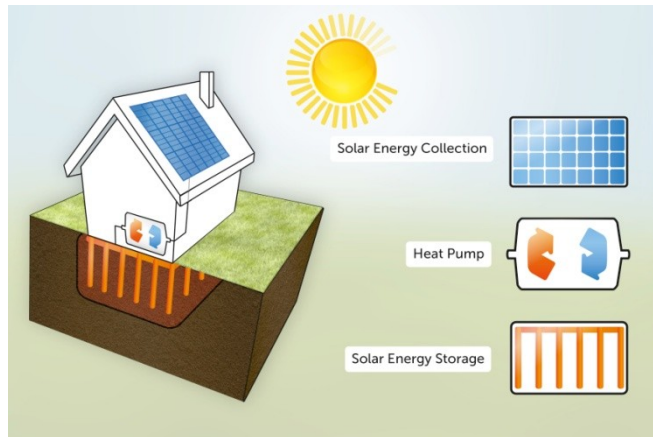


ZCS SUMMARY OF EFFICIENCY GAINS



- **Roof mounted solar collectors**
- **Ground Source Heat Pump**
- **Inter-seasonal thermal store**

PV-Thermal Array	ELECTRICAL – Cool running yields 15% more power than PV alone
	THERMAL – Cool running means less energy re-radiated back to space and greatly reduced heat loss from wind chill.
Ground Source Heat Pump	COP raised by having ground source at an elevated temperature Unused electrical energy directed to DHW immersion heat by ImmerSun™ controller saving heat pump running time
Earth Energy Bank	Eliminates the need for external ground loops or deep bores Low cost and quick to install Allows GSHPs to be applied to dense housing developments

DESIGN CRITERIA

ELECTRICAL	Electricity generated over a year must exceed that used for heat pump, ancillary equipment, LED lighting and MVHR fans
THERMAL	Thermal energy generated over a year must equal energy consumed by the heat pump to maintain ground temperature.