilot Studies



Hastoe
Group

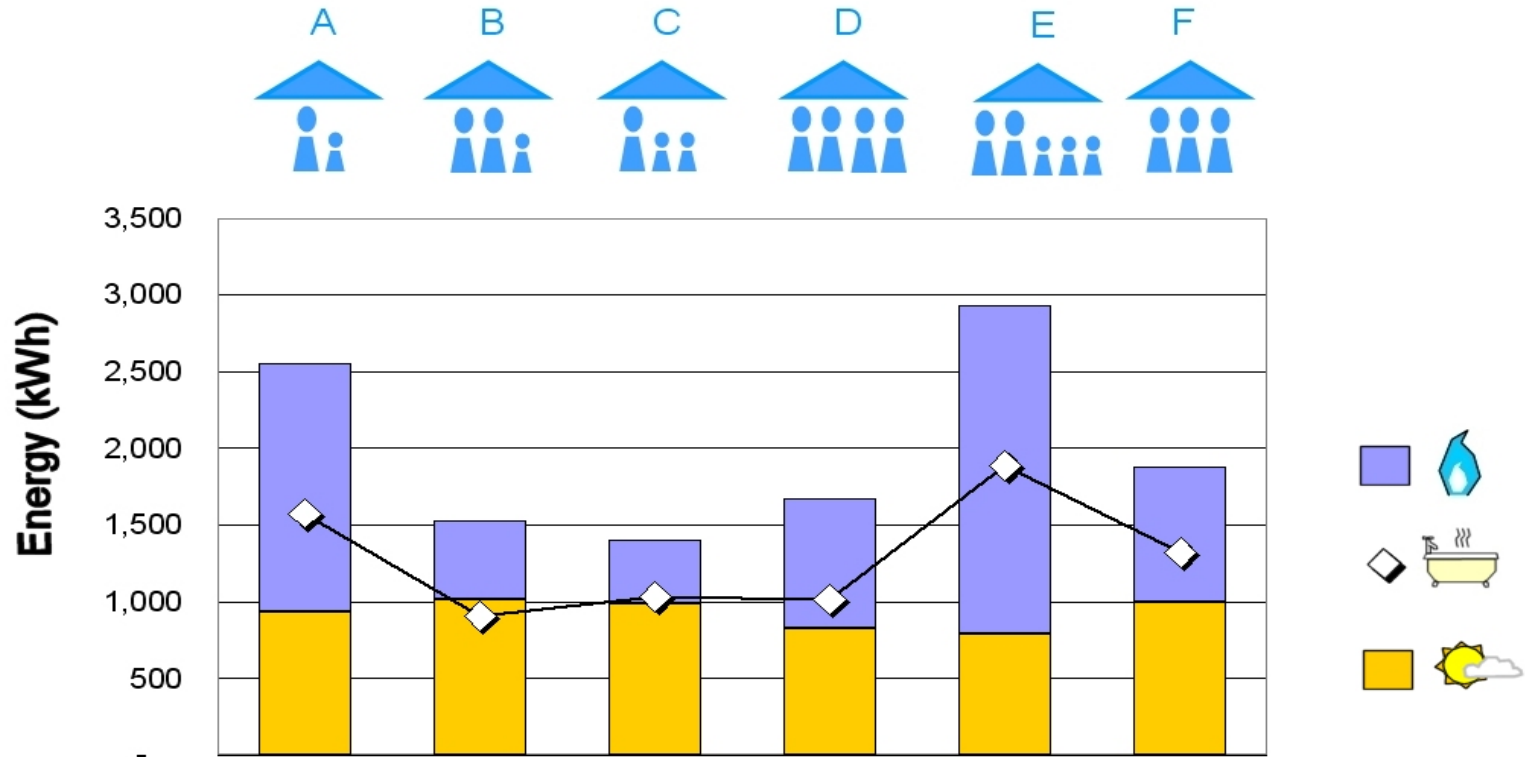
Pilot Studies



"I love it. You just whack on the tap and there's always hot water. I've hardly had the boiler on – I'd recommend it to anyone"

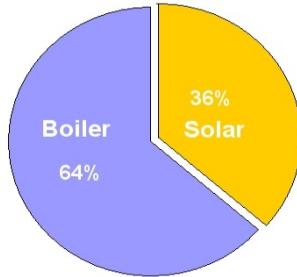
Hastoe Housing Association Resident
Steeple Bumpstead, August 2007

Pilot Studies

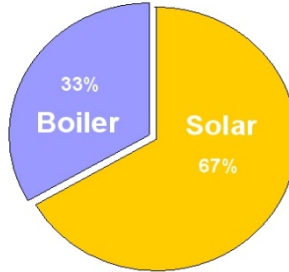


Pilot Studies

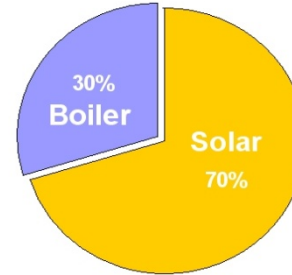
House A
Proportion of Water Heating
Energy from Solar



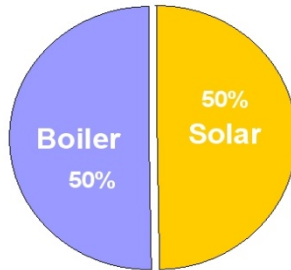
House B
Proportion of Water Heating
Energy from Solar



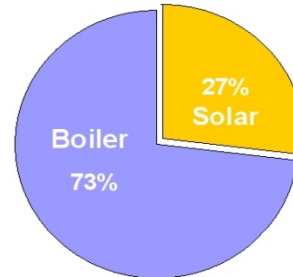
House C
Proportion of Water Heating
Energy from Solar



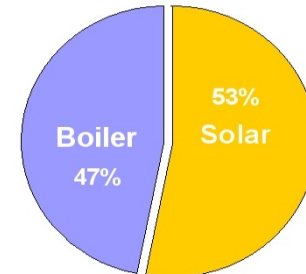
House D
Proportion of Water Heating
Energy from Solar



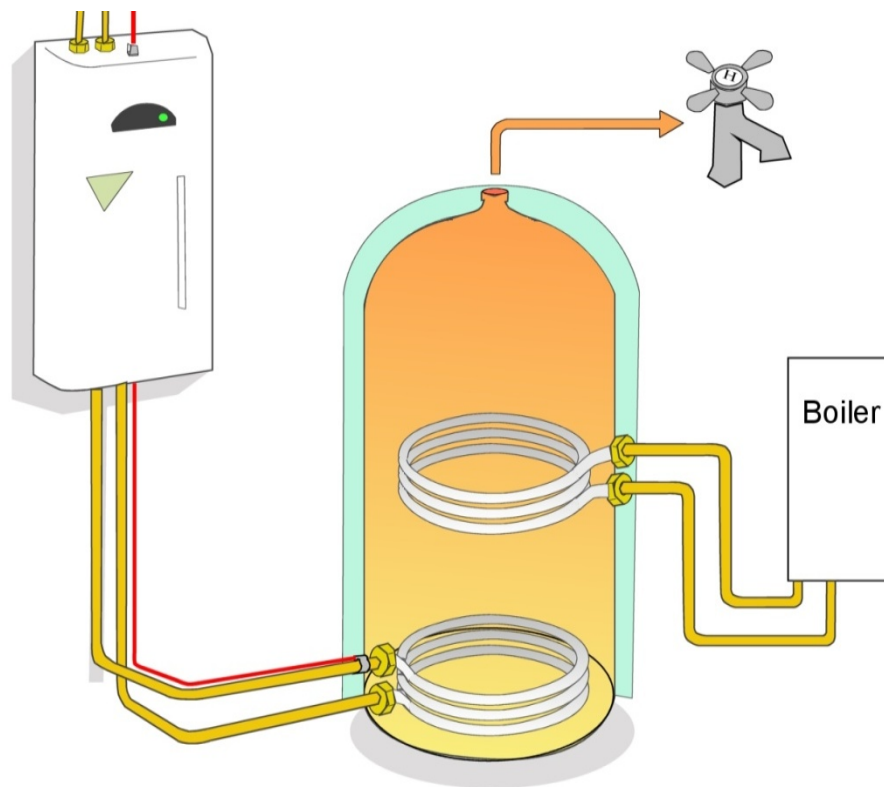
House E
Proportion of Water Heating
Energy from Solar



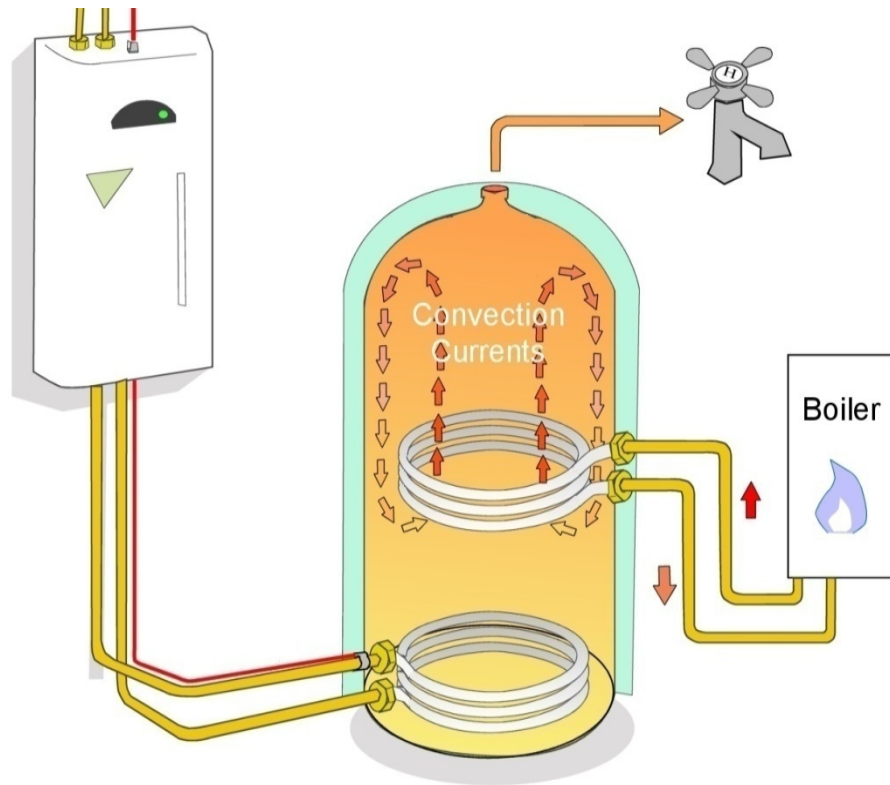
House F
Proportion of Water Heating
Energy from Solar



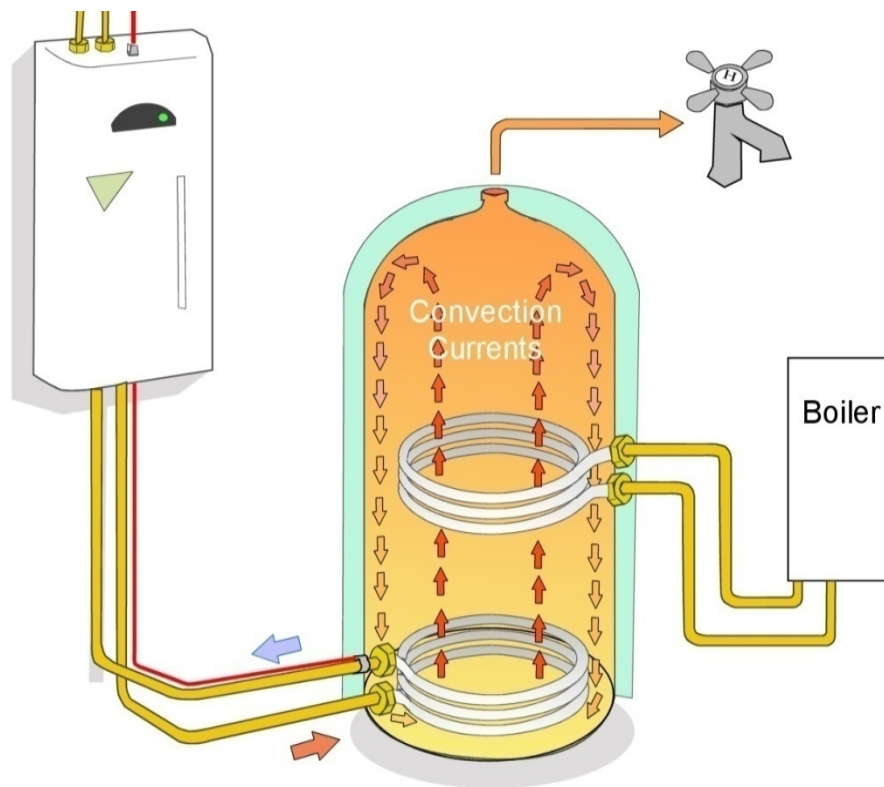
Twin Coil Cylinder



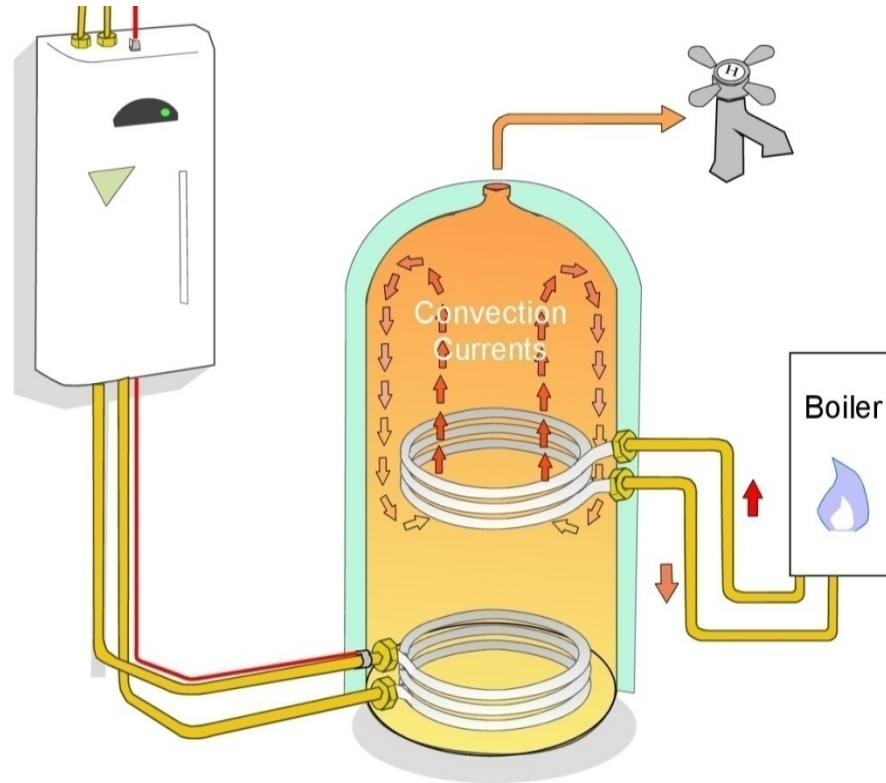
Twin Coil Cylinder



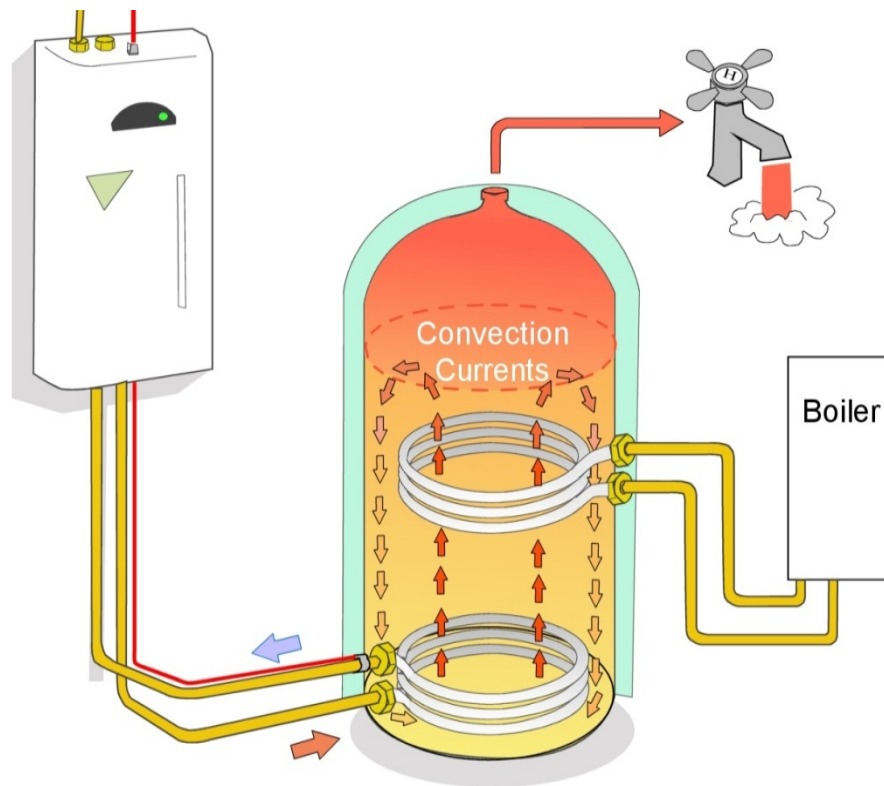
Twin Coil Cylinder



Twin Coil Cylinder



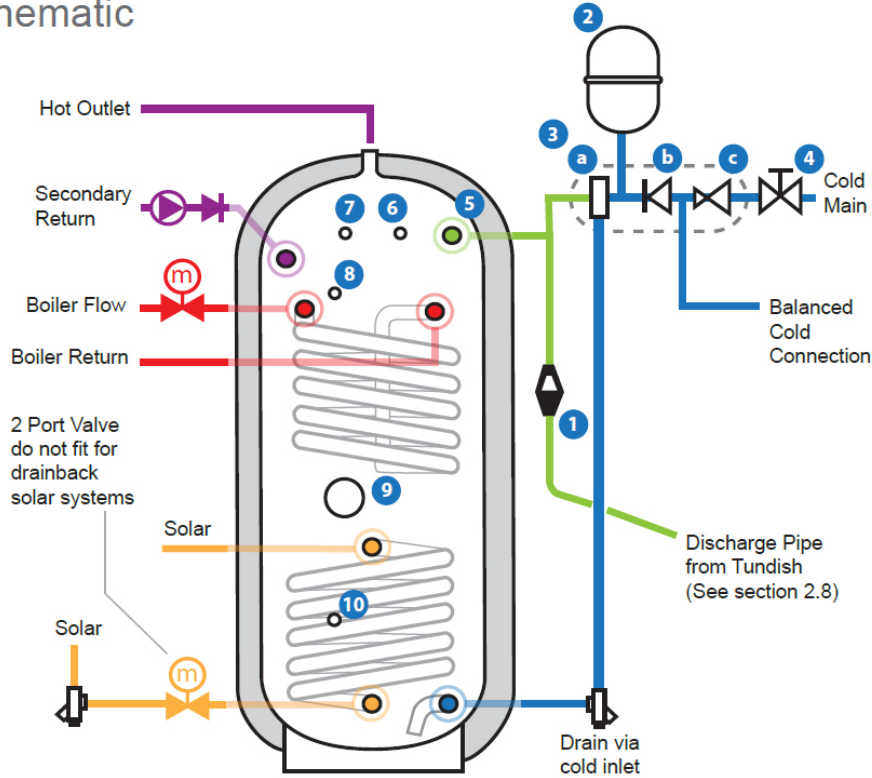
Twin Coil Cylinder



Symphony



Schematic



User Instructions

Quick Guide




Solar Heating User Tips

- 1. Leave it on**

The solar heating system will only operate if there is cool water in the cylinder and energy that can be collected from the solar panel. The electricity used by the system each year is a tiny fraction of the hot water that it provides. Do not switch the controller off to try to save electricity – you may forget to switch it back on and miss out on free hot water.
- 2. Use your Boiler Timer**

Avoid having your boiler heating hot water during the daytime.

You will save more energy if you use the boiler programmer to heat your water just before you use it. This gives the solar panel more cold water in the cylinder to work on during the daytime.


- 3. Check for Error Messages**

Keep an eye on the solar controller from time to time. Check for a blinking red light indicating an error. Refer to the User Guide if an error message is displayed.



Green - power on.



Amber - pump running



Red flashing - error, Refer to User Guide



Viridian Solar
www.viridiansolar.co.uk
Tel 01480 831 501

v1.0

Instructions

most from
your solar water heating system



PEEL OFF

User Interaction



Case Study : Chatham Maritime



dwellings with solar

62



installed area

186 m²



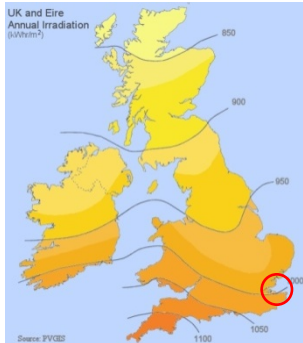
carbon dioxide avoided

16 tonnes/year



energy saving

83,000 kWh/year



10% renewable energy target

Case Study : Chatham Maritime



Case Study : D'Arcy House



dwellings with solar

36



installed area

78 m²



carbon dioxide avoided

6.75 tonnes/year



energy saving

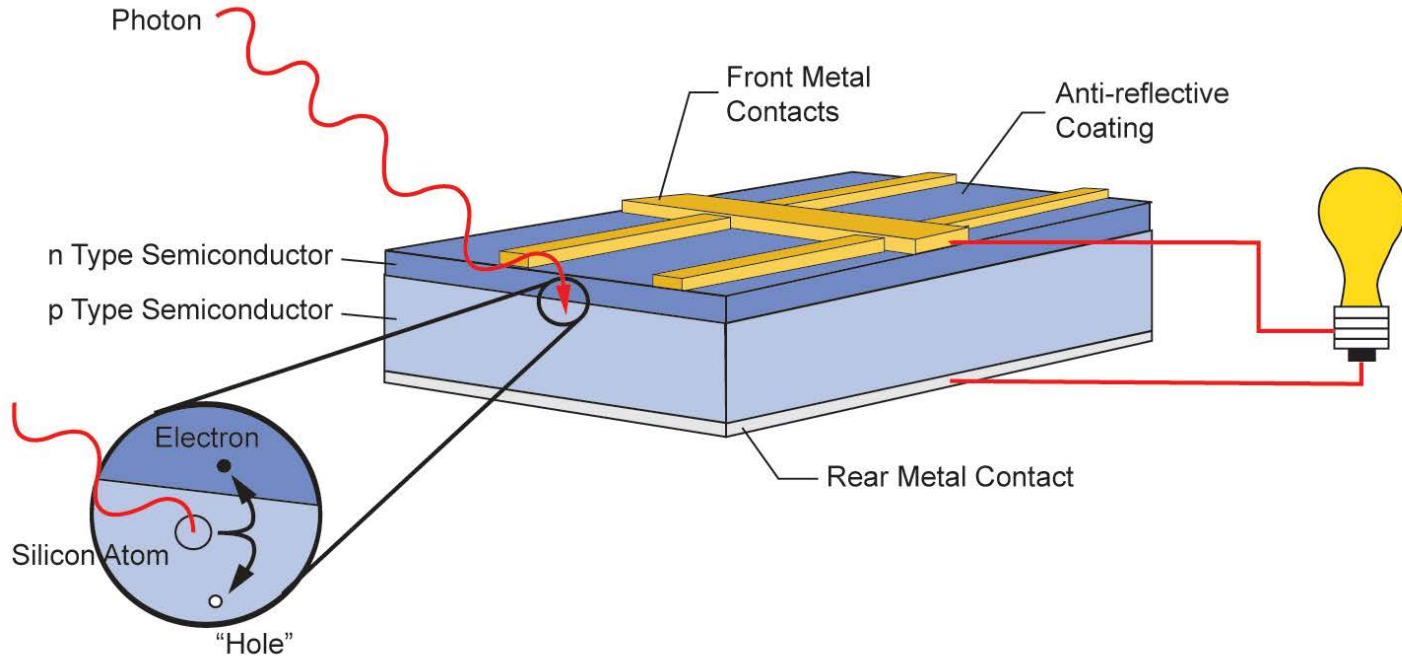
31,000 kWh/year



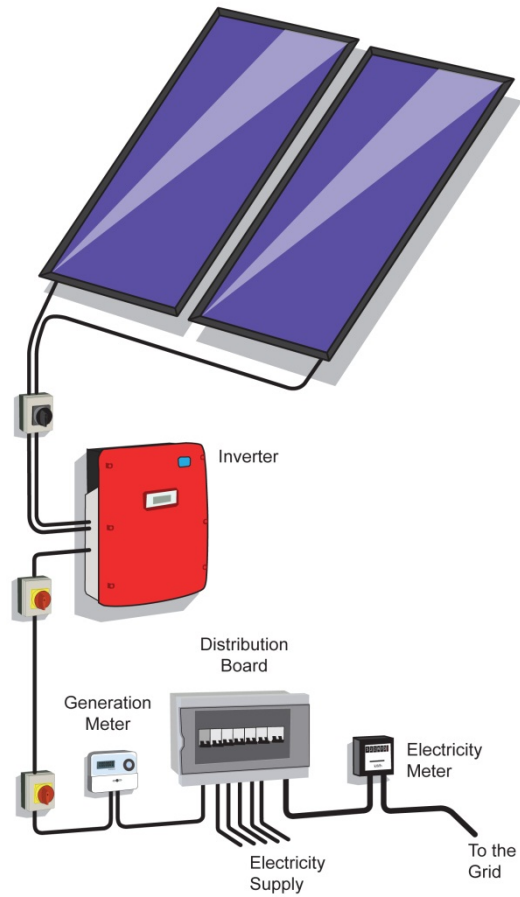
Brooklands, MK



How PV Works

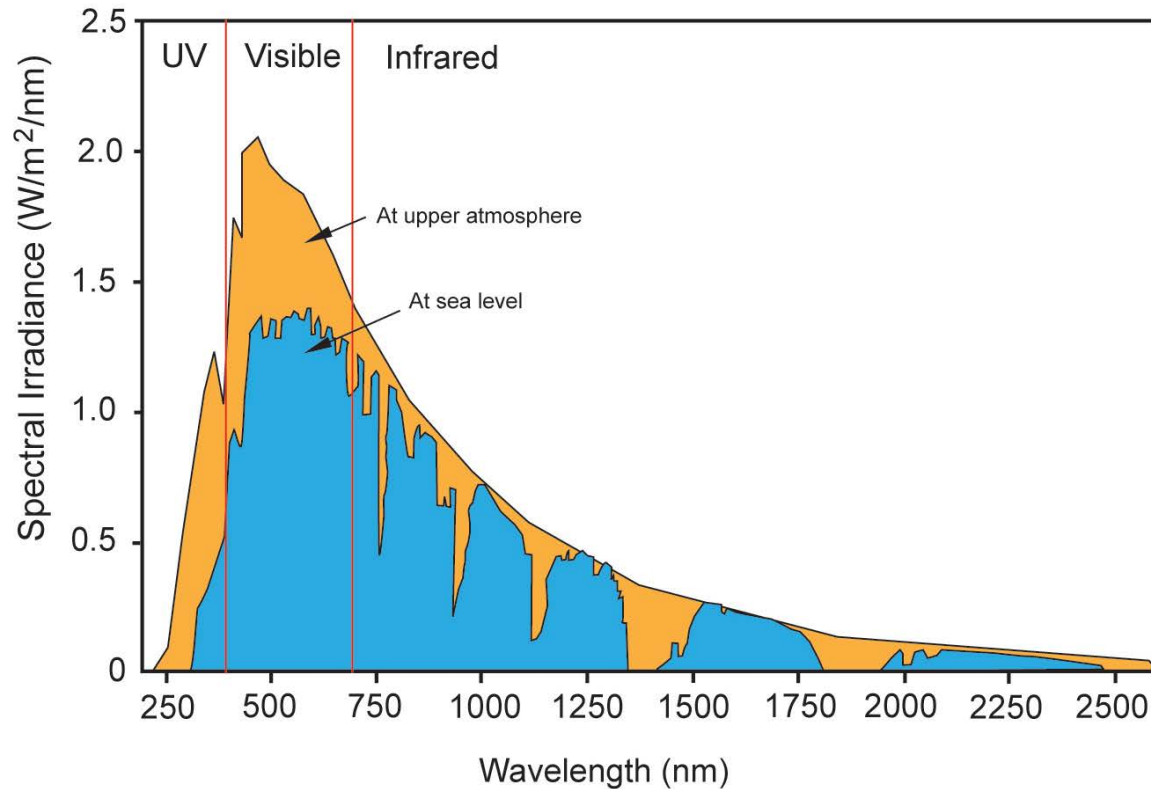


PV System



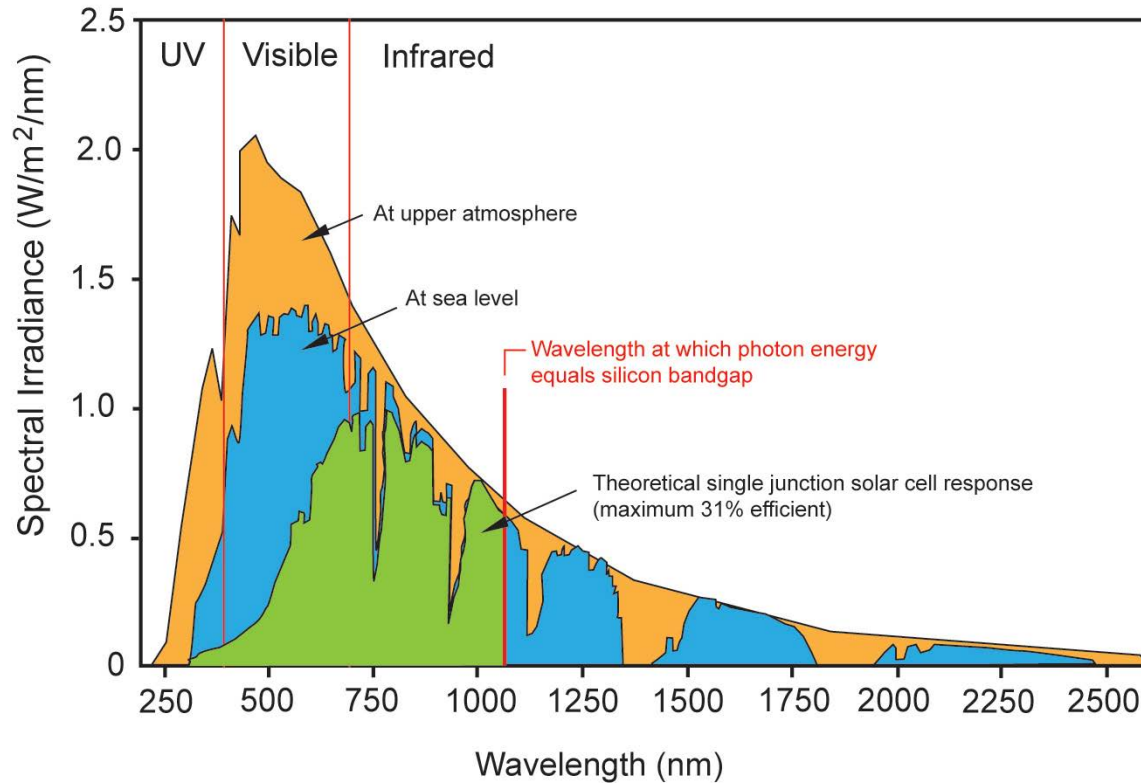
PV System

Energy Spectrum of Sunlight



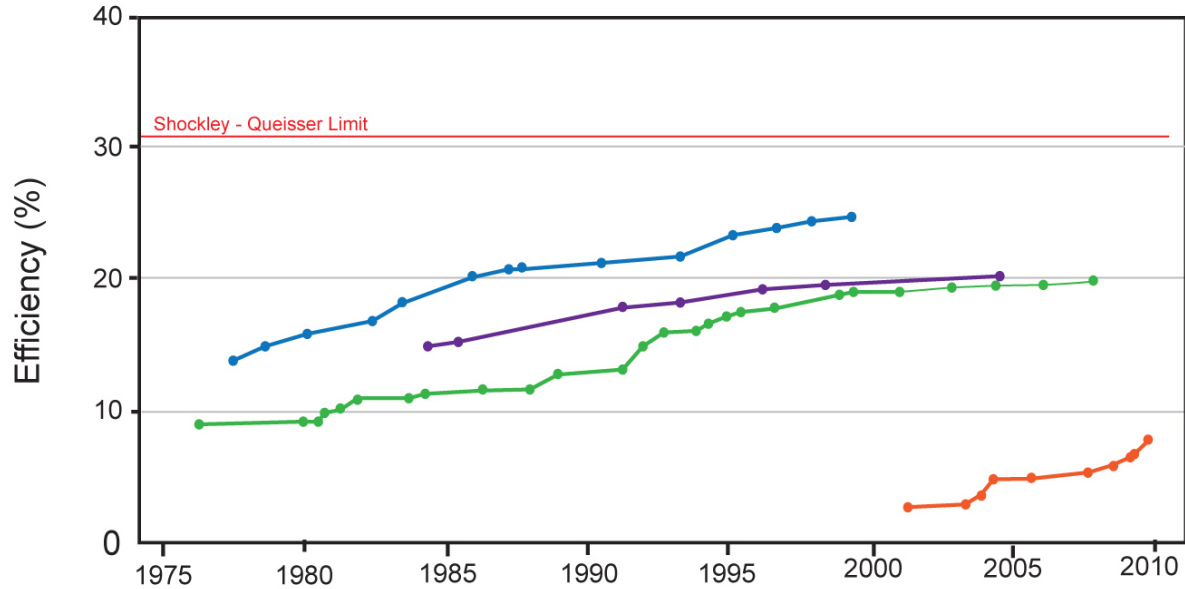
PV System

Energy Spectrum of Sunlight

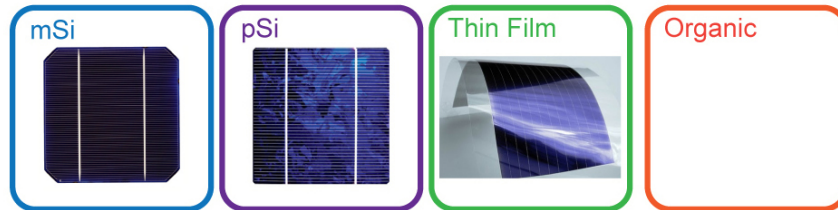


PV System

Lab Bench Record for Solar Cell Efficiency

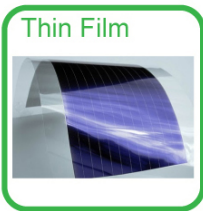
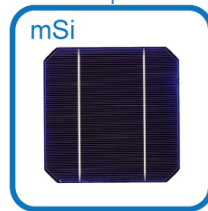
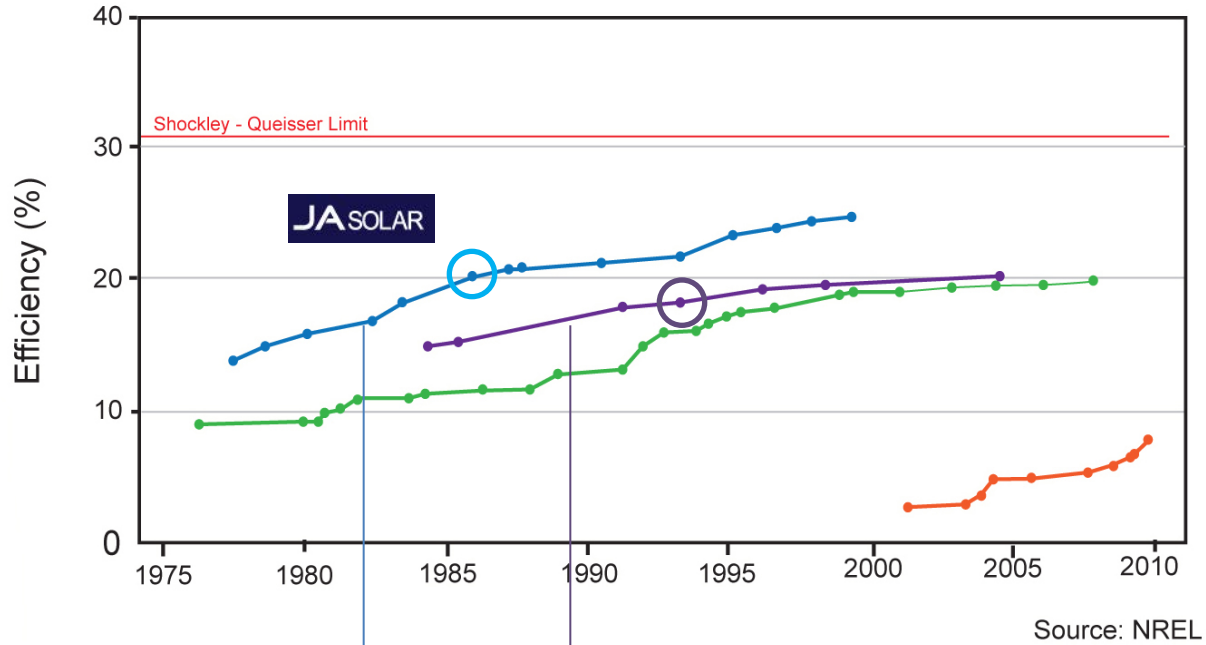


Source: NREL

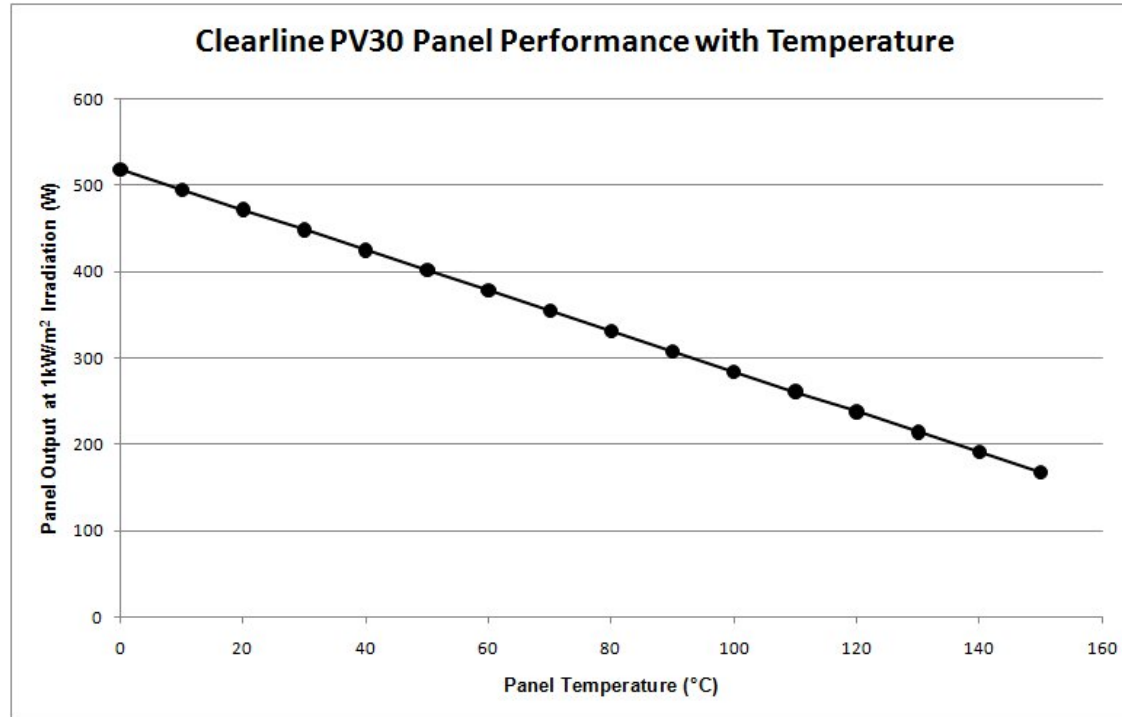


PV System

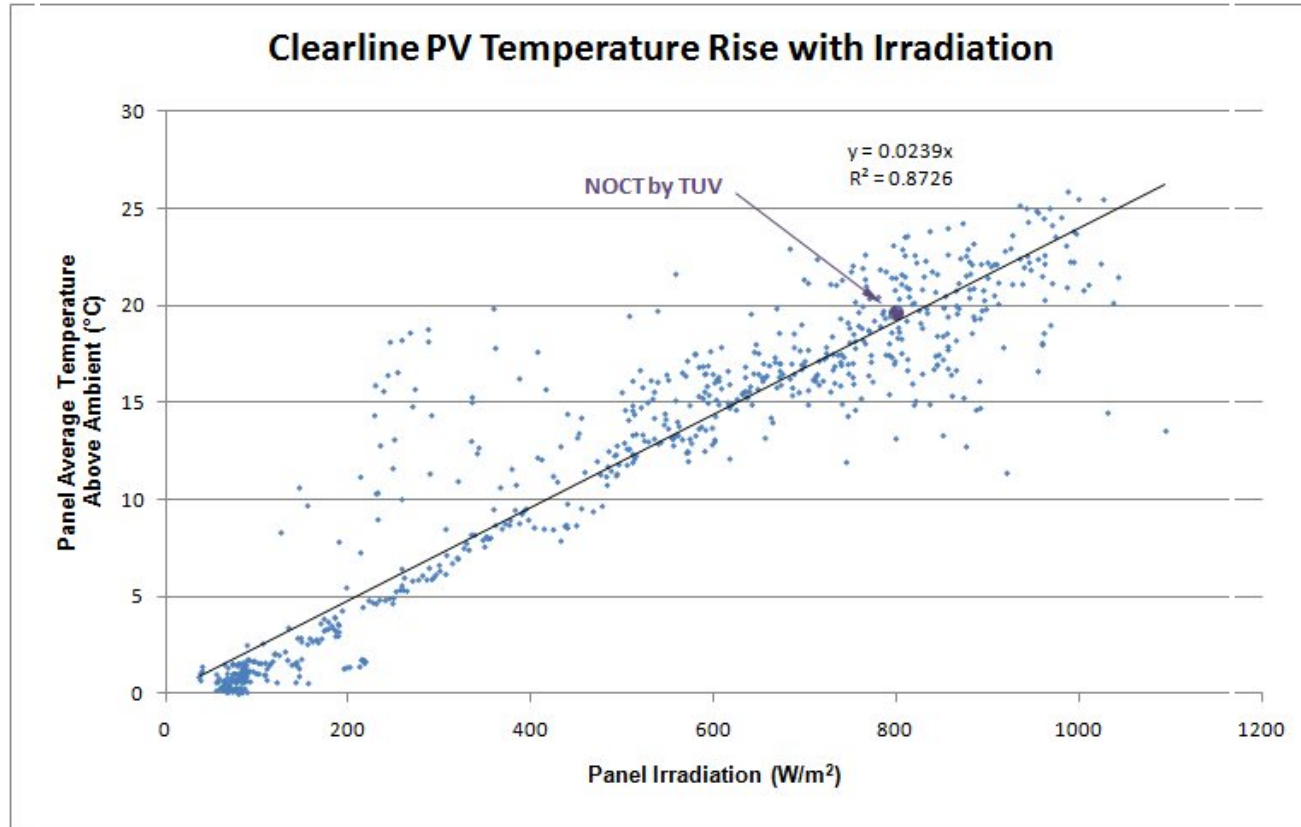
Lab Bench Record for Solar Cell Efficiency



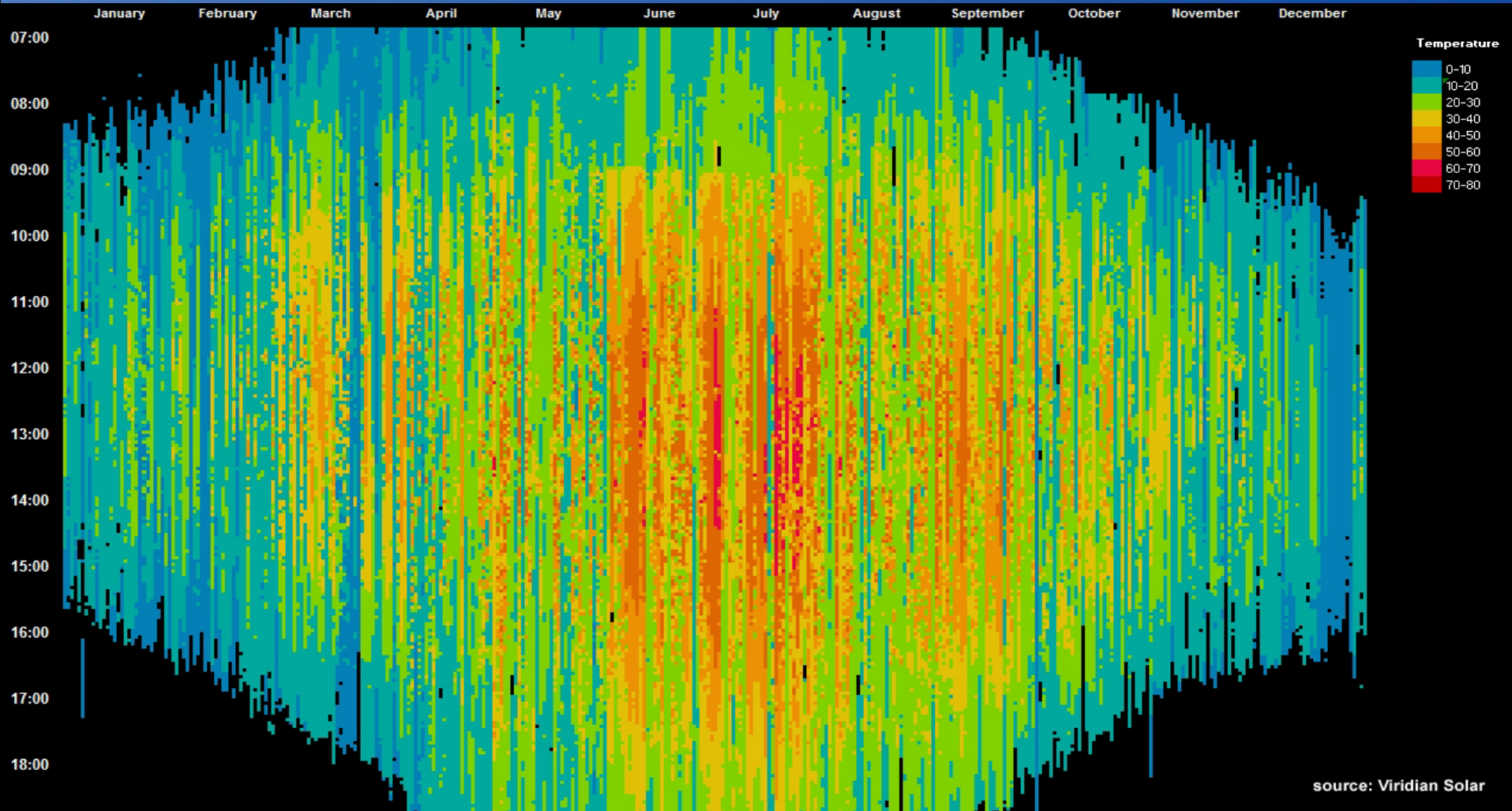
Temperature Dependence



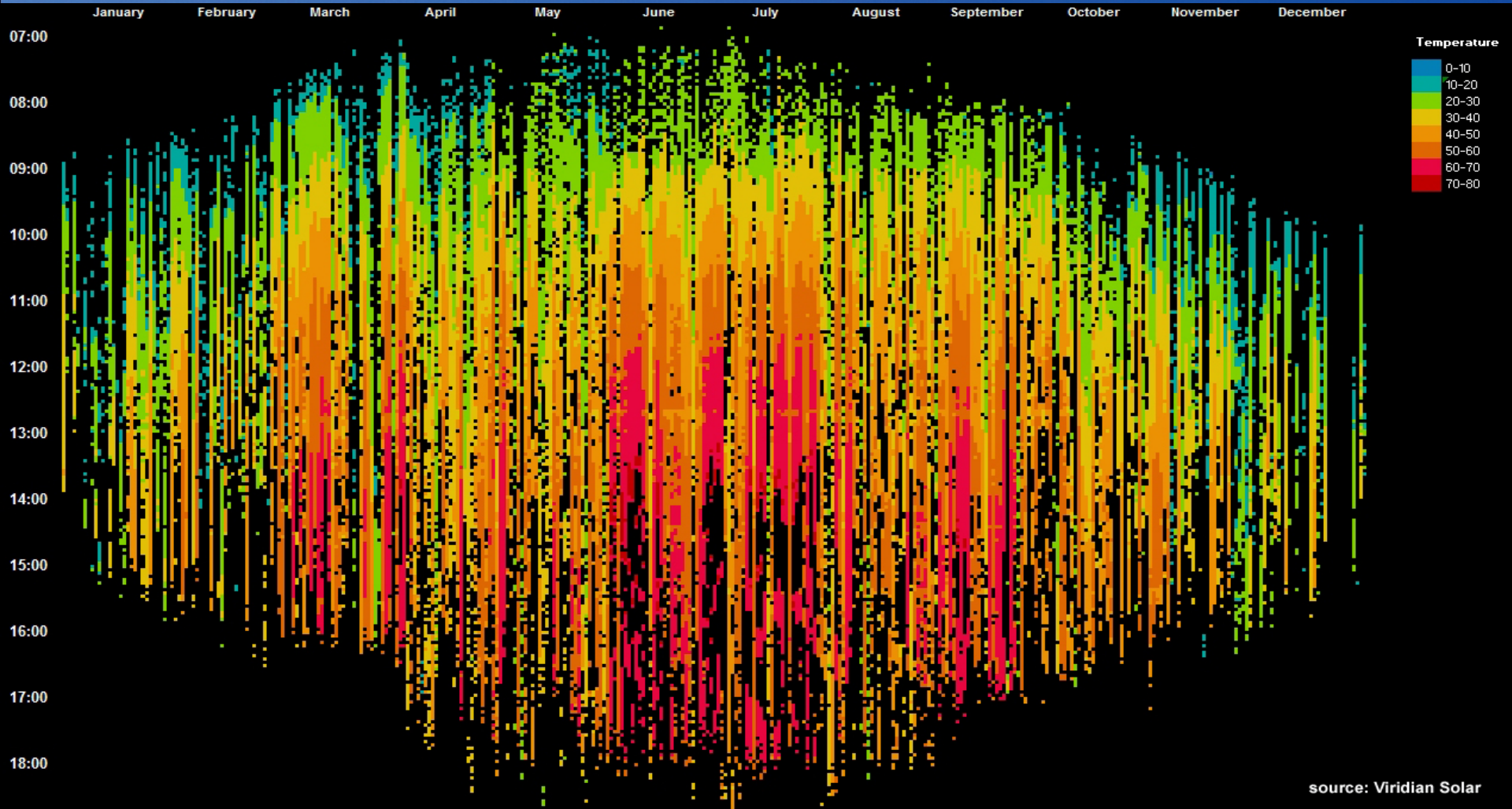
Temperature Dependence



PV Temperature Profile



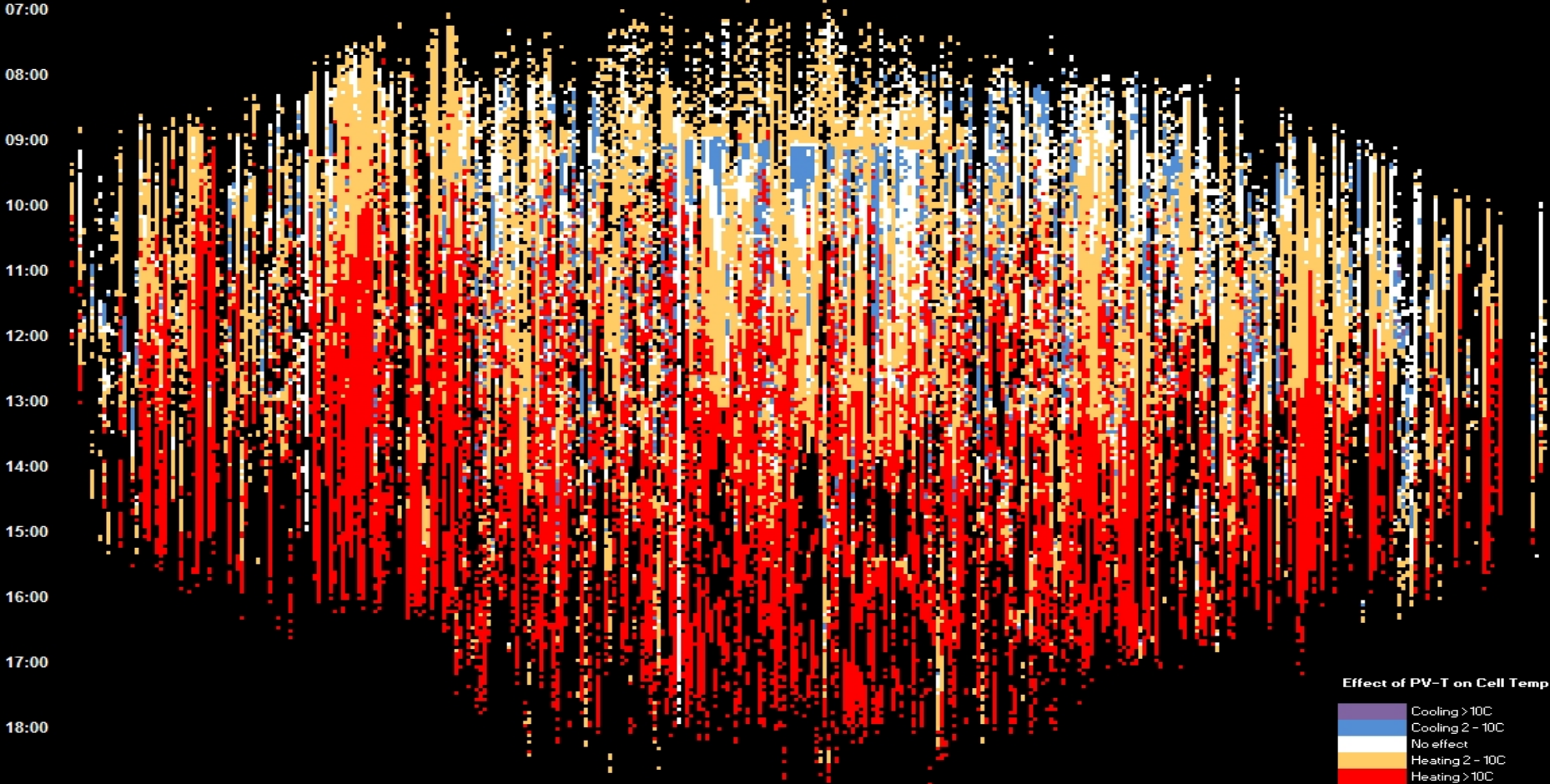
Solar Water Heating Profile



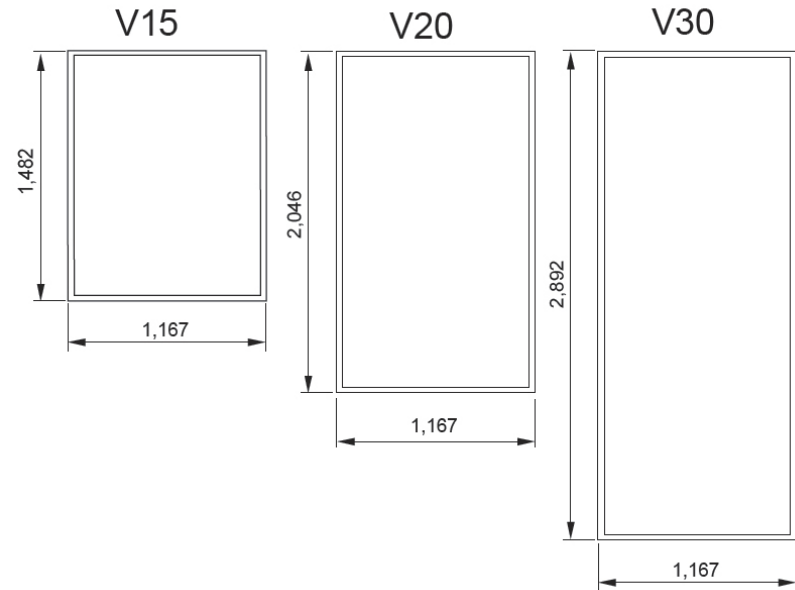
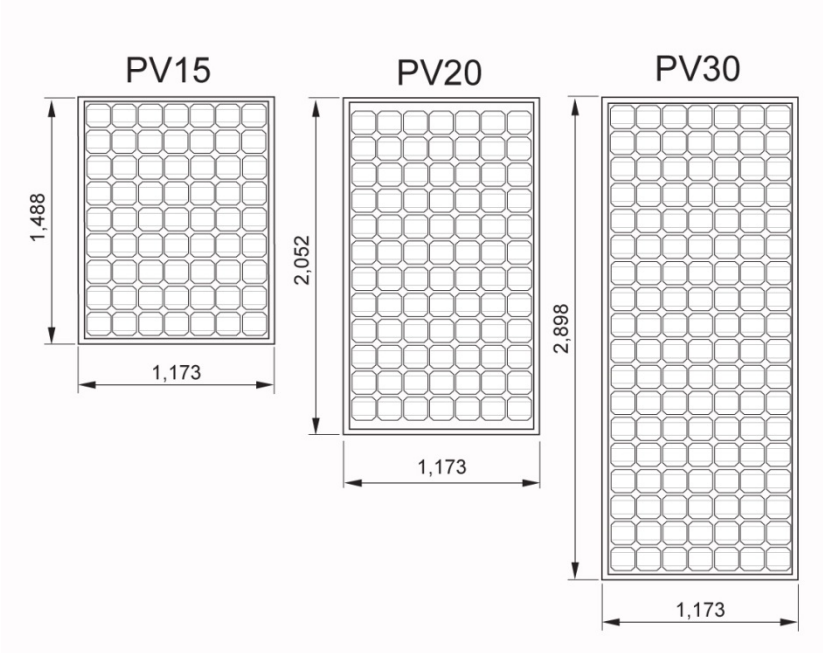
Comparison



January February March April May June July August September October November December



Clearline PV



Combined PV and Thermal



Cambridge Projects



Engineering Department



Brandon Court City Council



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@thesolarblogger

Economics not Technology

Global PV Market

