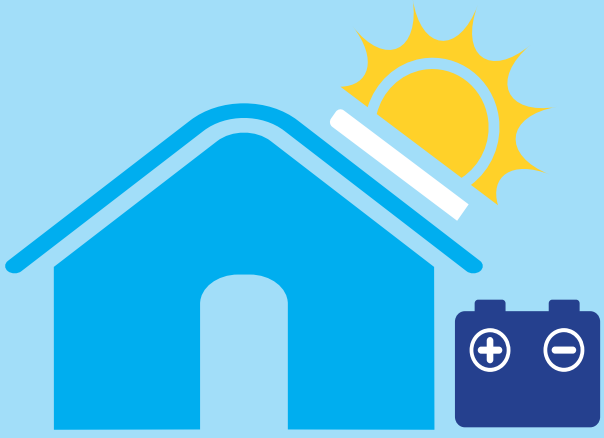
ITP Renewables
Consulting | Engineering | Implementation

NEXT GEN BATTERY STORAGE FOR YOUR HOME



Next Generation | Energy Storage Pilot

www.itpau.com.au

To address climate change

WE NEED TO CHANGE HOW WE GENERATE AND USE ENERGY.

By installing a PV and battery system, you can be among the first to kick-start this change and contribute to a sustainable future, both locally and globally.

The ACT is already leading the renewable energy revolution and is on track to achieve 100% renewable electricity by 2020.

ITP Renewables is one of three renewable energy firms to have been selected by the ACT Government to deliver their Next Generation Renewables Energy Storage Pilot.

The Pilot creates a very exciting opportunity for ACT households and businesses to join the energy revolution created by the advent of affordable battery storage!

About the ACT Government Next Generation Energy Storage Pilot

The ACT Government plans to support the roll-out of 36 megawatts of energy storage to across more than 5,000 Canberra homes and businesses by 2020.

This Pilot is the beginning of that plan. The ACT Government is providing $600,000 to support the first wave of battery installations.

A key objective of the Pilot is to generate valuable real-world data on energy storage system costs and performance. This data will be analysed to identify opportunities to improve consumer outcomes and uptake rates for energy storage businesses.

Households and businesses participating in the Pilot will not only benefit from the support of the ACT Government, but will be participating in critically important research that will speed up the transition to renewable energy, both locally and globally.

Who are these systems for?

We are offering systems to homes and businesses who are interested in the benefits of battery storage. Each system will be tailored to the customer and large energy consumers may sensibly choose to purchase larger systems.

The time it takes for the system to pay for itself will vary significantly depending on how the system is used. Households or businesses that will have the best payback period are those which:

- Consume a lot of electricity
- Consume most of their electricity late in the day or in the evening when the solar PV system is no longer generating power
- Have easily accessible, suitably orientated roofs with no shading.

Installing energy storage systems will be less financially attractive to households benefiting from premium feed-in tariffs because they are paid a relatively high price for the electricity they export to the grid. Customers not on a premium feed-in tariff, however, would benefit from storing their excess solar energy during the day to offset their usage at night.

As a key objective of the Pilot is to generate valuable real-world data on energy storage system costs and performance, households and businesses participating in the Pilot will be required to share anonymised data on their system usage. This will require a satisfactory mobile phone signal strength.

Why batteries?

In recent years the economic feasibility of installing a residential energy storage system has significantly improved, with continued technological improvements and economies of scale constantly pushing battery prices down. The ACT Government's support through the Next Generation Pilot makes batteries a more financially attractive option than ever before.

Reduce electricity bills

By installing a battery with your PV system, you can significantly reduce your electricity bills.

Storing solar electricity is valuable because rather than selling surplus solar electricity back to the electricity grid for low prices, consumers can instead reduce the need to buy relatively high cost electricity from the grid during peak times.

A solar and battery system also protects yourself against future rising electricity prices.

Gain energy independence

A PV and battery system enables you to take control of your energy generation and consumption. Instead of feeding surplus electricity generated by your solar panels during the day back to the grid, save it in the battery for later use and reduce the amount of electricity you purchase. Our system can even provide you with power if there is a blackout, giving you the peace of mind that electricity will be available when you need it.

Contribute to world-leading research

This Pilot is among the first of its kind in Australia and the world, and will generate invaluable data for research which will facilitate better understanding of the operation and effect of battery systems within the network. **Households and businesses which install systems as part of the Pilot will be participating in critically important research that will speed up the transition to renewable energy, both locally and globally.**

Community Benefits

Distributed small-scale battery banks can also have a broader community benefit. By cutting demand on over-loaded parts of the electricity network during peak usage periods they can reduce the need for future investment in electricity network infrastructure. This saves everybody money.

ITP solar and storage systems

We offer three different system sizes to suit a range of users. Each new battery system must be connected to a solar PV system. We will help you to find the best system size for your needs by visiting your home, evaluating where your solar and battery system would be situated and talking to you about your electricity usage.

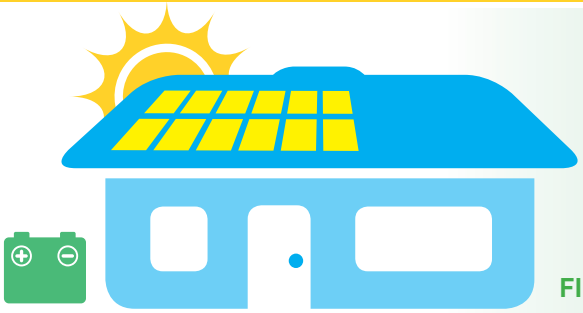
The below prices are indicative only and may change based on your premises. Additional charges may apply, depending on (but not limited to) your roof surface, pitch and access; complex panel arrangements; and other factors. We will visit your house to inspect the area and talk to you about the best system for you, to provide a tailored quote.

The pricing below does not include grid connection and inspection fees and assumes a small-scale technology certificate (STC) price of $38. See FAQ for more information.

ITP SMALL SYSTEM

x12 panels
x1 regular battery

· Jinko Solar 260W solar panels x 12 (3.1kW)
· LG Chem RESU 6.4kWh battery
· Redback Smart Hybrid System inverter



SMALL SYSTEM COSTS

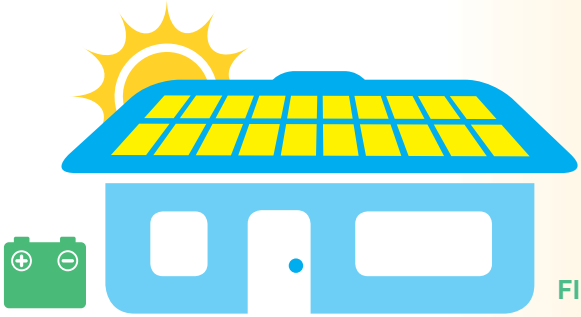
Total: $17,662
STC Rebate: $2,432
ACT NextGen subsidy: $3,240

FINAL PRICE: $11,990

ITP MEDIUM SYSTEM

x20 panels
x1 regular battery

· Jinko Solar 260W solar panels x 20 (5.2kW)
· LG Chem RESU 6.4kWh battery
· Redback Smart Hybrid System inverter



MEDIUM SYSTEM COSTS

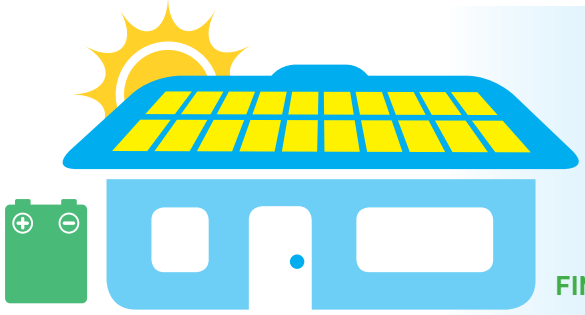
Total: $20,296
STC Rebate: $4,066
ACT NextGen subsidy: $3,240

FINAL PRICE: $12,990

ITP LARGE SYSTEM

x20 panels
x1 large battery

· Jinko Solar 260W solar panels x 20 (5.2kW)
· LG Chem RESU 9.6kWh battery
· Redback Smart Hybrid System inverter



LARGE SYSTEM COSTS

Total: $23,696
STC Rebate: $4,066
ACT NextGen subsidy: $3,240

FINAL PRICE: $16,390

ITP RETROFIT

· LG Chem RESU 6.4kWh battery
· Redback Smart Hybrid System inverter
· Integration with your existing solar system

RETROFIT COSTS

ACT NextGen subsidy: $3,240
Final price: Price On Application

System components

All of our system components have been carefully selected for their performance, quality and design.

PHOTOVOLTAIC MODULES	**JINKO SOLAR**	Jinko Solar is a world-leading manufacturer of high-performance solar power products for residential, commercial and utility-scale power generation. Jinko Solar is a Tier 1 manufacturer and also accredited as a part of the Australian Solar Council's Positive Quality Program, and as such is proven to consistently meet the highest standards of manufacturing quality. Jinko Solar supplied the panels for the Royalla Solar Farm in the ACT. The panels are multicrystalline 260W modules.	
ENERGY STORAGE SYSTEM (BATTERY)	**LG CHEM**	LG Chem is the third-largest manufacturer of lithium ion batteries for automotive and stationary energy storage in the world. The RESU battery management system monitors and controls all battery parameters and as such the battery unit requires no intervention from the homeowner once installed. The RESU unit is one of the most 'energy dense' products on the market, meaning the most storage capacity for the smallest size. An expansion module is available for those who would like a larger battery size.	
HYBRID INVERTER	**REDBACK TECHNOLOGIES**	Redback Technologies is an Australian technology company based in Brisbane. It is supported by the Microsoft Innovation Centre and focused on the development of advanced, low cost solar solutions for residential and commercial users. Its Smart Hybrid System inverter manages electricity from the PV system and the batteries to maximise renewable energy consumption at home. The Redback Inverters have the added benefit of allowing the battery to be used even during an electricity blackout. This feature is rare in the battery inverter market.	
REMOTE MONITORING	**REDBACK TECHNOLOGIES**	The Redback App allows users to easily review the current energy output and load in the home, as well as check the status of the Smart Hybrid System, through an easy-to-use visual interface. The system can also be configured and managed through the app. A separate online portal which can be used for these functions and to access historical operational data.	

How the system works

The advanced hybrid technology of the Redback inverter determines which energy goes where, in order to maximise your renewable energy consumption at home. It monitors the power your PV system is generating, how much energy is in your battery, and the amount of power your loads are consuming, to determine whether to charge or discharge the battery and whether to use power from the grid or export to it.

In the event of a blackout, the system will automatically switch to back-up mode to ensure your critical loads (such as your fridge and lights) stay powered.

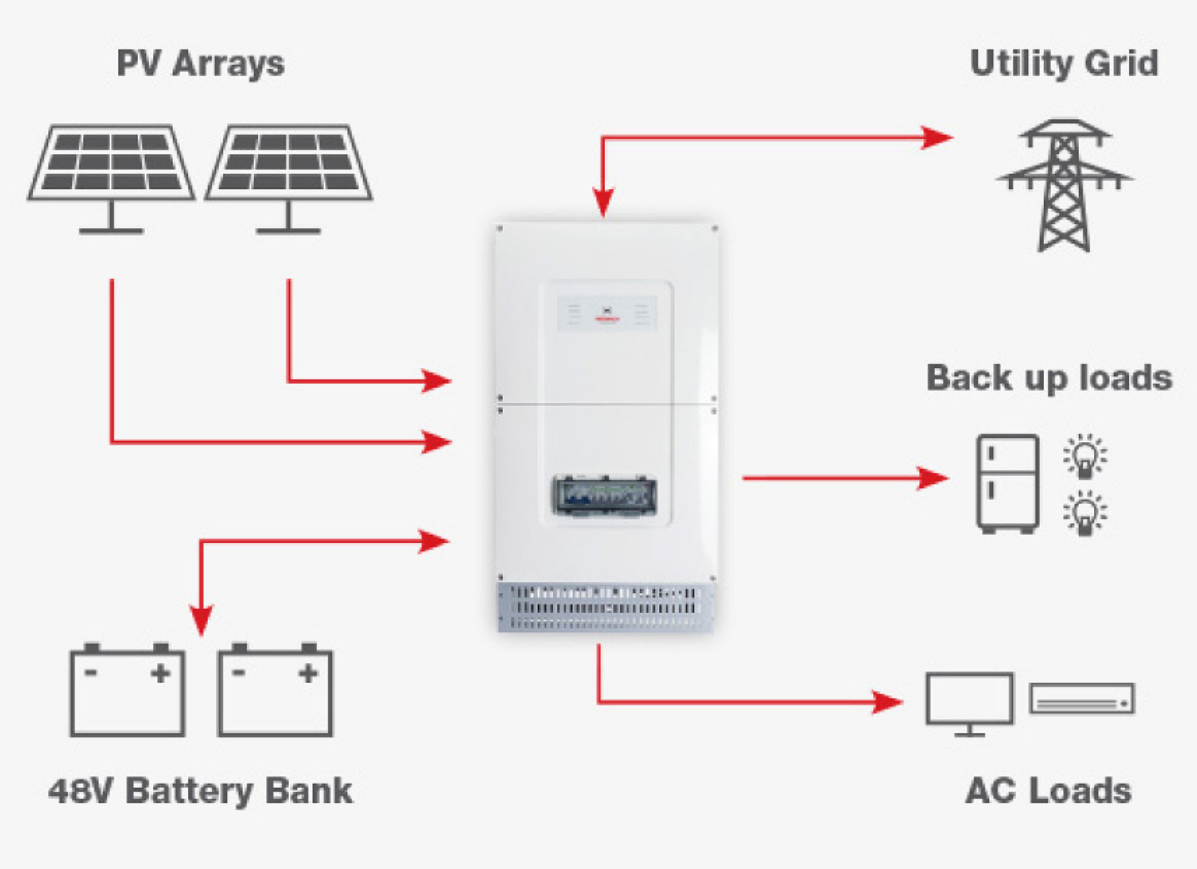


Diagram taken from www.redbacktech.com/smart-hybrid-system

What's involved in getting a solar and storage system?

FIRST CONTACT

Get in touch with us on 02 6257 3511 or at sales@itpau.com.au. We will talk to you about whether your home or business might be suitable for inclusion in this exciting project, and answer any questions you might have.

SITE VISIT AND QUOTE

We will arrange to visit your house or business to meet you, inspect the area, and provide you with a tailored quote.

INSTALLATION

We will arrange a suitable day and time with you to install your system.

INSPECTIONS AND METER REPLACEMENT

We will coordinate all the inspections and meter work required for you to start using your system.

GRID CONNECTION

Your system will be connected to the network by ActewAGL.

COMMISSIONING

As a final step, we will test your system to ensure its optimal operation. We will also run you through how to operate and maintain your system.

START USING YOUR SYSTEM!

Your system is now fully operational and yours to use and enjoy!

Why you can trust ITP

- ITP has been based in Canberra since 2003.
- ITP and our installers are experts in the design, installation and operation of photovoltaic systems. We have installed household and commercial systems around Australia.
- We are a Clean Energy Council (CEC) Approved Solar Retailer, committed to raising the bar in the solar industry. ITP has signed on to the Clean Energy Council Solar Retailer Code of Conduct - the only solar industry code of conduct authorised by the Australian Competition and Consumer Commission (ACCC).
- We have completed over 5,000 quality and compliance inspections of roof-top PV installations for Australia's Clean Energy Regulator.
- We are a Gold Member of the Australian Energy Storage Council.
- We don't just install renewable energy; we are also a consultancy firm interested in cutting edge research and development. ITP has been funded by the Australian Renewable Energy Agency to conduct a three year performance test of a range of lithium-ion batteries at the Canberra Institute of Technology. The testing will commence very soon. To learn more about this research and lithium-ion batteries visit www.batterytestcentre.com.au
- Equipment and workmanship warrantees will be applied.

CLEAN ENERGY COUNCIL
APPROVED
SOLAR
RETAILER

ESC
ENERGY
STORAGE COUNCIL
MEMBER

FAQ

How can I get involved?

To get involved, contact us at sales@itpau.com.au or call 02 6257 3511. We will provide you with further information and talk to you about whether your home or business might be suitable for inclusion in this exciting project!

Am I eligible for the ACT NextGen subsidy?

The grant is available on a first-come, first-served basis within the ACT and the numbers are limited.

For us to supply and install a system for you, you must:

- Reside in the ACT
- Have a strong, reliable data connection

Are batteries safe?

Your battery system (and solar panels) must be installed by our licensed electrician who has the appropriate training and accreditation. As part of installing a system, they will run you through the proper operation of your system, as well as emergency procedures.

How does a PV/battery system work?

Batteries store and provide electrical energy. When batteries charge, they convert electrical energy to chemical potential energy; when they discharge, this chemical energy is converted back to electrical energy. Batteries are rated by how much energy they can store, as well as how much power they can discharge (energy per time).

A photovoltaic (PV) system converts energy from the sun into electricity, which is then consumed by the home. On a sunny day, the PV system may produce more electricity than is used by the house. If there is no battery available, excess electricity from the PV is fed back to the grid. A battery allows the excess electricity to be stored for use at a later time; for example, when it's dark and the PV system is no longer generating electricity.

Even when the grid goes out, our battery and PV system are able to supply energy to keep critical appliances powered.

Can I participate if I already have solar panels?

Yes, the grant is still available if you already have solar panels. As part of our system installation we will replace your existing PV inverter with our hybrid inverter system.

We recommend that your existing system be between 3kW and 6kW for optimal performance with the rest of our system.

How much roof space do I need?

The PV panels are approximately 1.65m x 1m in size. For a 5.2kW installation you would therefore need a minimum of 34m^2 of roof space. Keep in mind that this will depend on the design of your roof. As far as possible we will attempt to locate panels with optimal orientation and minimal shading.

Will I be able to generate all of my own energy?

It is likely that you will be able to generate and self-consume a large percentage of your electricity usage. The extent to which you are able to do this will vary between households, depending on your own usage and the size and performance of your system.

Will my system be covered by warranties?

Yes. We provide a 5 year whole-of-system warranty, including workmanship and products. Products also have their own manufacturer warranty.

Are there any additional charges?

It is likely that you will need to reprogram or replace your meter to work correctly with your new system. The system also needs to be inspected by ActewAGL. We organise this on your behalf. These ActewAGL fees are subject to change without notice.

Single phase meter replacement $551.01
Three phase meter replacement $806.86
Meter reprogram only $145.35
Inspection fee $223

Additional charges based on your site may also apply, for example if you have a multi-storey house or a steep roof. These charges will be explained to you and clearly outlined in your quote.

What are STCs?

Under the Federal Government's Small-scale Renewable Energy Scheme, eligible small-scale renewable energy systems are entitled to a number of small-scale technology certificates (STCs). The number of small-scale technology certificates that can be created per system is based the amount of electricity in megawatt hours (MWh) that it will generate over the course of its lifetime of up to 15 years.

The price of small-scale technology certificates is driven by supply and demand of the renewable energy certificate market and fluctuates daily, however, ITP will manage the sale of STC's on your behalf. You will receive the STC value indicated in your final quote as an upfront discount on your system.

More information about the Small-scale Renewable Energy Scheme is available at www.cleanenergyregulator.gov.au/RET.

How will my data be used and shared?

One of the objectives of the ACT Government's Next Generation Energy Storage is to generate data for use nationally and internationally for research, regulatory planning and industry development purposes. Customers participating in the Pilot will agree to provide anonymised information in exchange for the benefit of their participation.

Personal information regarding the installation of the battery system will be shared with the ACT Government Environment and Planning Directorate (EDP), and other organisations nominated by EPD, for the purposes of ensuring compliance with the Government's Next Generation Energy Storage Program.

De-identified information regarding the installation and ongoing usage of the battery system will be shared with researchers and other organisations.

Got a question?

Speak to one of our energy storage experts

Phone (02) 6257 3511
Email sales@itpau.com.au
Website www.itpau.com.au

www.itpau.com.au