Household Battery Analysis

for General Release

November 2015

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Prepared for General Release

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Executive Summary

Energy storage is a hot topic. It's clear that as prices continue to drop, batteries have great long-term potential to transform our electricity grid.

The ATA has crunched the numbers on the economics of installing grid-connected solar + battery systems around Australia – both now and into the future. Our analysis has found:

- Household bill savings from batteries depend on a range of factors including:
  - the climate at your location;
  - household type (e.g. home during the day or not);
  - grid electricity tariff;
- Batteries are not fully utilised most days, due to natural variability in solar generation and household electricity consumption; and
- Grid-connected batteries are likely to become economically attractive for many households around 2020.

We expect the initial uptake of household storage will be driven primarily by non-economic factors.

The following two charts show the economic attractiveness of installing a 16-panel solar system plus batteries in 2016 and 2020, for a Young Family on a flat electricity tariff:

Chart 0-1: System Net Present Values (20Yrs) – Young Family, Flat Tariff (2016)

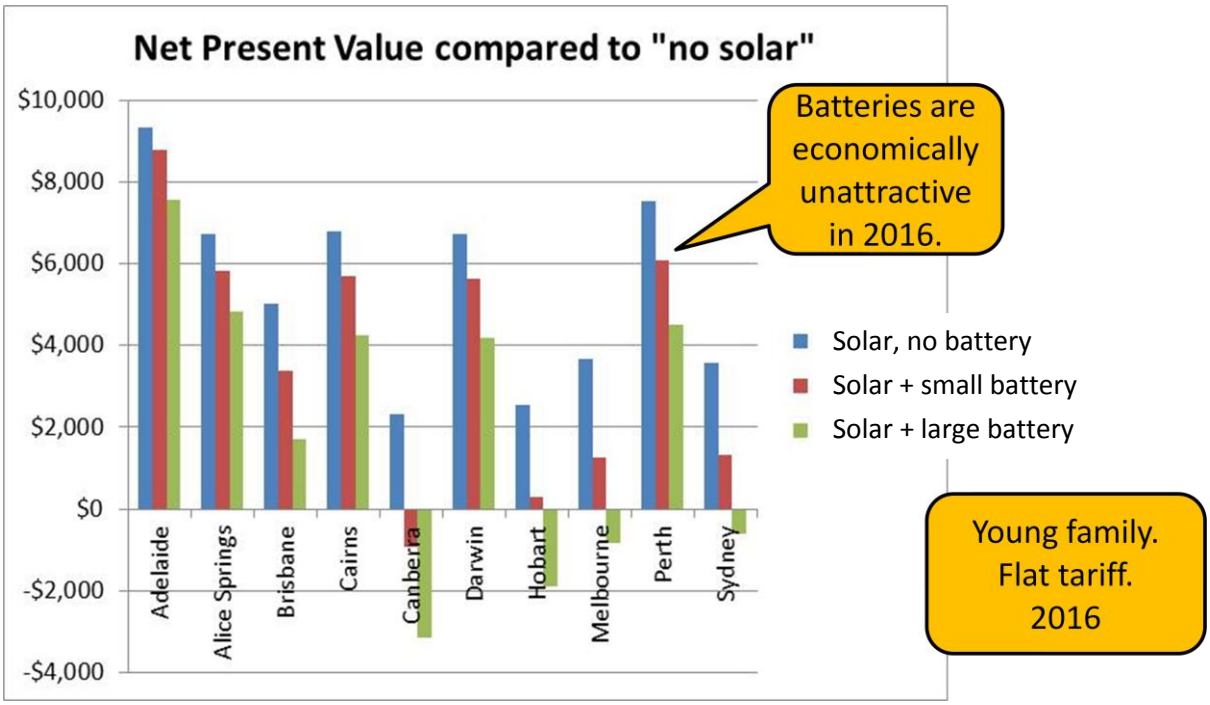
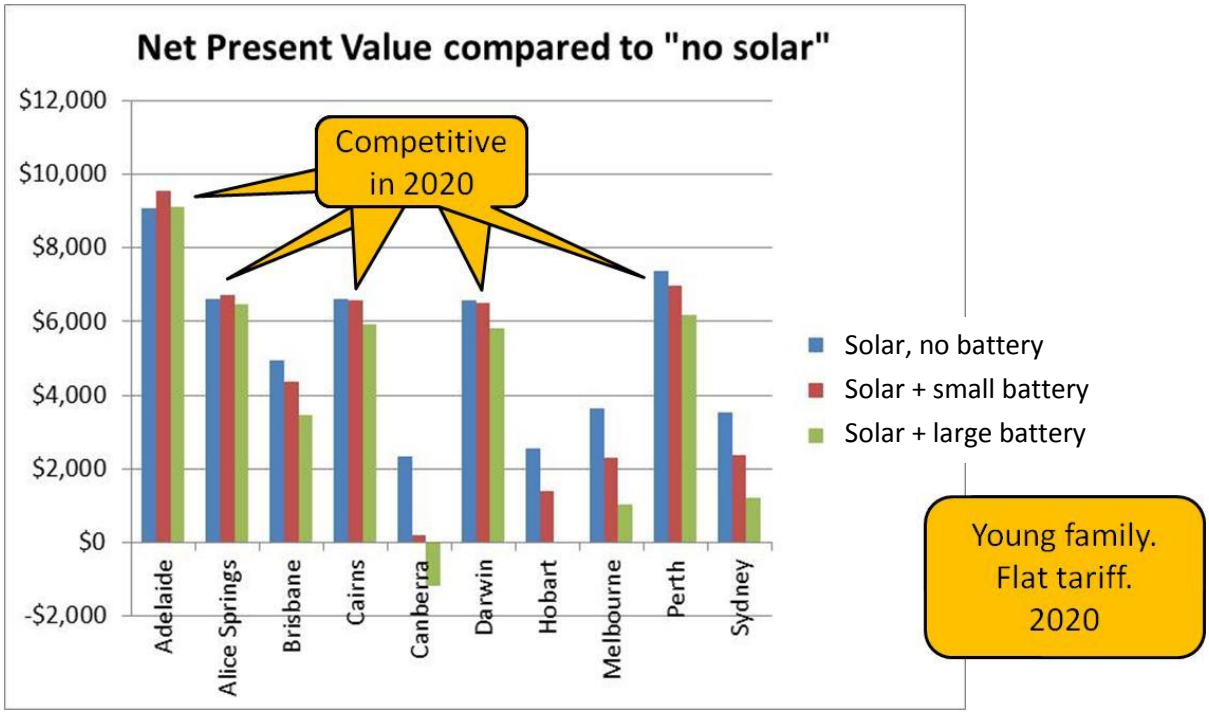


Chart 0-2: System Net Present Values (20Yrs) – Young Family, Flat Tariff (2020)



1.0 Introduction

ATA's 'Sunulator' simulation model[1] has recently been upgraded to include solar + battery analysis capability. For each half-hourly interval over an entire year, the model simulates:

- Solar generation based on the sun's position and weather data;
- Battery charge/discharge and grid export/import; and
- Household cost or revenue based on relevant grid tariff.

For this study, ATA investigated the attractiveness of including batteries in a newly-installed grid-connected household solar system, for many different scenarios:

- 10 locations – eight capital cities plus Cairns & Alice Springs;
- Electricity consumption data for two household types (half-hourly for 365 days):
  - "Working Couple" – average 10.6kWh[2]/day, with low day-time consumption;
  - "Young Family" – average 25kWh/day, with higher day-time consumption;
- Three different grid tariff types:
  - Flat tariff, single-rate: actual rates by location;
  - Time-of-use tariff: actual rates by location;
  - Demand tariff (involving kW-based charges): a hypothetical future tariff;
- The analysis was completed for system installations in 2016, 2018 and 2020 – taking into account projected cost reductions for each of the relevant technologies.

A number of system configurations were modelled in each location including:

- A brand new 4kW solar system without batteries;
- A brand new 4kW solar system with two different sizes of lithium-based batteries:
  - "Small": 4kWh (usable energy capacity). $3,300 fully installed;
  - "Large": 7kWh (usable energy capacity). $5,500 fully installed;
  - Future battery prices reduce at 8% per year.

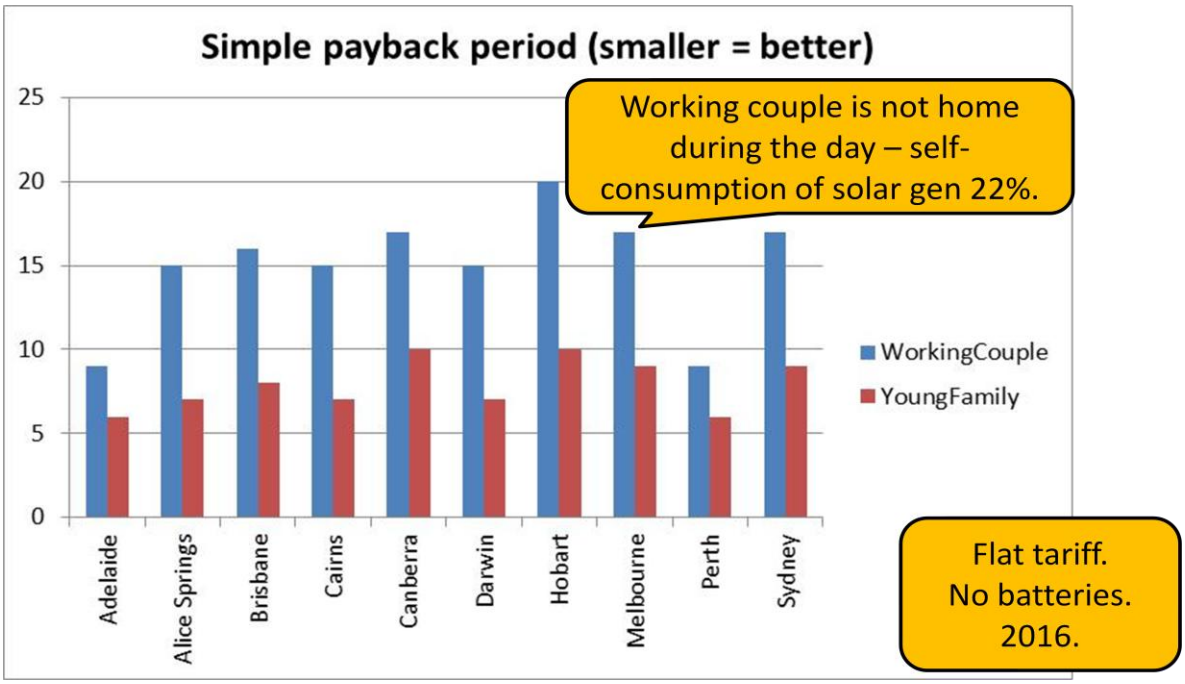
The batteries are assumed to be built into the solar inverter (or "DC-coupled". The batteries are chared directly from excess solar (after household appliance consumption) and discharged to reduce grid imports (for example, at night).

[1] MS Excel version freely available at: http://www.ata.org.au/ata-research/sunulator
[2] kWh = kilowatt-hour. An average household uses between about 15-20 kWh per day.

2.0 Results

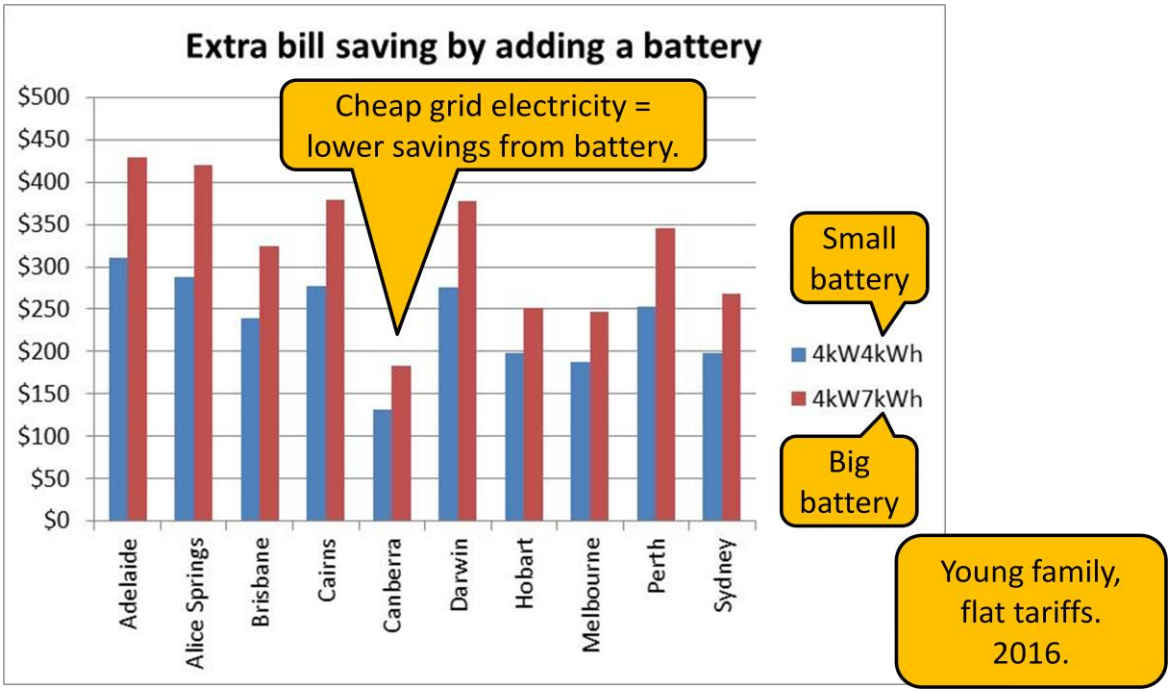
Let's have a look at some of the results charts from the analysis. Firstly, the payback times for solar-only systems installed in each location in 2016 for the two household types:

Chart 1: Payback Periods – Solar PV Only (2016)



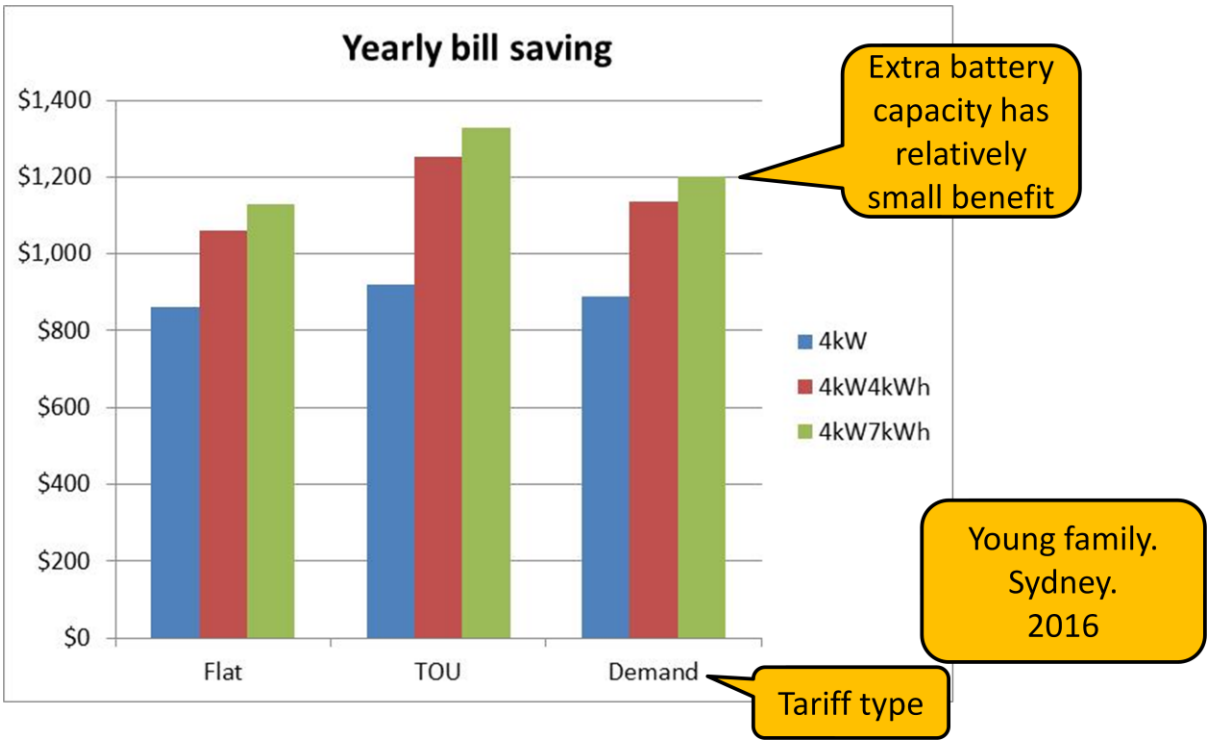
Secondly, we have the additional bill savings ($, annual) from adding a battery to the 4kW solar system in each location. These are above that which would be achieved by the 4kW solar already:

Chart 2: Additional Bill Savings from Battery Investment (2016)



Focusing on one location (Sydney, 2016), we can see the annual bill savings ($) of the solar-only system as compared with the two different solar + battery systems for different grid tariffs:

Chart 3: Annual Bill Savings by System Type by Tariff, Sydney (2016)

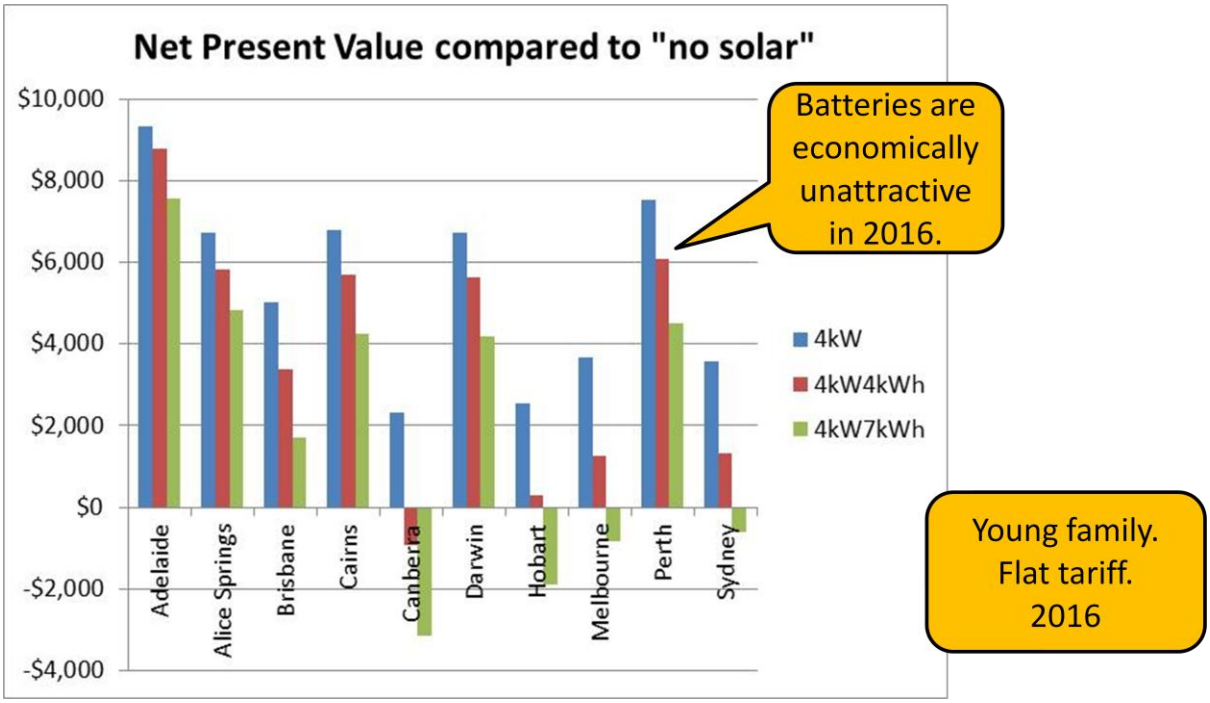


The overall economic value of the three different system types can be ascertained by calculating their Net Present Values (NPV).

NPV is the difference between the total costs and savings of any individual system versus business as usual (i.e. doing nothing) over a specified time period. A positive number means total savings are greater than total costs over that timeframe; whilst a negative number means the reverse.

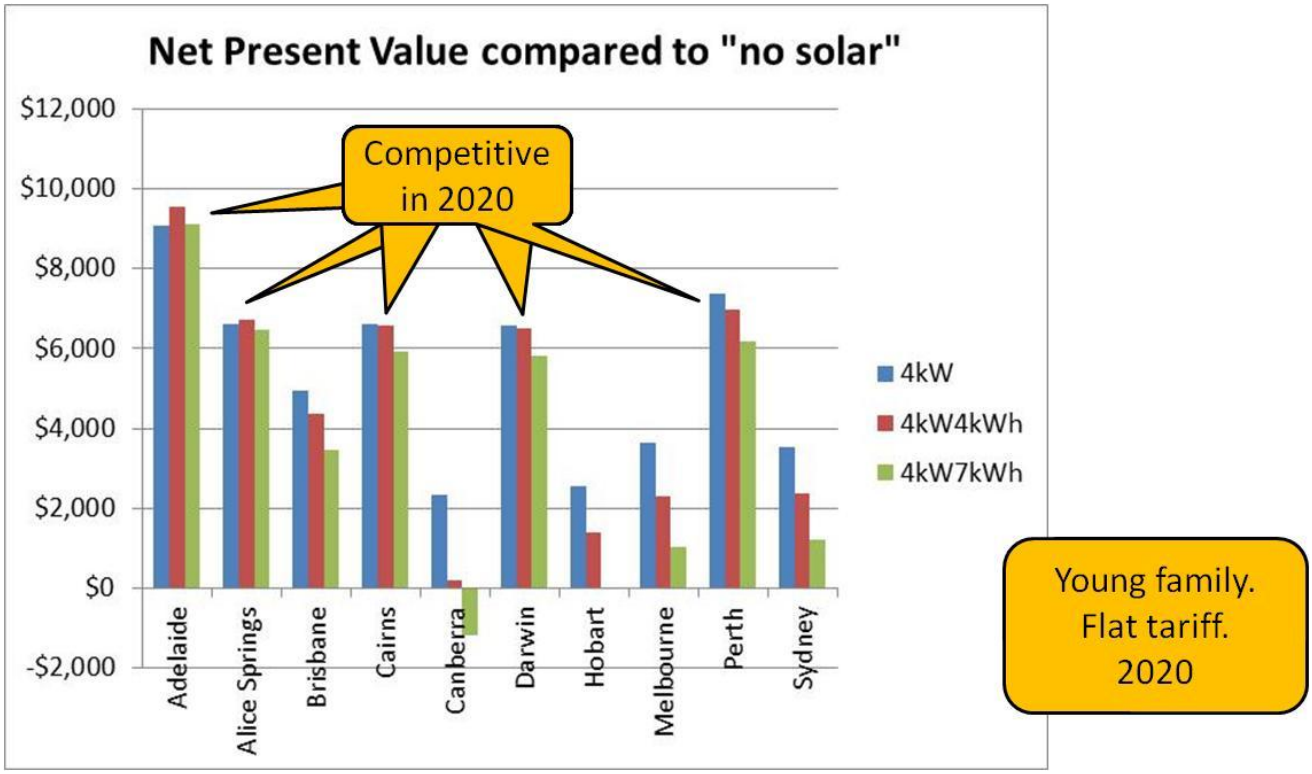
All future costs and savings are discounted to bring them back in today's (2016) dollars. ATA chose a discount rate of 2.5%, to reflect current mortgage rates adjusted for inflation. The chart below presents NPVs for a "Young Family" on a flat tariff for each location over 20 years:

Chart 4: System Net Present Values (20Yrs) – Young Family, Flat Tariff (2016)



Taking into account future cost reductions of all relevant technologies (in particular batteries at 8% per annum), the next chart presents NPVs for the same scenario but assuming the systems are purchased and installed in 2020:

Chart 5: System Net Present Values (20Yrs) – Young Family, Flat Tariff (2020)

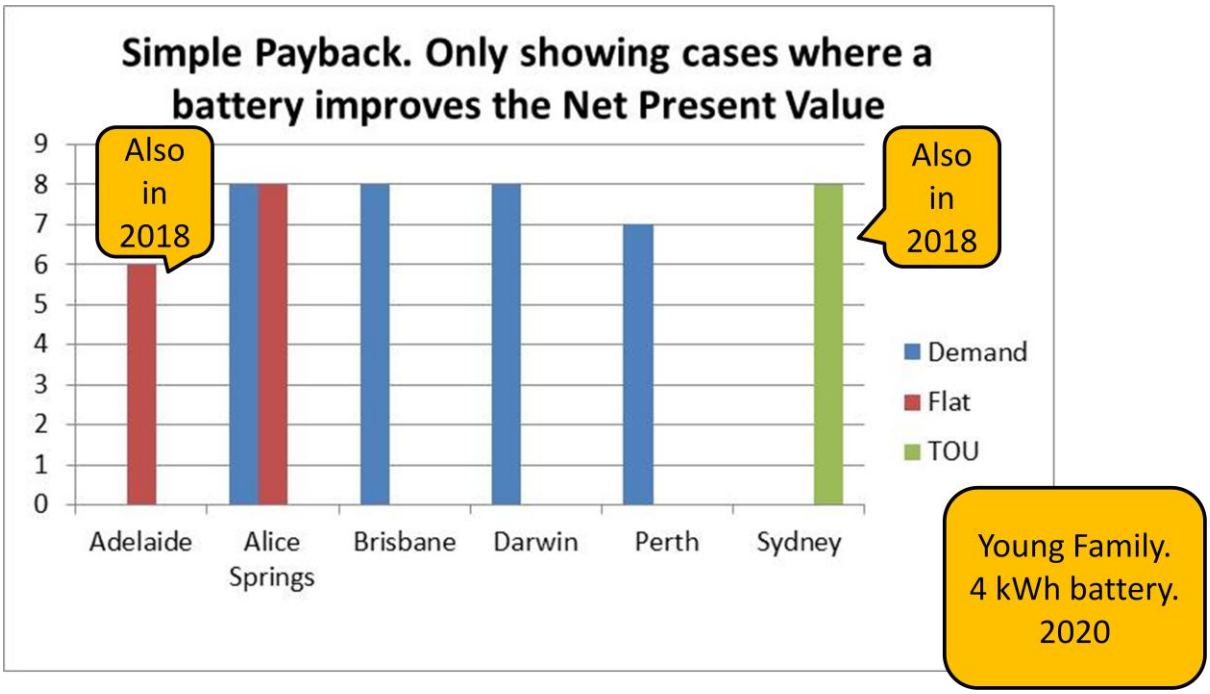


The final chart highlights the few locations where the addition of a 4kWh battery improves the NPV beyond what would already be achieved with a 4kW solar-only system. ATA also found two scenarios, in 2020, where a 7kWh battery improved the NPV above solar-only:

- Adelaide with flat tariffs; and
- Alice Springs with demand tariffs.

There were nine scenarios across six locations where a 4kWh battery did improve the NPV for the "Young Family". Only two were achieved with investment in 2018. The remainder involved investment in 2020.

Chart 6: Simple Payback Time of Scenarios where 4kWh Battery improved Solar-Only NPVs



There were also two scenarios where a 4kWh or 7kWh battery improved the NPV for the "Working Couple" in 2020 and had a simple payback less than 11 years:

- Adelaide with flat tariffs; and
- Perth with demand tariffs.

3.0 Discussion

Overall, investment in 4kW of solar PV on its own was financially attractive for larger energy homes – but not for those who have lower day-time consumption.

Adding batteries did generally deliver savings over the "solar-only" systems – with annual savings dependent upon household type, location and grid tariff. Annual savings had the following ranges:

- Small battery: $132 -> $335;
- Large battery: $187 -> $513.

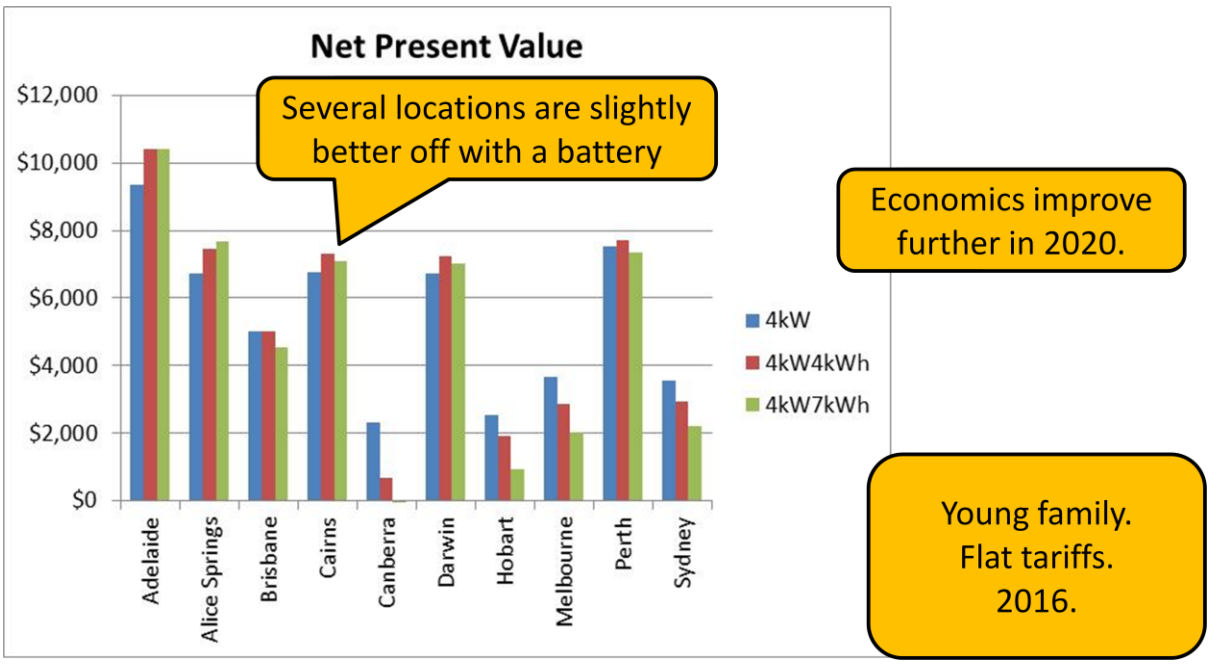
In general terms, batteries only became financially competitive with "solar-only" systems around 2020 in most locations. The smaller 4kWh battery was always more attractive than the larger 7kWh one; and in no case did adding batteries significantly speed up the payback time.

The economics of investing in storage would obviously be improved if households were paid to provide and share in associated benefits to the electricity grid (particularly those associated with peak load management). Energy companies could co-invest in such systems, for example:

- The company sells batteries cheaply to households;
- On critical days, company controls the batteries remotely, discharging them at peak times;
- Peak demand is shaved, delaying network upgrades; or alternatively
- Energy is sold on the spot market at high prices.

ATA analysed a scenario where an energy company co-invested $300 per kWh, off-setting the solar household's upfront costs:

Chart 7: System Net Present Values (20Yrs) – Young Family, Flat Tariff, $300/kWh Co-Invest (2016)



However, until energy companies do this, or batteries drop further in price, ATA suggest households trying to cut their bills look at more effective investments, including:

- LED lights;
- Gap sealing, insulation & window shading;
- Efficient appliances;
- Go "off-grid" from the gas network[3]; and
- Solar without batteries.

Unlike batteries, these options also directly benefit the environment. Batteries consume electricity due to losses, and embodied energy and end-of-life recycling should be considered. Longer-term however, batteries can facilitate high levels of wind and solar in the grid by storing electricity for calm periods and night-time.

Of course, there are broader considerations relevant to storage investment. From a grid perspective, batteries can:

- Delay grid upgrades where the grid is constrained during peak times;
- Improve grid stability by discharging to maintain frequency or voltage;
- Help local grids cope with the export from large amounts of solar; and
- Profit from and alleviate spikes in the wholesale electricity price.

From a household's perspective, other considerations can include:

- Maintaining power during blackouts – however this requires a more expensive system;
- Improved reliability that batteries can provide above their local network – due to poor network quality or high reliability needs (e.g. medical);
- Increased independence from energy companies; and
- The fun and games that come with being an enthusiast / early adopter!

ATA will look to update and extend this analysis on a recurring basis, taking into account changes in prices and technologies, additional locations and a greater range of scenarios – so stay tuned!

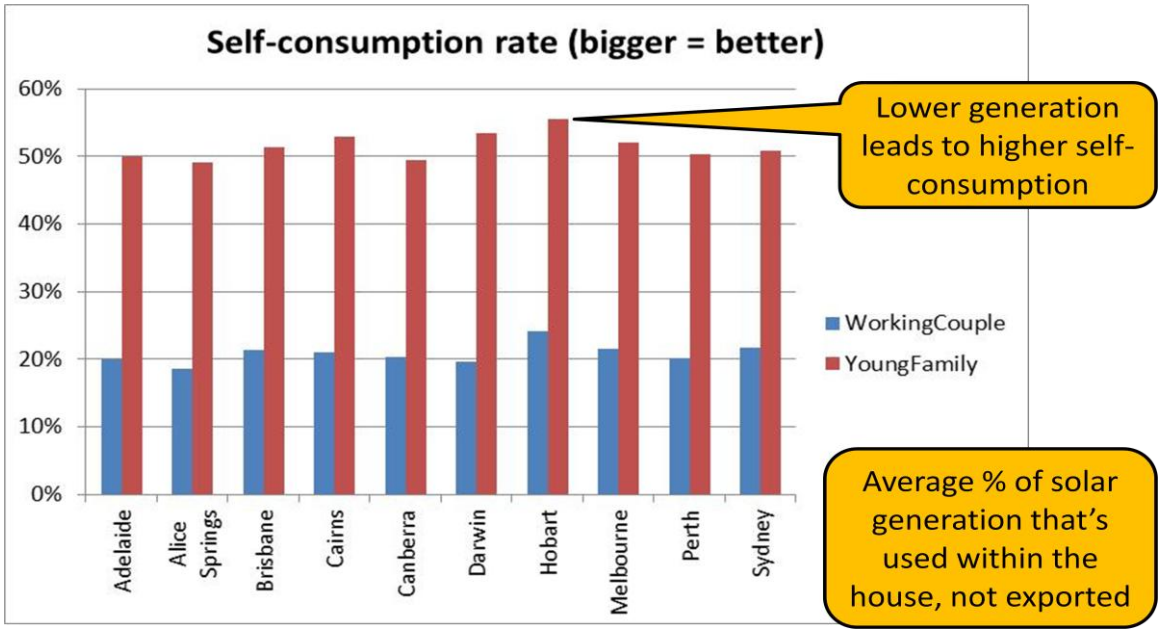
[3] http://www.ata.org.au/wp-content/projects/CAP_Gas_Research_Final_Report_251114_v2.0.pdf

3.1 Why Such Poor Economics?

As is widely understood, given the prevalence of low feed-in tariffs around the country, the most economic "solar only" projects require high levels of daytime on-site consumption. When daytime consumption is high, solar generation is self-consumed rather than exported for little return.

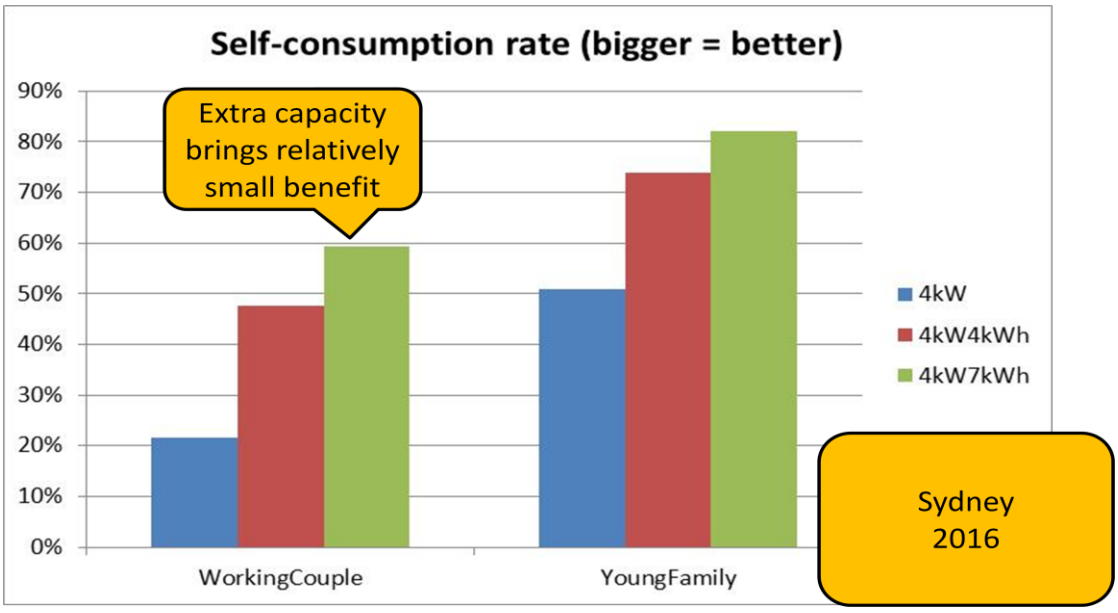
The chart below outlines the self-consumption rate for each solar-only scenario modelled:

Chart 8: Solar-Only Self-Consumption per Location



The self-consumption rate improves markedly with the introduction of storage – however increasing the size of that storage (i.e. from 4kWh to 7kWh) for the profiles modelled led to only a small incremental increase in the self consumption rate:

Chart 9: Solar + Battery Self-Consumption, Sydney 2016



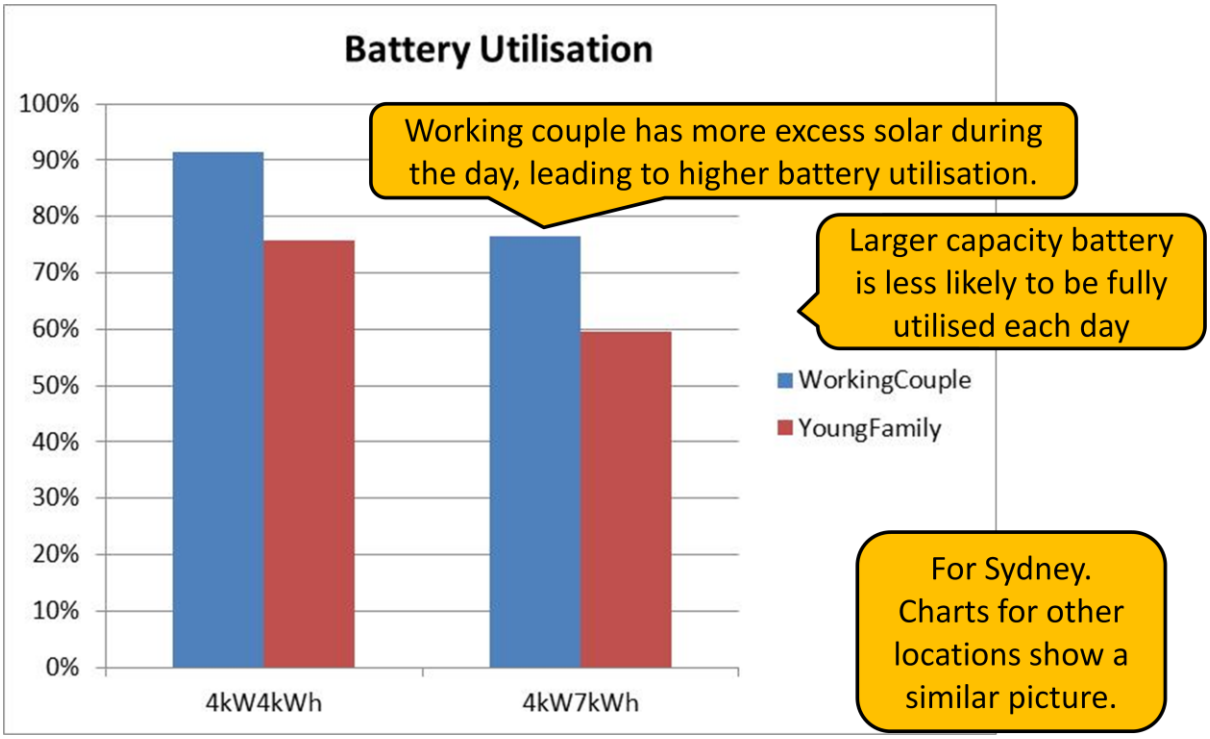
Why does extra storage capacity bring such a small incremental benefit?

Each day varies in weather and consumption patterns. On cloudy and high consumption days, little charging occurs; whilst on sunny and low consumption days, little discharging occurs. As such, the entire battery capacity is not fully utilised every day.

This brings us to a new term: *Battery Utilisation*. Battery utilisation can be defined as:

$$\textit{Battery Utilisation} = \frac{\textit{Average Daily Discharge}}{\textit{Usable Battery Capacity}}$$

Chart 10: Battery Utilisation, Sydney



The following three charts show grid import/export (from which one can deduce charging and discharging arrangements) for three different days for the Sydney, Young Family in 2016.

Each chart demonstrates the differences in charging and discharging characteristics given weather and consumption patterns specific to those three individual days:

Chart 11 shows a "good day" for batteries to benefit the household. Spikes of consumption during daylight hours were buffered by the batteries, which then recharged from solar. Over the day, the battery discharged more than its usable capacity; battery utilisation was 125%.

Chart 11: Battery Charging/Discharging Characteristics – Young Family, Sydney 2016 (Day 1)

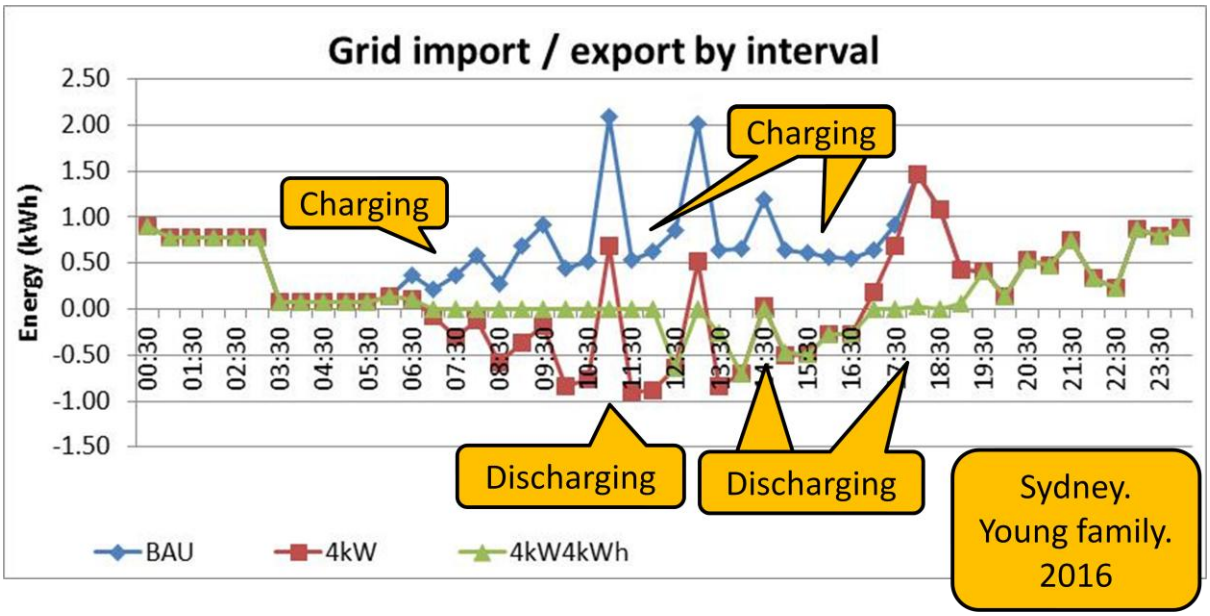


Chart 12 illustrates a "bad day" for batteries to benefit the household. Steady consumption during daylight hours absorbs almost all the solar generation, leaving little excess to charge the battery. The battery started the day empty, and ended up discharging only a small portion of its usable capacity – battery utilisation was only 25%.

Chart 12: Battery Charging/Discharging Characteristics – Young Family, Sydney 2016 (Day 2)

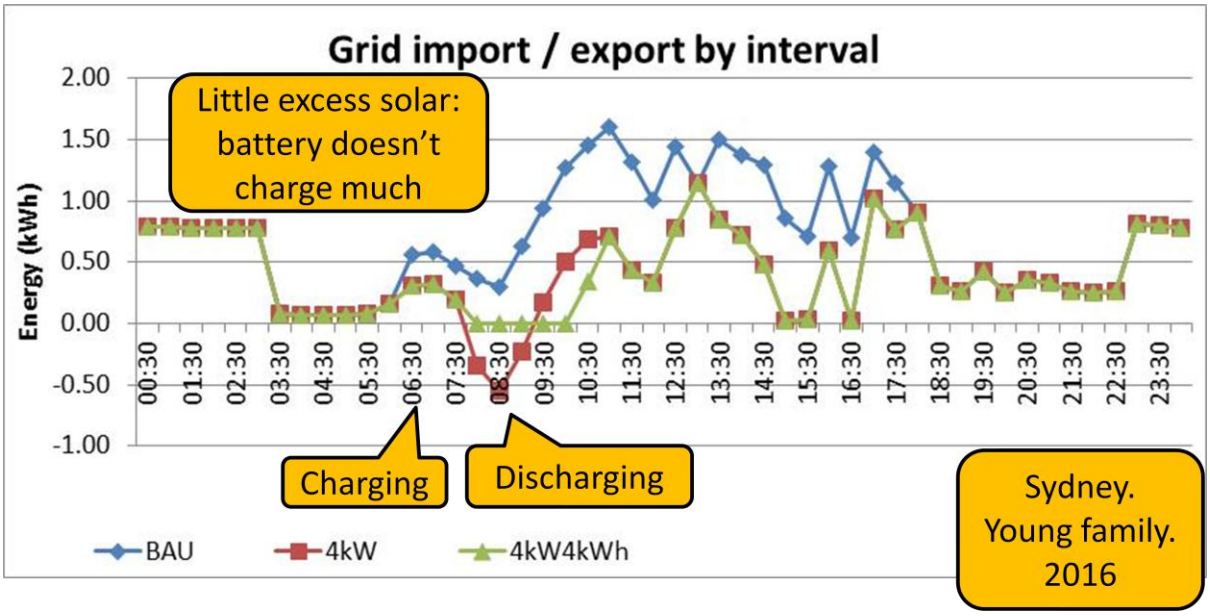
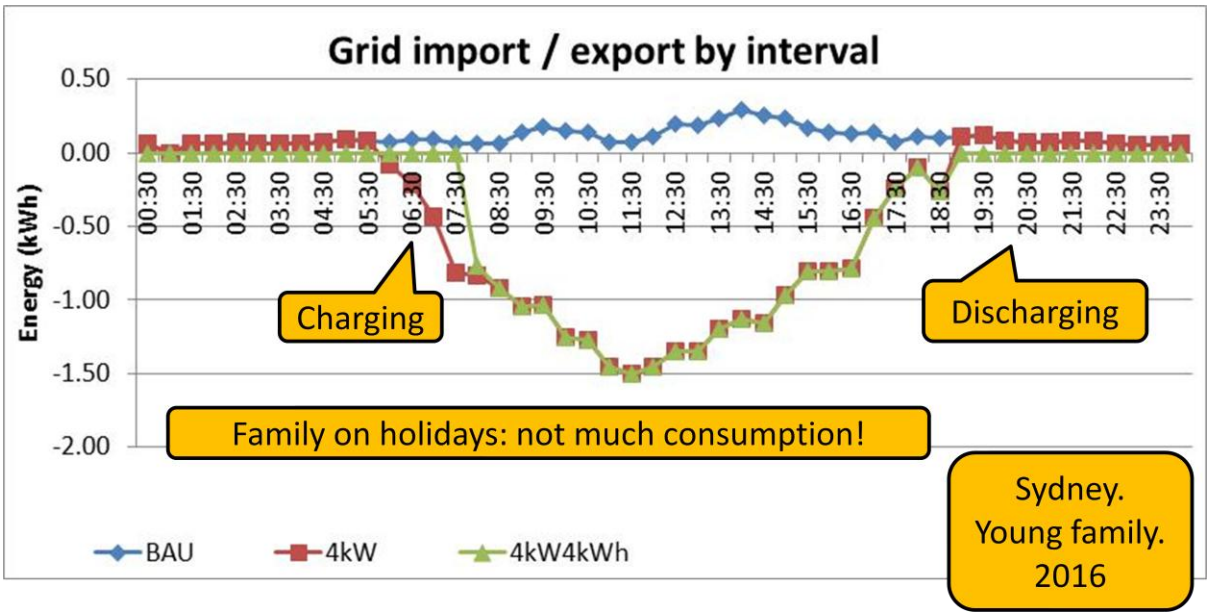


Chart 13 is another bad day for batteries. This was the 1st of January when the family was away from home. The battery stays almost full for multiple days in a row, only discharging slightly to run the fridge, standby appliances etc then quickly filling up again when the sun rises.

Chart 13: Battery Charging/Discharging Characteristics – Young Family, Sydney 2016 (Day 3)



Another factor working against battery economics is their losses, as described earlier. Lithium battery round-trip efficiency is typically 90%.

All else being equal, a household diverting 50% of its electricity through a battery will increase its overall consumption by 5%.

4.0 Appendix A: What if we added a Charger?

If you have a Time of Use tariff[4], you may save money by charging the battery from the grid during the morning off-peak period. The aim is to use the battery to supply the house during two periods:

1. Morning peak – tariffs are higher than off-peak and solar generation is not yet significant.
2. Evening peak – tariffs are high.

This requires a rule to decide how much to charge the battery in the morning off-peak period:

- If you charge too much, the battery won't be able to absorb all the excess solar generation, resulting in unnecessary export to the grid for little value;
- If you charge too little, you'll end up importing more than necessary from the grid in the evening at a high tariff.

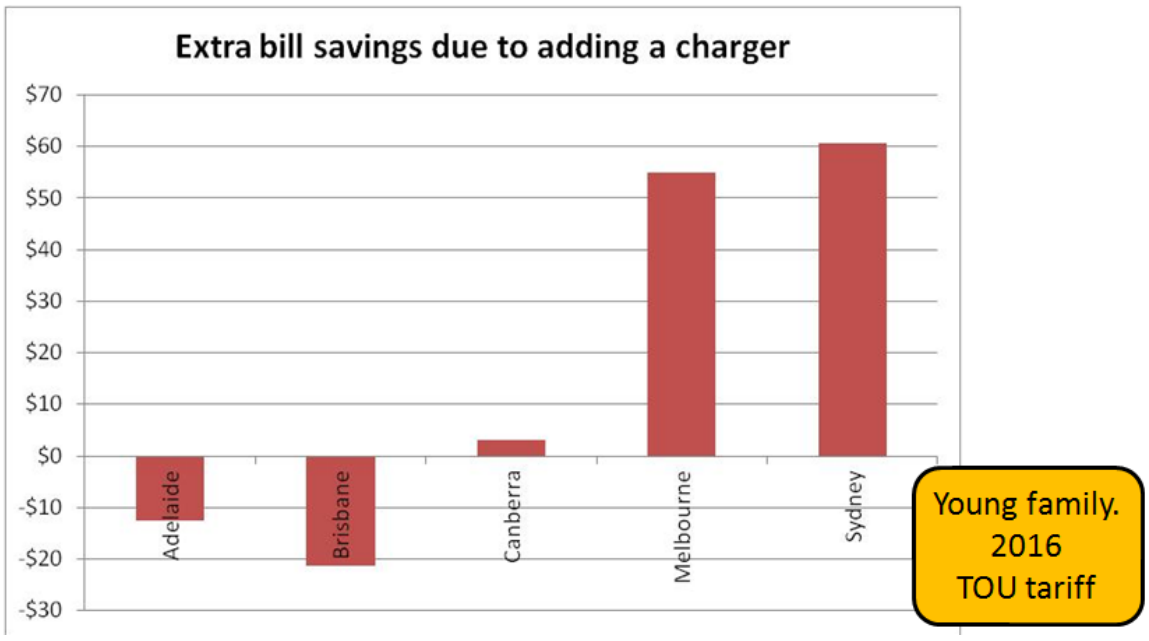
Sunulator includes rules to make this decision. It does not assume perfect foresight; it uses a more realistic approach of estimating levels of consumption and generation based on their values one day and one week prior.

We assumed that adding a grid charger to a DC-coupled battery system would cost $500.

We found that adding a charger would increase bill savings in some locations but not in others, as shown in the following chart. Smaller bill savings in Adelaide and Brisbane were due to the battery rules tending to charge too much from the grid, resulting in lower solar self-consumption rates.

Smarter battery rules would deliver greater savings, especially if they incorporated weather forecasts. It remains to be seen when batteries this smart become available in Australia.

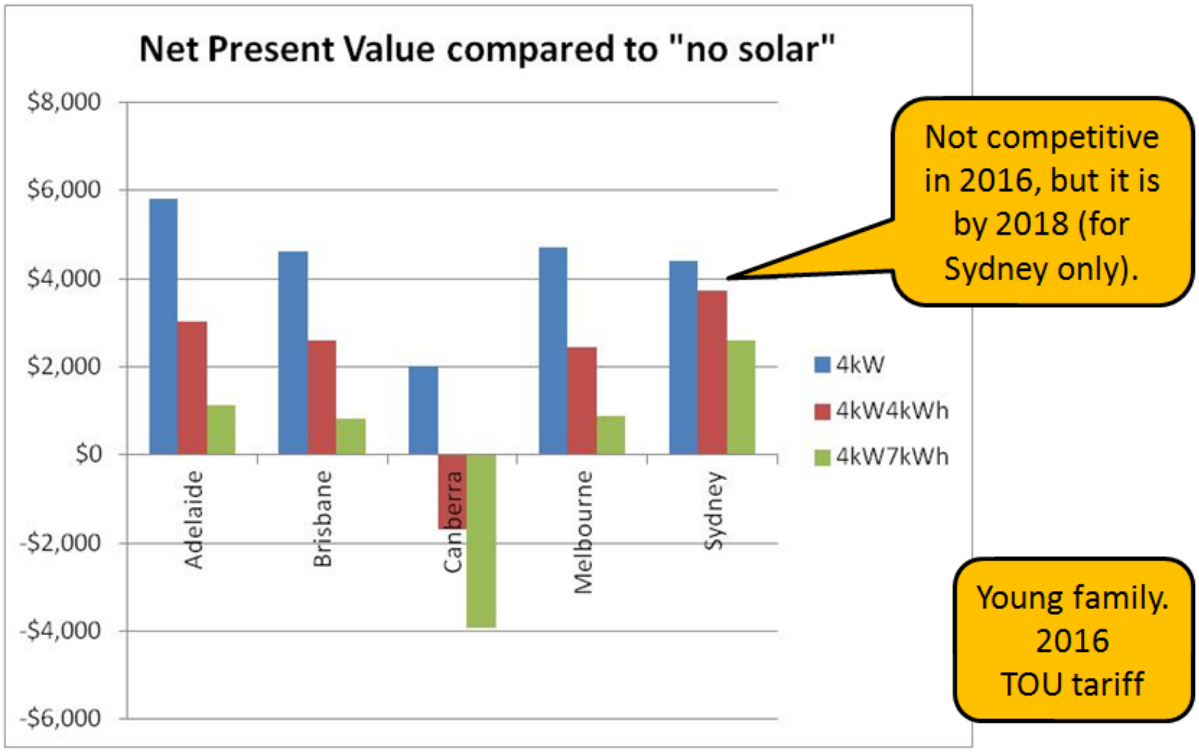
Chart 14: Extra Bill Saving due to Adding a Charger – Young Family, TOU Tariff (2016)



[4] A tariff where the charge per kWh varies throughout the day (e.g. "Peak", "Offpeak" and "Shoulder" times).

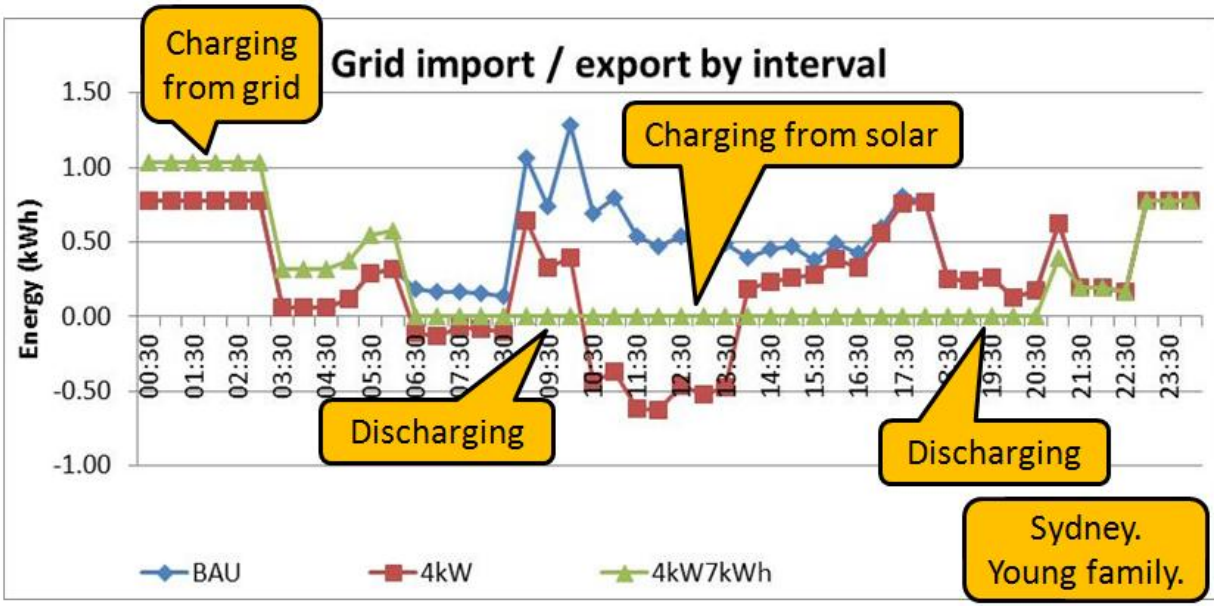
Given the extra up-front cost, a charger was not financially attractive in 2016 compared to "no solar". However it did become competitive in 2018 for Sydney (the location with highest evening peak tariff).

Chart 15: Net Present Value of Solar, Battery + Charger – Young Family, TOU Tariff (2016)



The following chart illustrates a sample day from the analysis with a grid charger.

Chart 16: Battery Charging/Discharging Characteristics with a charger – Young Family, Sydney 2016



5.0 Appendix B: What about Retrofits?

Our analysis considered adding batteries as part of a brand new solar installation. However millions of households already have a solar system to which they could retrofit batteries.

We did not model retrofits, however we expect that the economics would be worse than adding batteries as part of a brand new installation, because:

- Labour costs would be higher;
- Compatibility of the new battery to the existing system may be an issue.

Batteries installed with AC Coupling rather than DC coupling are typically more flexible, as they are connected to the switchboard rather than the existing inverter. However this type of installation requires a separate inverter-charger, adding extra costs.

For some people with an existing solar system, the most cost-effective time to install batteries may be when the solar inverter needs replacement. Grid-connect inverters are generally expected to have a lifespan of 10-15 years.

6.0 Appendix C: What about Off-Grid?

Our analysis looked at households adding batteries but remaining connected to the grid. Disconnecting from the grid is possible, and unlike a grid-connected system saves the cost of the entire electricity bill including fixed charges.

However an off-grid system needs to supply the house's entire needs through a cloudy week. The typical household would require a big system including:

- more solar panels;
- big batteries;
- a clever inverter; and
- a back-up generator.

Many households living in the bush rely on an off-grid system such as this. Compared to using the grid, its downsides are:

- much more expensive to set up than a grid-connected system;
- on sunny days, excess solar generation is wasted; and
- requires a more "hands-on" management approach than the grid.

7.0 Appendix D: Key Assumptions

Solar PV:

- 4 kW solar system
- North-facing, 20 degree tilt.
- Calculations as per pveducation.org[5]
- Generation de-rates with panel temperature at 0.5% per degree.
- Other efficiency losses to inverter output are 15%.
- Panel output degrades 0.5% per year.
- No shading by trees, buildings etc.
- Hourly irradiance data from satellites via BOM :
  - Global Horizontal Irradiance (GHI)
  - Direct Normal Irradiance (DNI)
- Half-hourly temperature data from BOM weather stations.
- Data condensed into a Typical Meteorological Year.
- Annual generation calibrated to calculations by NREL's PVWatts system.

Batteries:

- Two sizes – 4 kilowatt-hours (kWh) and 7 kWh usable.
- Battery built into the solar inverter, or DC coupled.
- There is a sensor in the meter box for battery logic.
- There is no way to charge the battery from the grid.
- The battery cannot power the house in a blackout.
- Lithium chemistry
- No Peukert effect or taper-charging
- 90% round-trip efficiency.
- Battery can completely charge or discharge in 1.4 hours.
- For TOU tariffs, no extra rules are applied delaying all discharge until peak tariff period.
  - Such rules would slightly improve the economics.

Equipment Costs:

- Price for a 4 kW grid-connected solar system installed without batteries inc. GST & STC[6]:
  - Adelaide $6,074
  - Alice Springs $7,588 (assumed same as Hobart)
  - Brisbane $6,645
  - Cairns $6,645 (assumed same as Brisbane)
  - Canberra $6,477
  - Hobart $7,588
  - Melbourne $6,547
  - Sydney $6,772
  - Perth $5,435

[5] http://pveducation.org/pvcdrom
[6] http://www.solarchoice.net.au/blog/solar-pv-system-prices-october-2015

- Solar system prices decrease 1% per year.
- Price to add on lithium battery capacity, fully installed:
  - 4kWh usable: $3,304
  - 7 kWh usable: $5,504
- Battery prices decrease 8% per year.
- Solar panels are not replaced within the 30 year horizon.
- Solar inverter is replaced after 10 years, at 30% of the grid-connect system cost.
- Batteries are replaced after 10 years, at 46% of the battery cost.

Tariffs:

- Actual retail tariffs with no minimum duration were selected.
  - In most cases these were "standing" tariffs from a large retailer.
- Fixed tariffs were found for all locations.
  - kWh charge ranges from 17.27c in Canberra to 31.68c in Adelaide.
  - Fixed daily charge ranges from 47c in Perth to $1.28 in Brisbane.
- Time of Use tariffs were found for Brisbane, Sydney, Adelaide, Canberra and Melbourne
  - Structure varied widely.
  - Peak kWh charge ranged from 23.38c in Canberra to 50.61c in Sydney.
  - The Canberra TOU tariff was modelled in a simplified manner.
  - Time Of Use tariffs were not found for Darwin, Alice Springs or Hobart.
  - The Perth TOU tariff was too complex to model in the current version of Sunulator.
- Demand tariffs were hypothesised with the following values:
  - Demand charge $9 per kW, applied to each month.
  - Demand charge considers only weekdays, 3-9pm.
  - Monthly reset of the maximum demand.
  - kWh charges Off-peak 12c, peak 29.75c.
  - Peak period for kWh charges 7am-11pm.
  - Daily fixed charge equals the fixed charge for the fixed tariff.
- In anticipation of moves to more cost-reflective pricing, each year tariffs are adjusted as follows:
  - Fixed component: 1% increase
  - kWh component: 1% decrease
  - Demand component: 1% increase

Economics:

- All values in 2016 dollars and include 10% GST.
- The solar system is purchased outright by the household.
- Future returns are discounted at 2.5% per year, to reflect mortgage rates adjusted for inflation.
- Net Present Value used a horizon of 20 years.
- Feed In Tariff: 6c per kWh.
- Maintenance/inspection costs allowed for: $50 per year.

8.0 Appendix E: Tables of Results

ConsFile	WorkingCouple
Location	Adelaide

			Values					
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$1,528		
		4kW	17.7	20%		$800	9	$2,814
		4kW4kWh	17.7	44%	93%	$458	10	$2,711
		4kW7kWh	17.7	55%	80%	$286	10	$2,267
	2	BAU	0.0	0%		$1,509		
		4kW	17.7	20%		$789	9	$2,852
		4kW4kWh	17.7	44%	93%	$455	9	$3,304
		4kW7kWh	17.7	55%	80%	$289	10	$3,263
	4	BAU	0.0	0%		$1,490		
		4kW	17.7	20%		$778	9	$2,891
		4kW4kWh	17.7	44%	93%	$453	9	$3,780
		4kW7kWh	17.7	55%	80%	$291	9	$4,066
TOU	0	BAU	0.0	0%		$1,160		
		4kW	17.7	20%		$540	14	$1,360
		4kW4kWh	17.7	44%	93%	$313	18	-$486
		4kW7kWh	17.7	55%	80%	$214	20	-$1,990
	2	BAU	0.0	0%		$1,148		
		4kW	17.7	20%		$533	14	$1,427
		4kW4kWh	17.7	44%	93%	$314	17	$168
		4kW7kWh	17.7	55%	80%	$217	18	-$906
	4	BAU	0.0	0%		$1,136		
		4kW	17.7	20%		$528	14	$1,496
		4kW4kWh	17.7	44%	93%	$314	16	$709
		4kW7kWh	17.7	55%	80%	$220	17	-$23
Demand	0	BAU	0.0	0%		$1,284		
		4kW	17.7	20%		$666	14	$1,358
		4kW4kWh	17.7	44%	93%	$394	17	$265
		4kW7kWh	17.7	55%	80%	$246	17	-$357
	2	BAU	0.0	0%		$1,276		
		4kW	17.7	20%		$663	14	$1,425
		4kW4kWh	17.7	44%	93%	$398	16	$935
		4kW7kWh	17.7	55%	80%	$250	16	$774
	4	BAU	0.0	0%		$1,268		
		4kW	17.7	20%		$661	14	$1,492
		4kW4kWh	17.7	44%	93%	$401	15	$1,496
		4kW7kWh	17.7	55%	80%	$255	15	$1,707

ConsFile	WorkingCo e
Location	Alice Spring

Values								
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$1,250		
		4kW	19.5	19%		$534	15	$841
		4kW4kWh	19.5	40%	94%	$256	17	-$215
		4kW7kWh	19.5	51%	80%	$119	18	-$1,157
	2	BAU	0.0	0%		$1,233		
		4kW	19.5	19%		$524	15	$938
		4kW4kWh	19.5	40%	94%	$254	16	$447
		4kW7kWh	19.5	51%	80%	$120	17	-$85
	4	BAU	0.0	0%		$1,216		
		4kW	19.5	19%		$514	15	$1,018
		4kW4kWh	19.5	40%	94%	$251	16	$988
		4kW7kWh	19.5	51%	80%	$121	16	$793
Demand	0	BAU	0.0	0%		$1,193		
		4kW	19.5	19%		$523	16	$255
		4kW4kWh	19.5	40%	94%	$243	18	-$685
		4kW7kWh	19.5	51%	80%	$95	19	-$1,329
	2	BAU	0.0	0%		$1,183		
		4kW	19.5	19%		$519	16	$356
		4kW4kWh	19.5	40%	94%	$244	17	$27
		4kW7kWh	19.5	51%	80%	$98	17	-$165
	4	BAU	0.0	0%		$1,173		
		4kW	19.5	19%		$515	16	$454
		4kW4kWh	19.5	40%	94%	$245	16	$617
		4kW7kWh	19.5	51%	80%	$101	16	$804

ConsFile	WorkingCo e
Location	Brisbane

			Values					
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$1,429		
		4kW	16.8	21%		$809	16	$615
		4kW4kWh	16.8	46%	94%	$565	18	-$937
		4kW7kWh	16.8	58%	80%	$447	20	-$2,180
	2	BAU	0.0	0%		$1,419		
		4kW	16.8	21%		$806	15	$697
		4kW4kWh	16.8	46%	94%	$568	17	-$278
		4kW7kWh	16.8	58%	80%	$454	19	-$1,102
	4	BAU	0.0	0%		$1,410		
		4kW	16.8	21%		$803	15	$768
		4kW4kWh	16.8	46%	94%	$572	16	$263
		4kW7kWh	16.8	58%	80%	$461	17	-$219
TOU	0	BAU	0.0	0%		$1,379		
		4kW	16.8	21%		$774	16	$423
		4kW4kWh	16.8	46%	94%	$513	18	-$918
		4kW7kWh	16.8	58%	80%	$421	27	-$2,550
	2	BAU	0.0	0%		$1,370		
		4kW	16.8	21%		$771	16	$506
		4kW4kWh	16.8	46%	94%	$517	17	-$261
		4kW7kWh	16.8	58%	80%	$428	19	-$1,462
	4	BAU	0.0	0%		$1,362		
		4kW	16.8	21%		$769	16	$582
		4kW4kWh	16.8	46%	94%	$522	16	$278
		4kW7kWh	16.8	58%	80%	$436	18	-$577
Demand	0	BAU	0.0	0%		$1,463		
		4kW	16.8	21%		$865	16	$352
		4kW4kWh	16.8	46%	94%	$589	18	-$682
		4kW7kWh	16.8	58%	80%	$443	19	-$1,326
	2	BAU	0.0	0%		$1,458		
		4kW	16.8	21%		$866	16	$432
		4kW4kWh	16.8	46%	94%	$596	17	$4
		4kW7kWh	16.8	58%	80%	$450	17	-$191
	4	BAU	0.0	0%		$1,454		
		4kW	16.8	21%		$868	16	$510
		4kW4kWh	16.8	46%	94%	$603	16	$572
		4kW7kWh	16.8	58%	80%	$459	16	$757

ConsFile	WorkingCo e
Location	Cairns

			Values					
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$1,432		
		4kW	16.8	21%		$771	15	$1,178
		4kW4kWh	16.8	46%	94%	$479	16	$338
		4kW7kWh	16.8	58%	80%	$336	18	-$529
	2	BAU	0.0	0%		$1,417		
		4kW	16.8	21%		$763	14	$1,242
		4kW4kWh	16.8	46%	94%	$478	16	$974
		4kW7kWh	16.8	58%	80%	$339	16	$517
	4	BAU	0.0	0%		$1,403		
		4kW	16.8	21%		$756	14	$1,308
		4kW4kWh	16.8	46%	94%	$478	15	$1,489
		4kW7kWh	16.8	58%	80%	$343	15	$1,374
Demand	0	BAU	0.0	0%		$1,332		
		4kW	16.8	21%		$730	16	$413
		4kW4kWh	16.8	46%	94%	$456	18	-$631
		4kW7kWh	16.8	58%	80%	$309	19	-$1,261
	2	BAU	0.0	0%		$1,325		
		4kW	16.8	21%		$729	16	$495
		4kW4kWh	16.8	46%	94%	$460	17	$57
		4kW7kWh	16.8	58%	80%	$314	17	-$120
	4	BAU	0.0	0%		$1,318		
		4kW	16.8	21%		$728	16	$576
		4kW4kWh	16.8	46%	94%	$464	16	$628
		4kW7kWh	16.8	58%	80%	$319	16	$827

ConsFile	WorkingCo	e
Location	Canberra	

			Values					
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$956		
		4kW	17.4	20%		$419	17	-$284
		4kW4kWh	17.4	44%	93%	$277		-$3,370
		4kW7kWh	17.4	56%	79%	$208		-$5,331
	2	BAU	0.0	0%		$948		
		4kW	17.4	20%		$416	17	-$185
		4kW4kWh	17.4	44%	93%	$278	29	-$2,658
		4kW7kWh	17.4	56%	79%	$211		-$4,182
	4	BAU	0.0	0%		$940		
		4kW	17.4	20%		$413	17	-$90
		4kW4kWh	17.4	44%	93%	$279	28	-$2,067
		4kW7kWh	17.4	56%	79%	$215		-$3,233
TOU	0	BAU	0.0	0%		$910		
		4kW	17.4	20%		$377	18	-$324
		4kW4kWh	17.4	44%	93%	$231		-$3,385
		4kW7kWh	17.4	56%	79%	$185		-$5,678
	2	BAU	0.0	0%		$903		
		4kW	17.4	20%		$375	17	-$229
		4kW4kWh	17.4	44%	93%	$233	29	-$2,671
		4kW7kWh	17.4	56%	79%	$189		-$4,526
	4	BAU	0.0	0%		$896		
		4kW	17.4	20%		$372	17	-$132
		4kW4kWh	17.4	44%	93%	$236	28	-$2,084
		4kW7kWh	17.4	56%	79%	$193		-$3,570
Demand	0	BAU	0.0	0%		$1,275		
		4kW	17.4	20%		$664	15	$749
		4kW4kWh	17.4	44%	93%	$395	18	-$381
		4kW7kWh	17.4	56%	79%	$257	19	-$1,170
	2	BAU	0.0	0%		$1,266		
		4kW	17.4	20%		$661	15	$824
		4kW4kWh	17.4	44%	93%	$398	16	$298
		4kW7kWh	17.4	56%	79%	$261	17	-$32
	4	BAU	0.0	0%		$1,258		
		4kW	17.4	20%		$659	15	$908
		4kW4kWh	17.4	44%	93%	$401	16	$866
		4kW7kWh	17.4	56%	79%	$265	16	$908

ConsFile	WorkingCo e
Location	Darwin

			Values					
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$1,250		
		4kW	17.2	20%		$606	15	$971
		4kW4kWh	17.2	44%	94%	$329	17	-$113
		4kW7kWh	17.2	56%	80%	$193	18	-$1,067
	2	BAU	0.0	0%		$1,233		
		4kW	17.2	20%		$595	15	$1,042
		4kW4kWh	17.2	44%	94%	$326	16	$534
		4kW7kWh	17.2	56%	80%	$193	17	-$5
	4	BAU	0.0	0%		$1,216		
		4kW	17.2	20%		$585	15	$1,115
		4kW4kWh	17.2	44%	94%	$323	15	$1,064
		4kW7kWh	17.2	56%	80%	$194	16	$859
Demand	0	BAU	0.0	0%		$1,193		
		4kW	17.2	20%		$588	16	$467
		4kW4kWh	17.2	44%	94%	$309	18	-$492
		4kW7kWh	17.2	56%	80%	$168	19	-$1,216
	2	BAU	0.0	0%		$1,183		
		4kW	17.2	20%		$583	16	$552
		4kW4kWh	17.2	44%	94%	$310	17	$205
		4kW7kWh	17.2	56%	80%	$170	17	-$67
	4	BAU	0.0	0%		$1,173		
		4kW	17.2	20%		$580	16	$632
		4kW4kWh	17.2	44%	94%	$311	16	$781
		4kW7kWh	17.2	56%	80%	$172	16	$885

ConsFile	WorkingCo e
Location	Hobart

			Values					
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$1,317		
		4kW	14.1	24%		$761	20	-$1,471
		4kW4kWh	14.1	54%	93%	$509	29	-$2,922
		4kW7kWh	14.1	67%	78%	$391		-$4,151
	2	BAU	0.0	0%		$1,304		
		4kW	14.1	24%		$754	20	-$1,369
		4kW4kWh	14.1	54%	93%	$509	27	-$2,243
		4kW7kWh	14.1	67%	78%	$394	29	-$3,048
	4	BAU	0.0	0%		$1,291		
		4kW	14.1	24%		$747	20	-$1,272
		4kW4kWh	14.1	54%	93%	$509	20	-$1,674
		4kW7kWh	14.1	67%	78%	$398	20	-$2,144
Demand	0	BAU	0.0	0%		$1,324		
		4kW	14.1	24%		$793	27	-$1,793
		4kW4kWh	14.1	54%	93%	$522	28	-$2,883
		4kW7kWh	14.1	67%	78%	$411	30	-$4,140
	2	BAU	0.0	0%		$1,316		
		4kW	14.1	24%		$791	26	-$1,686
		4kW4kWh	14.1	54%	93%	$525	27	-$2,170
		4kW7kWh	14.1	67%	78%	$416	28	-$2,984
	4	BAU	0.0	0%		$1,309		
		4kW	14.1	24%		$790	26	-$1,581
		4kW4kWh	14.1	54%	93%	$529	20	-$1,576
		4kW7kWh	14.1	67%	78%	$422	20	-$2,020

ConsFile	WorkingCo e
Location	Melbourne

			Values					
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$1,310		
		4kW	15.5	22%		$753	17	-$129
		4kW4kWh	15.5	48%	91%	$533	27	-$2,063
		4kW7kWh	15.5	61%	78%	$426	30	-$3,452
	2	BAU	0.0	0%		$1,300		
		4kW	15.5	22%		$748	17	-$43
		4kW4kWh	15.5	48%	91%	$535	19	-$1,388
		4kW7kWh	15.5	61%	78%	$431	27	-$2,357
	4	BAU	0.0	0%		$1,291		
		4kW	15.5	22%		$744	17	$38
		4kW4kWh	15.5	48%	91%	$537	18	-$833
		4kW7kWh	15.5	61%	78%	$436	19	-$1,452
TOU	0	BAU	0.0	0%		$1,328		
		4kW	15.5	22%		$748	16	$204
		4kW4kWh	15.5	48%	91%	$505	19	-$1,416
		4kW7kWh	15.5	61%	78%	$419	29	-$3,124
	2	BAU	0.0	0%		$1,319		
		4kW	15.5	22%		$744	16	$278
		4kW4kWh	15.5	48%	91%	$508	18	-$760
		4kW7kWh	15.5	61%	78%	$425	20	-$2,036
	4	BAU	0.0	0%		$1,310		
		4kW	15.5	22%		$741	16	$355
		4kW4kWh	15.5	48%	91%	$512	17	-$211
		4kW7kWh	15.5	61%	78%	$431	19	-$1,139
Demand	0	BAU	0.0	0%		$1,397		
		4kW	15.5	22%		$838	17	-$90
		4kW4kWh	15.5	48%	91%	$575	19	-$1,300
		4kW7kWh	15.5	61%	78%	$448	20	-$2,275
	2	BAU	0.0	0%		$1,391		
		4kW	15.5	22%		$838	17	-$5
		4kW4kWh	15.5	48%	91%	$580	18	-$611
		4kW7kWh	15.5	61%	78%	$454	19	-$1,137
	4	BAU	0.0	0%		$1,386		
		4kW	15.5	22%		$838	17	$74
		4kW4kWh	15.5	48%	91%	$585	17	-$38
		4kW7kWh	15.5	61%	78%	$461	17	-$196

ConsFile	WorkingCase
Location	Perth

Values								
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$1,182		
		4kW	17.7	20%		$529	9	$2,582
		4kW4kWh	17.7	44%	94%	$268	15	$1,272
		4kW7kWh	17.7	56%	80%	$139	17	$199
	2	BAU	0.0	0%		$1,166		
		4kW	17.7	20%		$519	9	$2,626
		4kW4kWh	17.7	44%	94%	$265	10	$1,896
		4kW7kWh	17.7	56%	80%	$140	15	$1,238
	4	BAU	0.0	0%		$1,150		
		4kW	17.7	20%		$509	9	$2,668
		4kW4kWh	17.7	44%	94%	$262	10	$2,399
		4kW7kWh	17.7	56%	80%	$140	10	$2,081
Demand	0	BAU	0.0	0%		$1,172		
		4kW	17.7	20%		$553	10	$2,136
		4kW4kWh	17.7	44%	94%	$276	15	$1,136
		4kW7kWh	17.7	56%	80%	$133	17	$420
	2	BAU	0.0	0%		$1,161		
		4kW	17.7	20%		$549	10	$2,188
		4kW4kWh	17.7	44%	94%	$277	14	$1,796
		4kW7kWh	17.7	56%	80%	$136	15	$1,527
	4	BAU	0.0	0%		$1,151		
		4kW	17.7	20%		$544	10	$2,238
		4kW4kWh	17.7	44%	94%	$278	10	$2,334
		4kW7kWh	17.7	56%	80%	$138	10	$2,442

ConsFile	WorkingCo	e
Location	Sydney	

			Values					
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$1,221		
		4kW	15.8	22%		$648	17	-$191
		4kW4kWh	15.8	48%	91%	$425	27	-$2,082
		4kW7kWh	15.8	59%	77%	$322	30	-$3,530
	2	BAU	0.0	0%		$1,209		
		4kW	15.8	22%		$641	17	-$104
		4kW4kWh	15.8	48%	91%	$425	19	-$1,400
		4kW7kWh	15.8	59%	77%	$325	27	-$2,423
	4	BAU	0.0	0%		$1,197		
		4kW	15.8	22%		$635	17	-$21
		4kW4kWh	15.8	48%	91%	$425	18	-$844
		4kW7kWh	15.8	59%	77%	$328	19	-$1,522
TOU	0	BAU	0.0	0%		$1,290		
		4kW	15.8	22%		$700	17	$49
		4kW4kWh	15.8	48%	91%	$392	18	-$662
		4kW7kWh	15.8	59%	77%	$332	28	-$2,746
	2	BAU	0.0	0%		$1,279		
		4kW	15.8	22%		$695	17	$129
		4kW4kWh	15.8	48%	91%	$395	17	-$11
		4kW7kWh	15.8	59%	77%	$337	19	-$1,657
	4	BAU	0.0	0%		$1,268		
		4kW	15.8	22%		$690	16	$209
		4kW4kWh	15.8	48%	91%	$399	16	$518
		4kW7kWh	15.8	59%	77%	$342	18	-$768
Demand	0	BAU	0.0	0%		$1,302		
		4kW	15.8	22%		$733	17	-$230
		4kW4kWh	15.8	48%	91%	$467	19	-$1,419
		4kW7kWh	15.8	59%	77%	$362	27	-$2,773
	2	BAU	0.0	0%		$1,294		
		4kW	15.8	22%		$731	17	-$139
		4kW4kWh	15.8	48%	91%	$470	18	-$727
		4kW7kWh	15.8	59%	77%	$367	19	-$1,632
	4	BAU	0.0	0%		$1,286		
		4kW	15.8	22%		$729	17	-$54
		4kW4kWh	15.8	48%	91%	$474	17	-$153
		4kW7kWh	15.8	59%	77%	$372	18	-$695

ConsFile	YoungFami
Location	Adelaide

Values								
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$3,173		
		4kW	17.7	50%		$1,950	6	$9,332
		4kW4kWh	17.7	72%	78%	$1,639	7	$8,773
		4kW7kWh	17.7	80%	63%	$1,522	8	$7,567
	2	BAU	0.0	0%		$3,121		
		4kW	17.7	50%		$1,919	6	$9,208
		4kW4kWh	17.7	72%	78%	$1,616	7	$9,212
		4kW7kWh	17.7	80%	63%	$1,501	7	$8,430
	4	BAU	0.0	0%		$3,071		
		4kW	17.7	50%		$1,888	6	$9,083
		4kW4kWh	17.7	72%	78%	$1,593	6	$9,537
		4kW7kWh	17.7	80%	63%	$1,481	7	$9,098
TOU	0	BAU	0.0	0%		$2,306		
		4kW	17.7	50%		$1,347	7	$5,814
		4kW4kWh	17.7	72%	78%	$1,136	9	$3,738
		4kW7kWh	17.7	80%	63%	$1,061	15	$1,879
	2	BAU	0.0	0%		$2,271		
		4kW	17.7	50%		$1,326	7	$5,757
		4kW4kWh	17.7	72%	78%	$1,122	9	$4,274
		4kW7kWh	17.7	80%	63%	$1,049	10	$2,852
	4	BAU	0.0	0%		$2,237		
		4kW	17.7	50%		$1,307	7	$5,701
		4kW4kWh	17.7	72%	78%	$1,108	8	$4,698
		4kW7kWh	17.7	80%	63%	$1,038	9	$3,635
Demand	0	BAU	0.0	0%		$2,393		
		4kW	17.7	50%		$1,410	7	$6,271
		4kW4kWh	17.7	72%	78%	$1,150	9	$5,015
		4kW7kWh	17.7	80%	63%	$1,071	10	$3,235
	2	BAU	0.0	0%		$2,366		
		4kW	17.7	50%		$1,398	7	$6,215
		4kW4kWh	17.7	72%	78%	$1,142	8	$5,570
		4kW7kWh	17.7	80%	63%	$1,065	9	$4,232
	4	BAU	0.0	0%		$2,339		
		4kW	17.7	50%		$1,386	7	$6,163
		4kW4kWh	17.7	72%	78%	$1,135	8	$6,007
		4kW7kWh	17.7	80%	63%	$1,060	9	$5,033

ConsFile	YoungFami
Location	Alice Spring

Values								
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$2,646		
		4kW	19.5	49%		$1,481	7	$6,733
		4kW4kWh	19.5	71%	91%	$1,192	9	$5,825
		4kW7kWh	19.5	82%	77%	$1,061	9	$4,820
	2	BAU	0.0	0%		$2,602		
		4kW	19.5	49%		$1,455	7	$6,669
		4kW4kWh	19.5	71%	91%	$1,174	8	$6,333
		4kW7kWh	19.5	82%	77%	$1,046	9	$5,738
	4	BAU	0.0	0%		$2,557		
		4kW	19.5	49%		$1,429	7	$6,600
		4kW4kWh	19.5	71%	91%	$1,156	8	$6,716
		4kW7kWh	19.5	82%	77%	$1,031	8	$6,457
Demand	0	BAU	0.0	0%		$2,295		
		4kW	19.5	49%		$1,207	8	$5,936
		4kW4kWh	19.5	71%	91%	$908	9	$5,252
		4kW7kWh	19.5	82%	77%	$786	10	$4,159
	2	BAU	0.0	0%		$2,266		
		4kW	19.5	49%		$1,194	8	$5,904
		4kW4kWh	19.5	71%	91%	$901	9	$5,816
		4kW7kWh	19.5	82%	77%	$782	9	$5,161
	4	BAU	0.0	0%		$2,239		
		4kW	19.5	49%		$1,182	8	$5,874
		4kW4kWh	19.5	71%	91%	$895	8	$6,266
		4kW7kWh	19.5	82%	77%	$778	9	$5,967

ConsFile	YoungFami
Location	Brisbane

			Values					
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$2,699		
		4kW	16.8	51%		$1,742	8	$5,028
		4kW4kWh	16.8	76%	85%	$1,502	10	$3,382
		4kW7kWh	16.8	85%	67%	$1,417	15	$1,693
	2	BAU	0.0	0%		$2,665		
		4kW	16.8	51%		$1,722	8	$4,987
		4kW4kWh	16.8	76%	85%	$1,490	9	$3,929
		4kW7kWh	16.8	85%	67%	$1,407	10	$2,669
	4	BAU	0.0	0%		$2,631		
		4kW	16.8	51%		$1,703	8	$4,940
		4kW4kWh	16.8	76%	85%	$1,477	9	$4,350
		4kW7kWh	16.8	85%	67%	$1,396	10	$3,444
TOU	0	BAU	0.0	0%		$2,547		
		4kW	16.8	51%		$1,621	8	$4,625
		4kW4kWh	16.8	76%	85%	$1,348	10	$3,454
		4kW7kWh	16.8	85%	67%	$1,268	15	$1,668
	2	BAU	0.0	0%		$2,515		
		4kW	16.8	51%		$1,604	8	$4,591
		4kW4kWh	16.8	76%	85%	$1,338	9	$3,997
		4kW7kWh	16.8	85%	67%	$1,260	10	$2,643
	4	BAU	0.0	0%		$2,484		
		4kW	16.8	51%		$1,587	8	$4,549
		4kW4kWh	16.8	76%	85%	$1,328	9	$4,415
		4kW7kWh	16.8	85%	67%	$1,253	10	$3,419
Demand	0	BAU	0.0	0%		$2,565		
		4kW	16.8	51%		$1,619	8	$5,050
		4kW4kWh	16.8	76%	85%	$1,336	9	$4,109
		4kW7kWh	16.8	85%	67%	$1,250	15	$2,441
	2	BAU	0.0	0%		$2,542		
		4kW	16.8	51%		$1,610	8	$5,018
		4kW4kWh	16.8	76%	85%	$1,333	9	$4,673
		4kW7kWh	16.8	85%	67%	$1,248	10	$3,448
	4	BAU	0.0	0%		$2,520		
		4kW	16.8	51%		$1,602	8	$4,984
		4kW4kWh	16.8	76%	85%	$1,330	8	$5,123
		4kW7kWh	16.8	85%	67%	$1,248	9	$4,258

ConsFile	YoungFami
Location	Cairns

Values								
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$2,883		
		4kW	16.8	53%		$1,795	7	$6,777
		4kW4kWh	16.8	77%	82%	$1,518	8	$5,700
		4kW7kWh	16.8	85%	66%	$1,416	9	$4,255
	2	BAU	0.0	0%		$2,838		
		4kW	16.8	53%		$1,769	7	$6,694
		4kW4kWh	16.8	77%	82%	$1,499	8	$6,190
		4kW7kWh	16.8	85%	66%	$1,400	9	$5,174
	4	BAU	0.0	0%		$2,796		
		4kW	16.8	53%		$1,744	7	$6,616
		4kW4kWh	16.8	77%	82%	$1,481	8	$6,573
		4kW7kWh	16.8	85%	66%	$1,385	8	$5,904
Demand	0	BAU	0.0	0%		$2,435		
		4kW	16.8	53%		$1,463	8	$5,415
		4kW4kWh	16.8	77%	82%	$1,203	9	$4,095
		4kW7kWh	16.8	85%	66%	$1,121	15	$2,372
	2	BAU	0.0	0%		$2,409		
		4kW	16.8	53%		$1,451	8	$5,373
		4kW4kWh	16.8	77%	82%	$1,198	9	$4,652
		4kW7kWh	16.8	85%	66%	$1,118	10	$3,369
	4	BAU	0.0	0%		$2,384		
		4kW	16.8	53%		$1,441	8	$5,333
		4kW4kWh	16.8	77%	82%	$1,193	8	$5,095
		4kW7kWh	16.8	85%	66%	$1,115	9	$4,173

ConsFile	YoungFami
Location	Canberra

Values								
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$1,852		
		4kW	17.4	49%		$1,112	10	$2,323
		4kW4kWh	17.4	72%	79%	$980	18	-$932
		4kW7kWh	17.4	80%	64%	$929	29	-$3,135
	2	BAU	0.0	0%		$1,827		
		4kW	17.4	49%		$1,097	10	$2,338
		4kW4kWh	17.4	72%	79%	$970	17	-$295
		4kW7kWh	17.4	80%	64%	$920	20	-$2,058
	4	BAU	0.0	0%		$1,802		
		4kW	17.4	49%		$1,082	10	$2,347
		4kW4kWh	17.4	72%	79%	$959	17	$216
		4kW7kWh	17.4	80%	64%	$912	19	-$1,182
TOU	0	BAU	0.0	0%		$1,692		
		4kW	17.4	49%		$977	10	$1,998
		4kW4kWh	17.4	72%	79%	$833	19	-$1,095
		4kW7kWh	17.4	80%	64%	$790	30	-$3,423
	2	BAU	0.0	0%		$1,669		
		4kW	17.4	49%		$965	10	$2,022
		4kW4kWh	17.4	72%	79%	$825	18	-$455
		4kW7kWh	17.4	80%	64%	$784	27	-$2,345
	4	BAU	0.0	0%		$1,647		
		4kW	17.4	49%		$953	10	$2,039
		4kW4kWh	17.4	72%	79%	$818	17	$58
		4kW7kWh	17.4	80%	64%	$778	19	-$1,459
Demand	0	BAU	0.0	0%		$2,377		
		4kW	17.4	49%		$1,415	8	$5,500
		4kW4kWh	17.4	72%	79%	$1,145	9	$4,383
		4kW7kWh	17.4	80%	64%	$1,054	10	$2,798
	2	BAU	0.0	0%		$2,350		
		4kW	17.4	49%		$1,402	8	$5,457
		4kW4kWh	17.4	72%	79%	$1,137	9	$4,948
		4kW7kWh	17.4	80%	64%	$1,048	10	$3,811
	4	BAU	0.0	0%		$2,324		
		4kW	17.4	49%		$1,390	7	$5,422
		4kW4kWh	17.4	72%	79%	$1,131	8	$5,398
		4kW7kWh	17.4	80%	64%	$1,043	9	$4,626

ConsFile	YoungFami
Location	Darwin

Values								
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$2,646		
		4kW	17.2	53%		$1,563	7	$6,725
		4kW4kWh	17.2	78%	86%	$1,287	8	$5,626
		4kW7kWh	17.2	87%	69%	$1,185	9	$4,179
	2	BAU	0.0	0%		$2,602		
		4kW	17.2	53%		$1,536	7	$6,644
		4kW4kWh	17.2	78%	86%	$1,268	8	$6,122
		4kW7kWh	17.2	87%	69%	$1,169	9	$5,102
	4	BAU	0.0	0%		$2,557		
		4kW	17.2	53%		$1,509	7	$6,566
		4kW4kWh	17.2	78%	86%	$1,248	8	$6,499
		4kW7kWh	17.2	87%	69%	$1,152	8	$5,826
Demand	0	BAU	0.0	0%		$2,295		
		4kW	17.2	53%		$1,279	7	$6,070
		4kW4kWh	17.2	78%	86%	$998	9	$5,103
		4kW7kWh	17.2	87%	69%	$903	10	$3,620
	2	BAU	0.0	0%		$2,266		
		4kW	17.2	53%		$1,265	7	$6,024
		4kW4kWh	17.2	78%	86%	$990	8	$5,661
		4kW7kWh	17.2	87%	69%	$896	9	$4,631
	4	BAU	0.0	0%		$2,239		
		4kW	17.2	53%		$1,252	7	$5,977
		4kW4kWh	17.2	78%	86%	$983	8	$6,099
		4kW7kWh	17.2	87%	69%	$890	9	$5,445

ConsFile	YoungFami
Location	Hobart

Values								
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$2,626		
		4kW	14.1	56%		$1,762	10	$2,550
		4kW4kWh	14.1	79%	67%	$1,563	16	$306
		4kW7kWh	14.1	85%	49%	$1,511	19	-$1,886
	2	BAU	0.0	0%		$2,587		
		4kW	14.1	56%		$1,737	10	$2,542
		4kW4kWh	14.1	79%	67%	$1,544	16	$897
		4kW7kWh	14.1	85%	49%	$1,493	18	-$842
	4	BAU	0.0	0%		$2,549		
		4kW	14.1	56%		$1,713	10	$2,536
		4kW4kWh	14.1	79%	67%	$1,525	15	$1,377
		4kW7kWh	14.1	85%	49%	$1,476	17	$2
Demand	0	BAU	0.0	0%		$2,426		
		4kW	14.1	56%		$1,586	10	$2,391
		4kW4kWh	14.1	79%	67%	$1,379	17	$266
		4kW7kWh	14.1	85%	49%	$1,324	19	-$1,850
	2	BAU	0.0	0%		$2,400		
		4kW	14.1	56%		$1,573	10	$2,397
		4kW4kWh	14.1	79%	67%	$1,371	16	$882
		4kW7kWh	14.1	85%	49%	$1,317	18	-$786
	4	BAU	0.0	0%		$2,375		
		4kW	14.1	56%		$1,561	10	$2,403
		4kW4kWh	14.1	79%	67%	$1,364	15	$1,380
		4kW7kWh	14.1	85%	49%	$1,311	17	$87

ConsFile	YoungFami
Location	Melbourne

Values								
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$2,512		
		4kW	15.5	52%		$1,662	9	$3,674
		4kW4kWh	15.5	75%	72%	$1,475	15	$1,262
		4kW7kWh	15.5	82%	55%	$1,416	18	-$823
	2	BAU	0.0	0%		$2,478		
		4kW	15.5	52%		$1,642	9	$3,646
		4kW4kWh	15.5	75%	72%	$1,460	14	$1,837
		4kW7kWh	15.5	82%	55%	$1,402	17	$198
	4	BAU	0.0	0%		$2,445		
		4kW	15.5	52%		$1,622	9	$3,625
		4kW4kWh	15.5	75%	72%	$1,445	10	$2,307
		4kW7kWh	15.5	82%	55%	$1,390	16	$1,034
TOU	0	BAU	0.0	0%		$2,437		
		4kW	15.5	52%		$1,518	8	$4,707
		4kW4kWh	15.5	75%	72%	$1,299	10	$2,733
		4kW7kWh	15.5	82%	55%	$1,240	16	$633
	2	BAU	0.0	0%		$2,405		
		4kW	15.5	52%		$1,501	8	$4,658
		4kW4kWh	15.5	75%	72%	$1,288	10	$3,281
		4kW7kWh	15.5	82%	55%	$1,231	15	$1,626
	4	BAU	0.0	0%		$2,375		
		4kW	15.5	52%		$1,486	8	$4,619
		4kW4kWh	15.5	75%	72%	$1,278	9	$3,720
		4kW7kWh	15.5	82%	55%	$1,223	10	$2,432
Demand	0	BAU	0.0	0%		$2,500		
		4kW	15.5	52%		$1,608	8	$4,437
		4kW4kWh	15.5	75%	72%	$1,367	10	$2,875
		4kW7kWh	15.5	82%	55%	$1,300	16	$926
	2	BAU	0.0	0%		$2,475		
		4kW	15.5	52%		$1,596	8	$4,413
		4kW4kWh	15.5	75%	72%	$1,360	10	$3,468
		4kW7kWh	15.5	82%	55%	$1,295	15	$1,972
	4	BAU	0.0	0%		$2,451		
		4kW	15.5	52%		$1,586	8	$4,391
		4kW4kWh	15.5	75%	72%	$1,355	9	$3,942
		4kW7kWh	15.5	82%	55%	$1,290	10	$2,818

ConsFile	YoungFami
Location	Perth

Values								
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$2,517		
		4kW	17.7	50%		$1,485	6	$7,537
		4kW4kWh	17.7	73%	84%	$1,233	8	$6,091
		4kW7kWh	17.7	82%	67%	$1,140	9	$4,515
	2	BAU	0.0	0%		$2,474		
		4kW	17.7	50%		$1,459	6	$7,448
		4kW4kWh	17.7	73%	84%	$1,213	7	$6,583
		4kW7kWh	17.7	82%	67%	$1,123	8	$5,433
	4	BAU	0.0	0%		$2,432		
		4kW	17.7	50%		$1,433	6	$7,360
		4kW4kWh	17.7	73%	84%	$1,194	7	$6,960
		4kW7kWh	17.7	82%	67%	$1,106	8	$6,164
Demand	0	BAU	0.0	0%		$2,274		
		4kW	17.7	50%		$1,296	6	$6,973
		4kW4kWh	17.7	73%	84%	$1,019	8	$5,942
		4kW7kWh	17.7	82%	67%	$938	9	$4,195
	2	BAU	0.0	0%		$2,245		
		4kW	17.7	50%		$1,282	6	$6,902
		4kW4kWh	17.7	73%	84%	$1,011	8	$6,466
		4kW7kWh	17.7	82%	67%	$932	9	$5,157
	4	BAU	0.0	0%		$2,217		
		4kW	17.7	50%		$1,268	6	$6,830
		4kW4kWh	17.7	73%	84%	$1,003	7	$6,880
		4kW7kWh	17.7	82%	67%	$926	8	$5,927

ConsFile	YoungFami
Location	Sydney

		Values						
TariffType	ProjectYear	ScenName	DailyGeneration	SelfConsumption	BattUtilisation	AnnualBill	SimplePaybackYrs	NetPresentValue
Flat	0	BAU	0.0	0%		$2,432		
		4kW	15.8	51%		$1,571	9	$3,568
		4kW4kWh	15.8	74%	76%	$1,372	15	$1,317
		4kW7kWh	15.8	82%	60%	$1,303	18	-$620
	2	BAU	0.0	0%		$2,397		
		4kW	15.8	51%		$1,548	9	$3,554
		4kW4kWh	15.8	74%	76%	$1,355	14	$1,898
		4kW7kWh	15.8	82%	60%	$1,288	16	$402
	4	BAU	0.0	0%		$2,361		
		4kW	15.8	51%		$1,526	9	$3,531
		4kW4kWh	15.8	74%	76%	$1,338	10	$2,362
		4kW7kWh	15.8	82%	60%	$1,273	15	$1,224
TOU	0	BAU	0.0	0%		$2,498		
		4kW	15.8	51%		$1,578	8	$4,406
		4kW4kWh	15.8	74%	76%	$1,243	9	$4,103
		4kW7kWh	15.8	82%	60%	$1,168	15	$2,241
	2	BAU	0.0	0%		$2,463		
		4kW	15.8	51%		$1,558	8	$4,367
		4kW4kWh	15.8	74%	76%	$1,231	9	$4,629
		4kW7kWh	15.8	82%	60%	$1,158	10	$3,207
	4	BAU	0.0	0%		$2,429		
		4kW	15.8	51%		$1,538	8	$4,336
		4kW4kWh	15.8	74%	76%	$1,220	8	$5,040
		4kW7kWh	15.8	82%	60%	$1,149	9	$3,978
Demand	0	BAU	0.0	0%		$2,404		
		4kW	15.8	51%		$1,514	9	$4,109
		4kW4kWh	15.8	74%	76%	$1,267	10	$2,621
		4kW7kWh	15.8	82%	60%	$1,201	16	$637
	2	BAU	0.0	0%		$2,377		
		4kW	15.8	51%		$1,501	8	$4,092
		4kW4kWh	15.8	74%	76%	$1,259	10	$3,211
		4kW7kWh	15.8	82%	60%	$1,195	15	$1,668
	4	BAU	0.0	0%		$2,352		
		4kW	15.8	51%		$1,489	8	$4,070
		4kW4kWh	15.8	74%	76%	$1,252	9	$3,682
		4kW7kWh	15.8	82%	60%	$1,190	10	$2,506