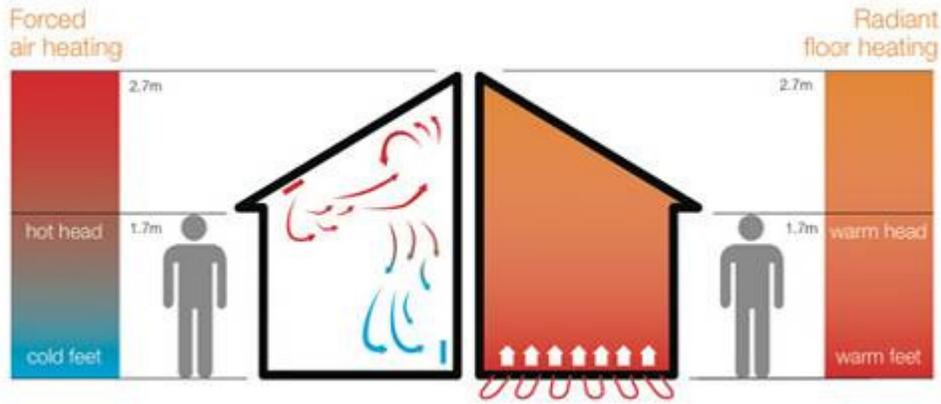


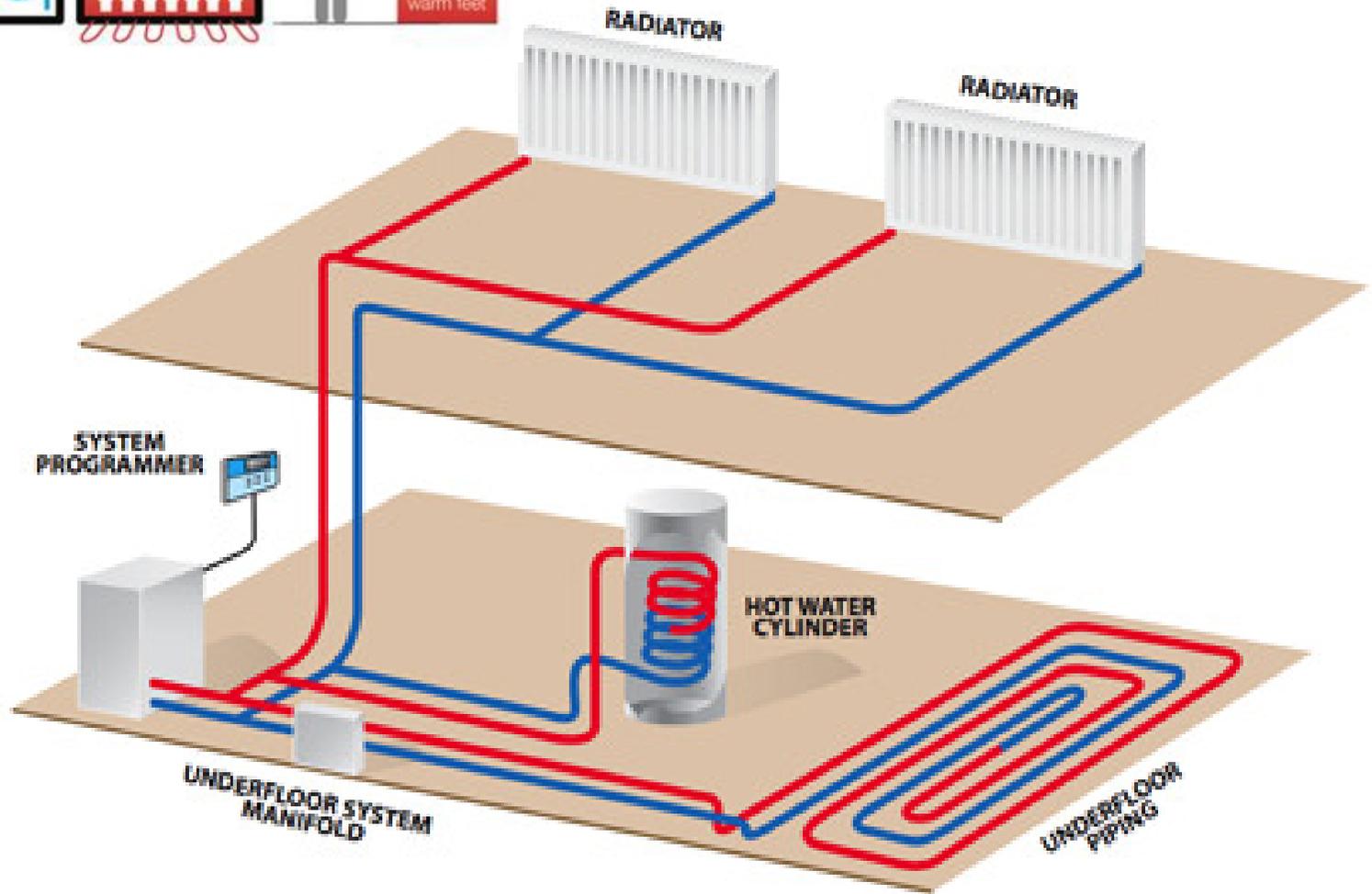


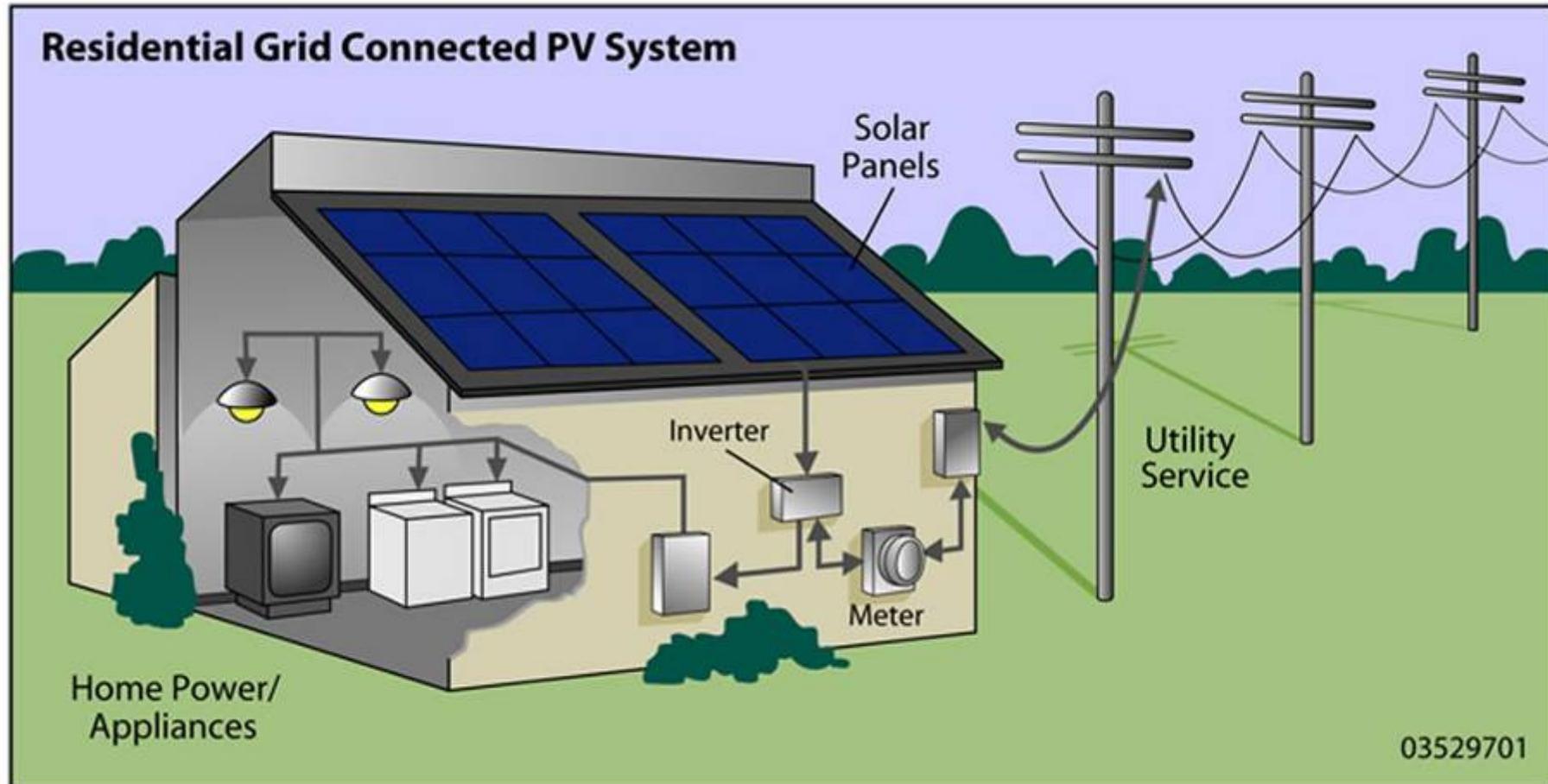
A "Solar Hydronic System " is the potent combination of two very powerful sustainable products a "Photovoltaic Solar System" that makes electricity each time the sun shines and electric "Air Sourced Heat Pumps" that make large volumes of energy efficient hot water taking their energy gain from the heat in our atmosphere and the traditional "Hydronic Heating" hot water radiators or in floor coil heating.



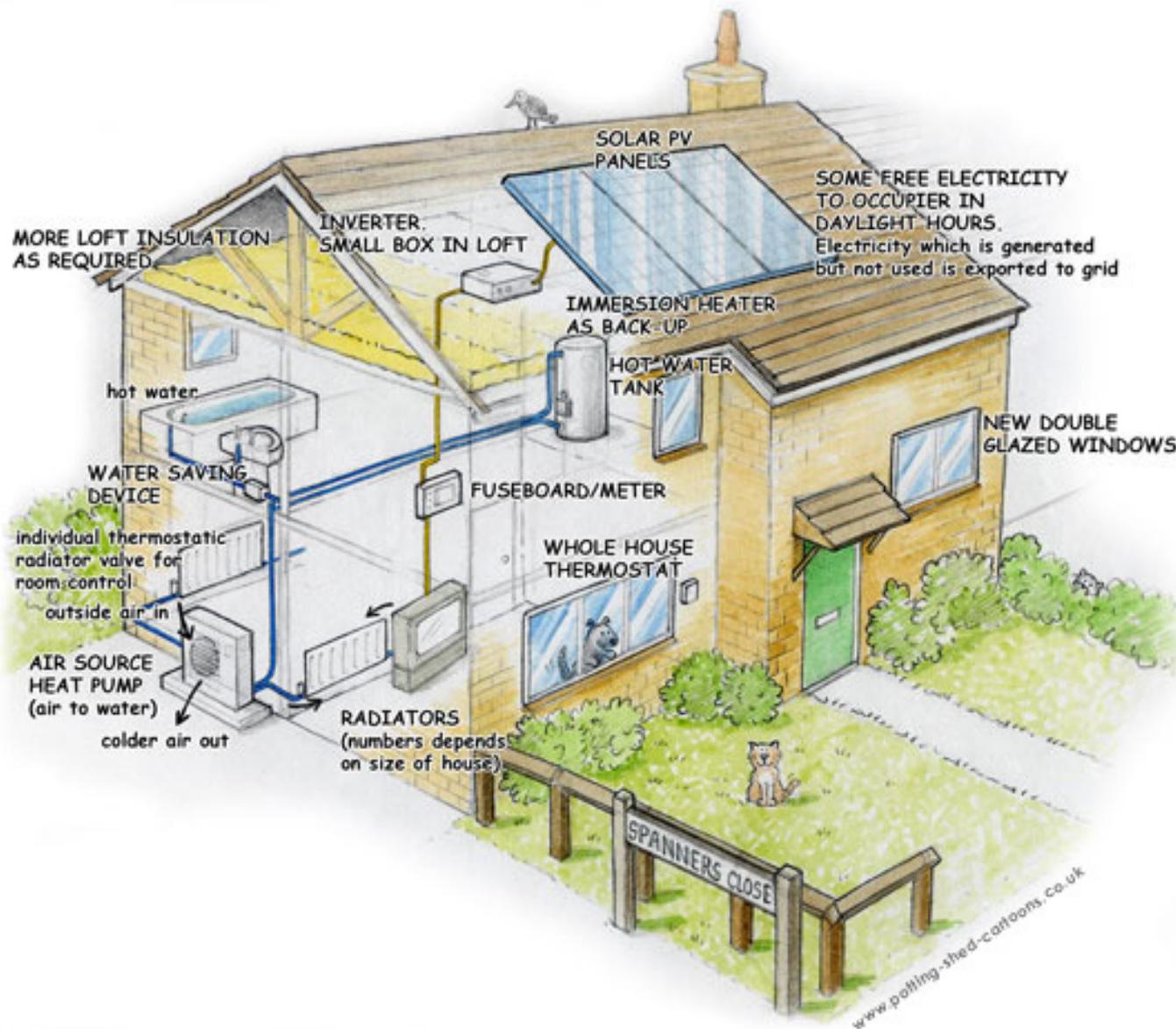
A typical hydronic heating system transfers the heat generated into hot water via convective wall panels or radiant in slab floor coil

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Electric heat pump



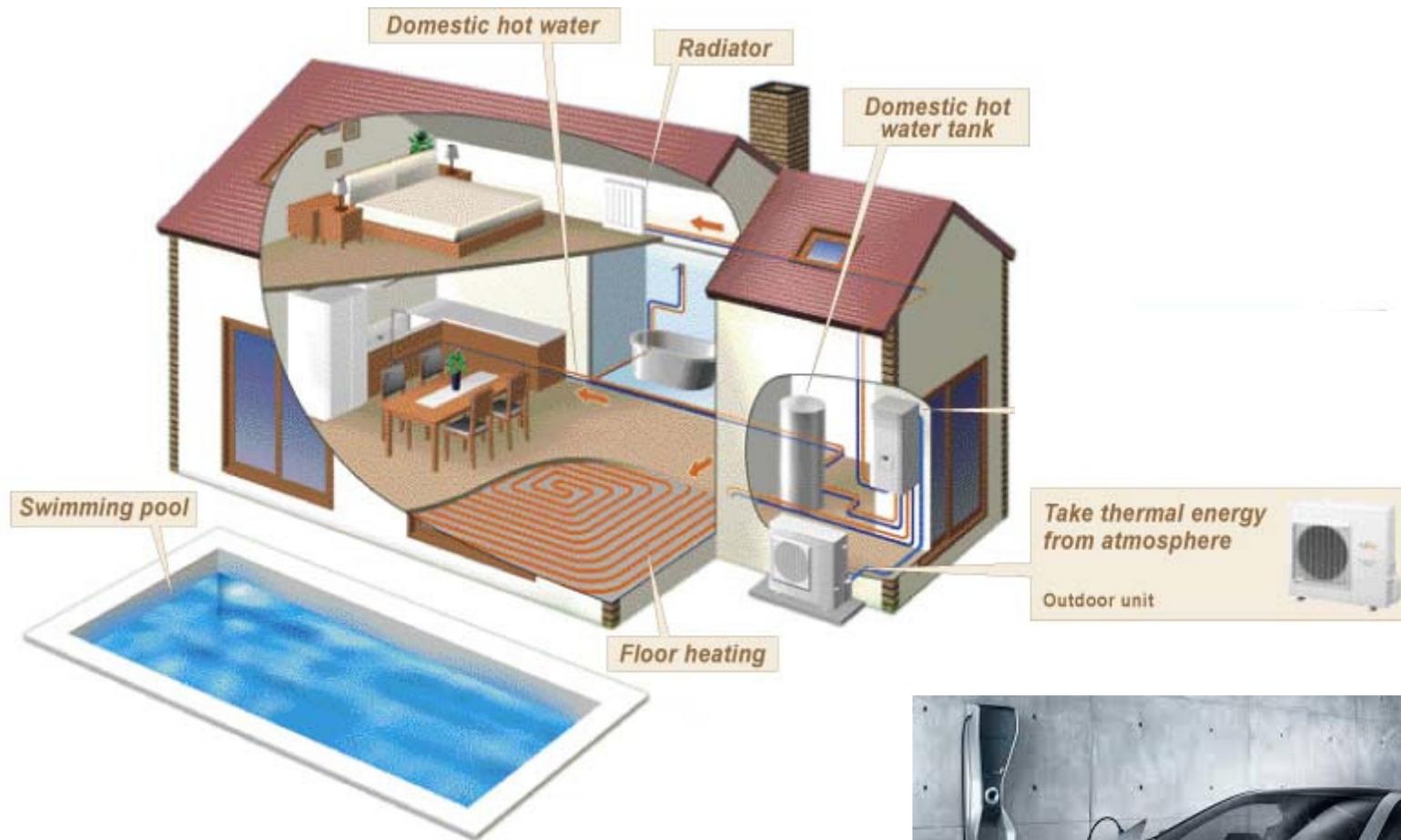


Solar Hydronics is fundamentally using the power generated from sunshine to generate PV electricity and convert these kilowatts of electrical energy created into kilowatts of heat energy which is in turn produced by electric "Heat Pump" hot water units, such that your home's central heating and domestic hot water can be created all year round for a fraction of normal water heating costs. Heat Pump hot water systems are up to 80% cheaper to run than LPG or Electric heaters and up to 50% cheaper than Natural Gas heaters, and convert the solar gain, by absorbing heat from the air rather than needing the sun to be shining brightly. With the rapid increase in natural gas costs, more and more Australian Households are converting their existing homes and building new homes using this "Solar Hydronic" concept. This concept has been adopted by many of this country's leading sustainable Architectural business's and it makes sense with relatively quick paybacks and then substantial on going savings. Some designers mistakenly get the concept wrong and try to use solar hot water panels to generate the hot water, this thermal application has to be massively oversized to heat a normal home and is very costly and quite often will not perform on cloudy cold winter days and not make enough hot water so a conventional gas booster has to do the bulk of the heating and in summer way to much hot water is produced and this becomes a real problem.



By utilizing that valuable real estate on your roof to generate free electricity the home owner can create and store valuable kilowatts of heat energy in insulated hot water buffer tanks and when it is cloudy the system can be boosted by the appropriate sized heat pump at up to HALF the cost of natural gas boiler . Of course the electricity generated by the PV solar panels in winter can substantially offset the cost of the power to run the already efficient heats pumps that make the hot water to heat the dwelling and in summer can power electric heat pump aircon cooling systems and also still make the domestic hot water all year round.

With the introduction of solar battery storage systems this now means you can run your hydronic heating on free power long after the sun has set



Once the hot water storage tanks are full of hot water and the heat pumps are turned off you will have many Kilowatts of free solar electrical energy converted to heat energy and embedded into the hot water in the storage tank its like having another solar battery but this time its hundreds of litre's of hot water



The Tivok Energy Bank Tank is ideal for “Solar Hydronic” applications

The Tivok Energy Bank is not just a tank, it is a safe, non-pressurised, highly insulated energy storage facility helping to get the most out of a thermal system through a combination of vented tank and heat exchange technology

– Industry leading insulation technology to retain heat over night and ensure on demand hot water at all times.

– Non-cylindrical construction for more effective use of space, and a modern effective design

– Non-pressurised design for improved safety-potable hot water output by complete separation between potable water and tank water.

--Also available in silver.

-- Ideal for Hydronic / Domestic / Commercial applications and can be combined with optional solar collectors and or with a wood fired wet back boiler





Some typical Heat Pumps used in “Solar Hydronic” Applications

Pictured above is a Tivok 22.8 kW system recently installed in Melbourne by Robert Kemp Plumbing



Pictured above the Tivok 30.4kW Heat Pump system in the process of installation by Mark McCormack one of our preferred installers. Note the steel mounting brackets keep the Heat Pumps independent of any wall , for a full Tivok Product Profile [PDF: download](#)



Pictured above a Tivok 45 kW system installed in Geelong Victoria

A triple phase, top discharge large-scale commercial heat pump suitable for indoor and outdoor use. Up to four times more efficient than conventional electric/gas heaters and capable of heating water up to 60°C, running no louder than a household air conditioner in a quiet room.