Introducing the Wireless Air Conditioner Demand Response (DRED) Control

After extensive development and refinement of the original DRED Controller, Paladin Solar Australia Pty Ltd is proud to announce the upcoming release of their latest innovation - the Wireless DRED Control.
This wireless solution offers advanced control over your air conditioning units, providing increased convenience and energy efficiency.

There are two options available:

1.For existing owners of the Paladin Solar Hot Water Diverter, a simple upgrade is offered to enhance the functionality of their diverter. In addition to heating water using excess solar energy, the upgraded diverter can now efficiently operate and control up to two air conditioning units using surplus solar power, eliminating the need to draw from the grid. The upgrade includes a separate Monitor and Receiver unit. The Solar Hot Water Diverter acts as a Transmitter, wirelessly communicating with the Monitor (typically placed indoors) and the Receiver (located near the outside evaporator unit connected to the DRED interface). It's important to note that the operation of the air conditioning units depends on the availability of excess solar power.

Paladin's priorities remain in the same order of importance: (1) supplying power to general household loads, such as appliances and batteries, (2) heating the hot water cylinder to a specific temperature, and (3) running the air conditioning units.

2.For solar system owners who do not have a Paladin Solar Diverter, a Wireless DRED Controller is available. This system includes a Transmitter (placed in the switchboard, connected to a power supply, and equipped with a CT Clamp around the mains), a Monitor (plugged into a wall socket via USB), and a Receiver (connected to a power supply near the evaporator unit and the DRED Interface). The compressor size can be configured using DIP switches, with a maximum capacity of 5.0kW. The operation of this wireless DRED Control is similar to the original model.

Using the Wireless DRED Control is straightforward:

1.In the morning, turn on your air conditioning unit and set the desired temperature using the remote control.
2.Activate the DRED function to "Auto" using the 3-way switch on the Monitor.

The advantages of this wireless system include simplified installation, as there is no need to run cables from the controller to the DRED interface. The separate Monitor, now conveniently located indoors, provides easy access to control the system and displays a wealth of information on its screen. With the Paladin Wireless DRED Control, you can enjoy a comfortably cooled home, knowing that no mains supply has been utilised.

Experience the convenience and energy efficiency of the Paladin Wireless DRED Control and let it cool your home while minimising grid dependence.

Fiscal & Environmental Impact:
Given the huge variability of PV installations and climatic conditions, all attempts to specify a particular set of circumstances would be futile. However for the exercise, let's use a dwelling with 20+kWh of excess PV in summer and a 3kW (electrical load) AC unit coupled to the PDC.
For costing we will stipulate 30c/kWh peak in the PM and a FIT of 8c. Using Queensland (the worst example for CO2/kwH) to generate 1kWh generates 746g of CO2.

Fiscal:
Using 20kWh of PV would keep a house cool so that in the evening, at peak rates, on a nominal top up would be required to maintain a cool dwelling rather than a prolonged full power cooling effort in the early evening peak. Any equivalence is almost impossible to gauge, but assuming the 20kWh is the same in both scenarios: 20 x 22c = $4.40.
Assuming 240 A/C days per year = 240 x 20 = 4800kWh annually x 22c = $1056

Environmental:
Is perhaps more pertinent in today's climate (pun intended).
4800kWh * 746g = 3580kg of CO2. That is a staggering amount, 3.5 tons greenhouse gas. Whatever your views on the reasons for climate change, this is a lot for just one dwelling, just one A/C unit.
Let's take it one step further. If you burn a litre of petrol in an ICE vehicle then that will produce 2.3kg of CO2. So our 3850kg of saved CO2 emissions equates directly to 1556 litres of petrol being used. At average mileage of 5l/100km (for a small car) that is the equivalent of driving 31,000km! More than 2 years motoring. So by implication, using excess PV to run a single AC in the home is the direct equivalent of taking 2 small cars off the road.
Further yet, in terms of carbon credits. What is the value of 3.5 carbon credits per annum? That depends where you look, but it is a lot more than nothing and will only go higher.
From a fiscal point of view, this is a pointless exercise, since there is no mechanism for a householder to claim this. However the 'feel good factor' is potentially proportional to your passion.

And lastly:
Taking that A/C load off the grid in the early evening peak is a huge win for the grid, and using, rather than exporting that excess PV during the middle of the day is even more pertinent.
The 'Duck Curve' is a real and present danger to the grid and a PDC or similar device can mitigate this in very effectively. Using excess PV in this way is a win-win in so many ways.

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