

1. Background

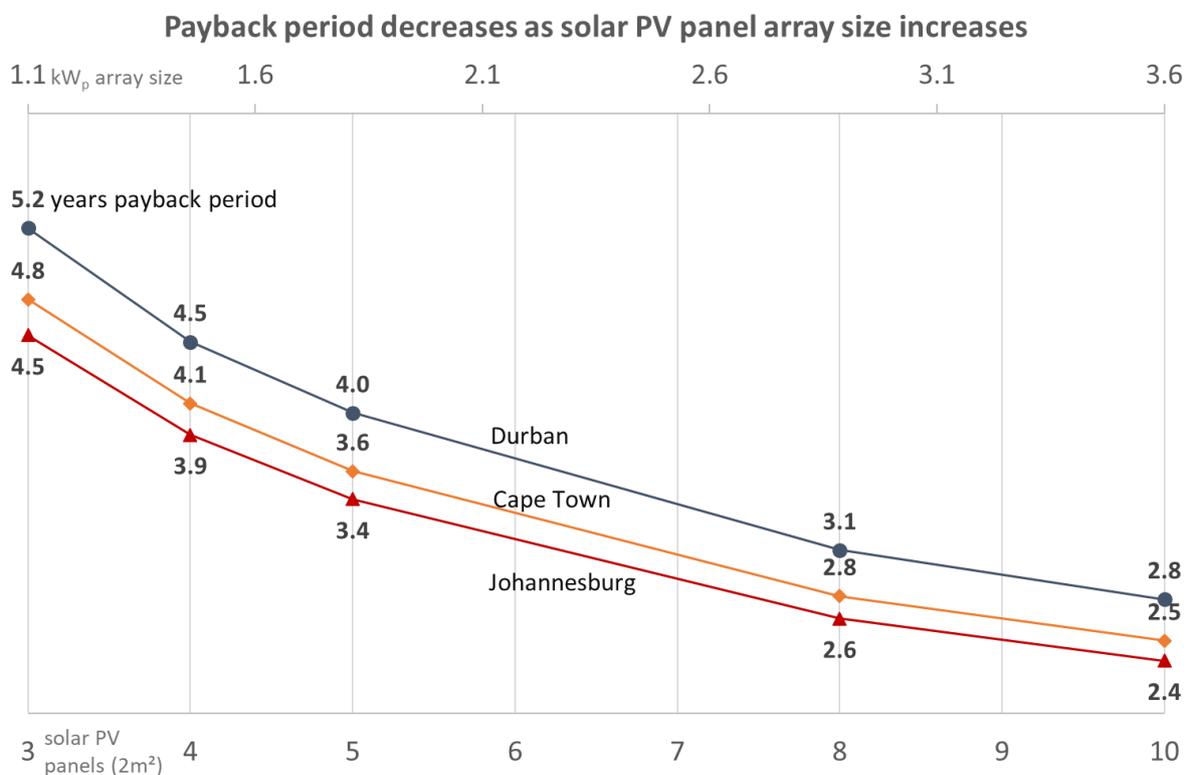
The PowerOptimal Elon 100 allows for the connection of solar photovoltaic (PV) modules directly to a standard electric water heater (geyser).

The size of the solar PV array (in other words, the number of solar PV modules on the roof) will directly impact the performance of the Elon 100. Additionally, time of year and location will also have a substantial impact on system performance.

This short document provides some information on what to expect from the Elon 100 based on the size of the solar PV array.



2. Payback period



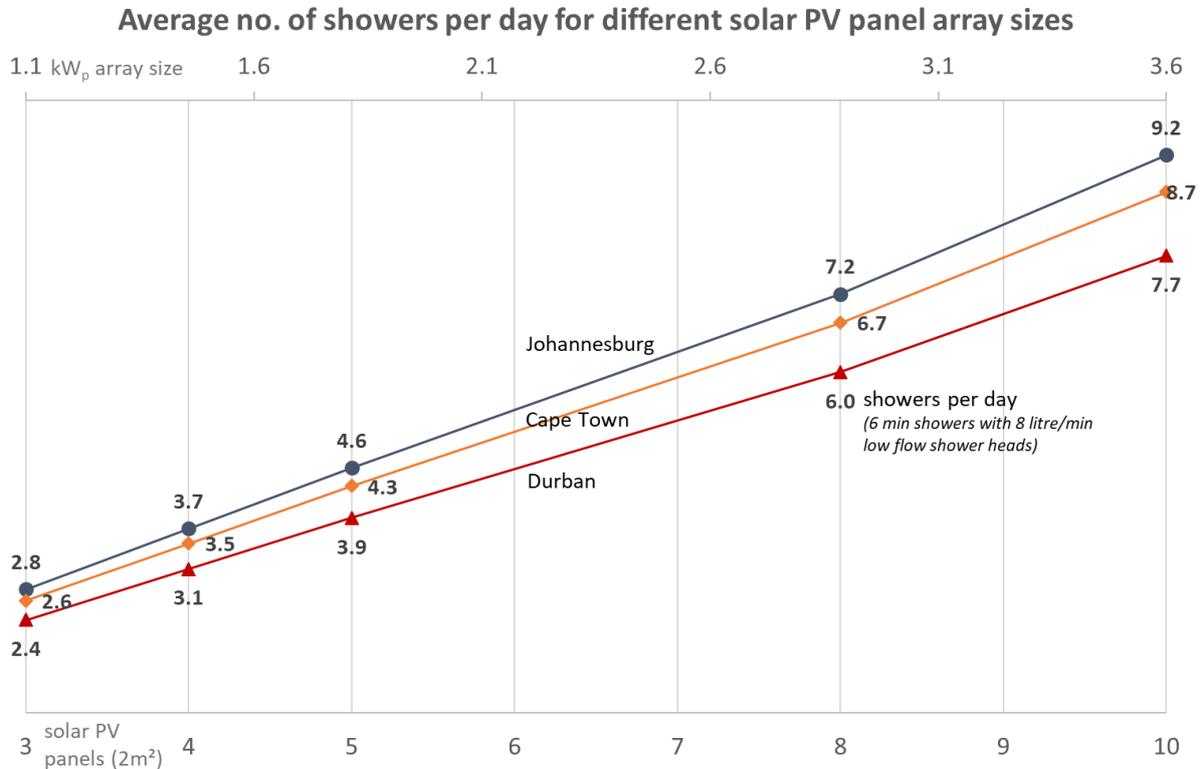
As can be seen from the graph above, payback period decreases as number of solar panels increases, and is also different for Johannesburg, Cape Town and Durban¹.

The reason that payback period improves (decreases) as number of solar panels increases, is because there are some fixed costs (such as engineering design & safety components) and some costs that do not scale linearly with array size (such as labour, wiring, mounting kit costs, etc.).

¹ Calculations based on actual Elon performance, assuming a 20% reduction due to non-optimal user behaviour, an electricity tariff of R2.15/kWh (which is the 2019/2020 average residential tariff across the 4 major metropolitan areas Johannesburg, Cape Town, Tshwane and eThekweni) and an annual electricity price increase of 8%.



3. Hot water production



As one would expect, hot water production increases with increase in number of solar panels. Keep in mind that these numbers are averages over the year. This means that you should expect a lower number in winter and a higher number in summer.

Cape Town has larger changes in solar PV performance from summer to winter than Johannesburg – leading to poorer winter performance and better summer performance.

