

Fact Sheet – IPART 2015 household survey – Solar PV panels



20 September 2016



WHAT

This fact sheet discusses our 2015 household survey's findings on solar PV (photovoltaic) panels.

We asked households with solar PV panels about their panels, what feed-in tariffs they receive, why they installed them, and how satisfied they were with them.

We asked households without panels whether they planned to install them within the next two years.



WHY

IPART's roles include monitoring competition in NSW's retail electricity market and setting benchmark solar feed-in tariffs. We include questions on solar PV panels in our household surveys to help us understand the context of our decisions.

More broadly, the prevalence of solar PV panels has important implications for energy policy and planning. The information discussed in this document could provide useful input for this.



HOW

We commissioned Roy Morgan Research to conduct the survey. It interviewed 4,404 households in five areas:

- ▼ Sydney Water Corporation's area of operation (Sydney)
- ▼ Hunter Water Corporation's area of operation (Hunter)
- ▼ Gosford City Council area (Gosford)
- ▼ Riverina region, mainly Wagga Wagga and Albury (Riverina), and
- ▼ Mid-North Coast and Northern Rivers (North Coast).



FINDINGS

- ▼ In NSW as a whole, almost 20% of households said they have solar PV panels.
- ▼ A further 9% of households said they intend to install panels over the next two years.
- ▼ Solar PV panels are more common in Riverina and North Coast, where more than 30% of households said they have panels.
- ▼ Among households with panels, between 40% and 60% said they received a subsidised feed-in tariff under the NSW Solar Bonus Scheme.
- ▼ Most said financial and environmental benefits were important reasons why they installed panels.
- ▼ Most indicated that they like having solar PV panels and would install a similar size or larger unit if they didn't already have one.



WHAT ELSE

The information paper with this fact sheet provides more detail on our solar PV findings. We have also published:

- ▼ other fact sheets and information papers about the survey, and its findings on energy and water usage, energy and water conservation, payment difficulties, and concession cards and rebates,
- ▼ reports on water and energy usage (which include technical appendices), and
- ▼ output tables of the survey responses (Excel files).

These documents are available on our [website](#).

1 Why we asked about solar PV panels

Solar PV panels have become fairly widespread in NSW. This has implications for household electricity usage patterns and costs, and for overall energy policy and planning. (Box 1 provides more background information.)

We asked households if they had installed solar PV panels. If they had, we asked them about the size of their unit and the feed-in tariff they receive, their reasons for installing the panels and their satisfaction with them. If they had not installed solar PV panels, we asked them if they planned to do so in the near future.

Box 1 Solar PV panels in NSW

Over the past seven years, the state-based Solar Bonus Scheme and the Commonwealth's Small-scale Renewable Energy Scheme have provided financial incentives for households and small businesses in NSW to install solar PV panels. Solar panels enable households to generate renewable energy, which they can use themselves (at the time of generation) or potentially export to the grid for a feed-in tariff. This can reduce their total electricity usage bills and the carbon emissions associated with their usage.

The NSW Solar Bonus Scheme began on 1 January 2010 and will end on 31 December 2016.^a Due to the high level of uptake, it was closed to new applications from 28 April 2011.^{a,b} The Scheme pays participants a **subsidised** feed-in tariff for electricity they export to the grid. Participants who joined by 27 October 2010 receive a tariff of 60c/kWh, while those who joined after that date receive 20c/kWh. Most Scheme participants have gross metering arrangements, which means they export (and receive the subsidised feed-in tariff for) all the electricity they generate, and import (and pay the retail price for) all the electricity they use themselves.

In comparison, non-Scheme participants who install solar PV panels can receive an **unsubsidised** feed-in tariff for electricity they export to the grid (depending on their market contract with their energy retailer).^c At the time of the survey, the benchmark for unsubsidised feed-in tariffs ranged from 4.9c/kWh to 9.3c/kWh (2014-15 range).^{d,e} Although the benchmark tariff is much lower than the subsidised tariff, non-Scheme participants can still get financial benefits from solar PV panels. In most cases, they have net metering arrangements. This means that typically they use most of the electricity they generate themselves (and avoid paying the retail price for this electricity), and import electricity at times when their panels are not generating (for example, at night).

The Commonwealth's Small-scale Renewable Energy Scheme works by creating small-scale technology certificates which can then be sold to 'Renewable Energy Target liable entities' (usually electricity retailers).^f These certificates may be either created up-front to provide a rebate on the cost of installing panels, or traded after the system has been installed.^g

The NSW Government reports that more than 146,000 households and small businesses installed small-scale renewable energy generators under the Solar Bonus Scheme, and that since it was closed to new applicants, a further 174,000 have installed systems without a subsidised feed-in tariff.^h

a NSW Trade & Investment, NSW Solar Bonus Scheme Statutory Review Report to the Minister for Resources and Energy, August 2014, pp i– iii.

b IPART, *tariffs. The subsidy-free value of electricity from small-scale solar PV units from 1 July 2013. Energy – Final Report*, June 2013, p6.

c <http://www.resourcesandenergy.nsw.gov.au/energy-consumers/solar/solar-bonus-scheme/solar-bonus-scheme-faq>, extracted 28 June 2016

d IPART, *Solar feed-in tariffs. The subsidy-free value of electricity from small-scale solar PV units in 2015-16 Energy – Final Report October 2015*, p1.

e The benchmark range for 2015-16 was 4.7c/kWh to 6.1c/kWh, and the range for 2016-17 is 5.5c/kWh to 7.2c/kWh. (IPART, *Fact Sheet – Solar feed-in tariffs in 2016-17*, June 2016, p1.)

f <http://www.cleanenergyregulator.gov.au/RET/About-the-Renewable-Energy-Target/How-the-scheme-works/Small-scale-Renewable-Energy-Scheme>, extracted 28 June 2016

g <http://www.cleanenergyregulator.gov.au/RET/How-to-participate-in-the-Renewable-Energy-Target/Financial-incentives>, extracted 28 June 2016

h <http://www.resourcesandenergy.nsw.gov.au/energy-consumers/solar/solar-bonus-scheme/solar-bonus-scheme> extracted 27 June 2016

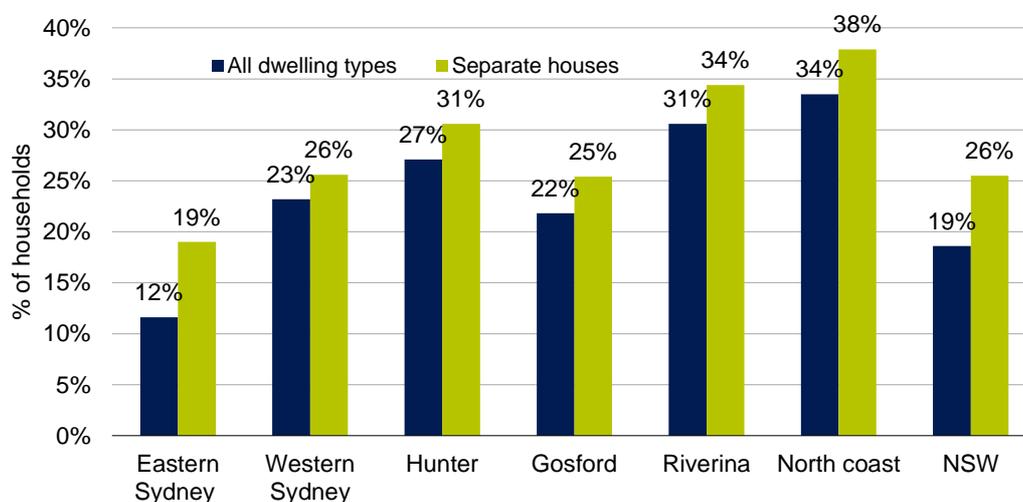
2 Prevalence of solar PV panels

Around 20% of households have panels

Almost one-fifth of all households, and around one-quarter of those with free-standing houses, said they have installed solar PV panels (Figure 1). Households in regional areas were more likely to have panels than those in Sydney. For example, in Riverina and North Coast, more than 30% of households said they have solar PV panels. Within Sydney, households in Western Sydney were more likely to have solar PV panels (23% of households) than those in Eastern Sydney (12% of households).¹

About 75% of households had installed their solar panels more than 18 months before the survey.²

Figure 1 Households that have solar PV panels, by survey area (% of households)



Note: The data for each area are weighted by area weights. The data for NSW are weighted to represent the NSW population. This means that respondents in Sydney receive a higher weight than respondents in the other survey areas, to reflect their higher proportion of the population (see IPART, *IPART 2015 Household Survey — About the survey*, September 2016).

Source: 2015 Household Survey.

Around 9% intend to install panels in near future

We asked households who said they didn't have solar PV panels whether they had plans to install them in the near future. Around 9% of these households said they intend to install them over the next two years.³

3 Size of solar PV systems and feed-in tariffs

Many households don't know the size of their system

A solar PV system's size is a key determinant of how much electricity it is capable of generating.

¹ Western Sydney includes Baulkham Hills and Hawkesbury, Blacktown, Sydney Outer South West, Sydney South West, Sydney - Outer West and Blue Mountains.

² See IPART, *IPART 2015 Household survey – Output tables – all areas*, September 2016.

³ See IPART, *IPART 2015 Household survey – Output tables – all areas*, September 2016.

We asked households who said they have solar PV panels the size of their system (in kW). Depending on the survey area, between 30% and 46% of households said they did not know the size. Among those who did know, around half said they had a 2kW or 3kW system, and a third said they had a larger system.

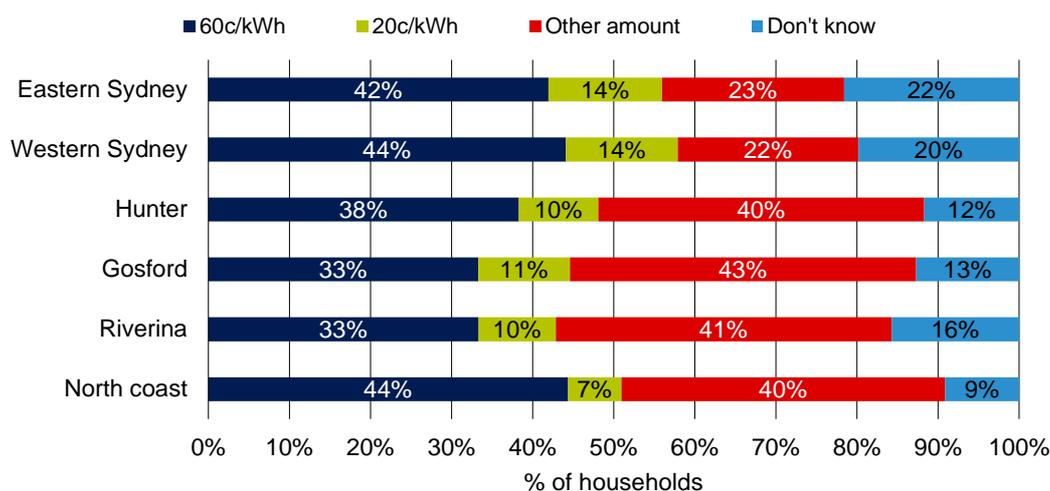
Many households receive subsidised feed-in tariffs

We asked households who said they have solar PV panels what feed-in tariff they receive for electricity they export to the grid (in c/kWh).

A sizable proportion said they receive a feed-in tariff of either 60c/kWh or 20c/kWh for the electricity they export to the grid – that is, a subsidised feed-in tariff under the Solar Bonus Scheme (see Box 1). Depending on the survey area, between 43% and 58% of households said they received one of these tariffs, and significantly more households said they received 60c/kWh than 20c/kWh (Figure 2).

Depending on the survey area, between 22% and 43% households said they received another amount – that is, a voluntary unsubsidised feed-in tariff. The most common amounts were 6c/kWh (34% of households that received another amount) and 8c/kWh (27% of households that received another amount).

Figure 2 Feed-tariffs received by households (% of households)



Note: The data for each area are weighted by area weights (see IPART, *IPART 2015 Household Survey — About the survey*, September 2016).

Source: 2015 Household Survey.

The proportion of households that did not know what feed-in tariff they receive was significant, ranging from 22% in Eastern Sydney to 9% in the North Coast.

4 Reasons for installing and satisfaction with solar PV panels

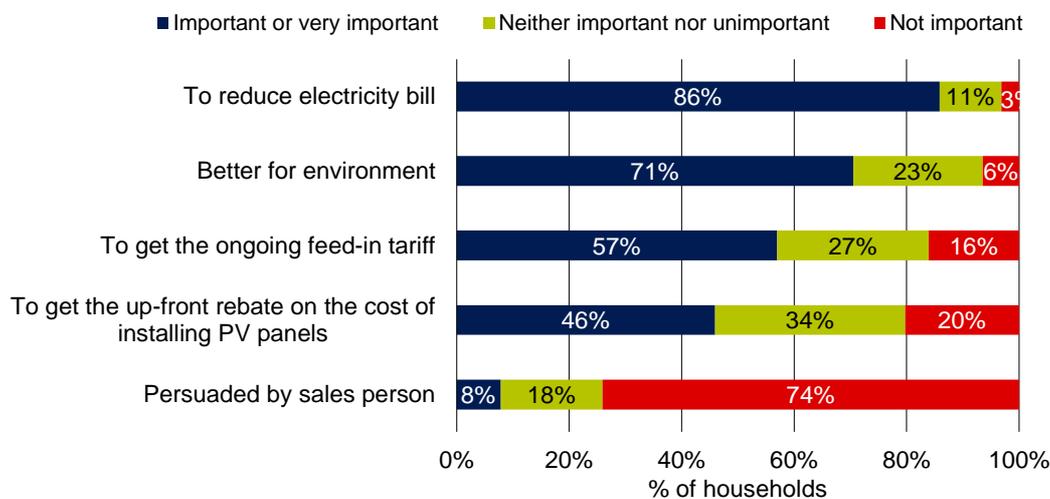
Most important reasons were to reduce electricity bills and care for the environment

We listed five reasons for installing solar PV panels and asked households to rate their importance in their own decision. The reasons most households rated as important were:

- ▼ to reduce their electricity bill (86% of households)
- ▼ better for environment (71% of households), and
- ▼ to get the ongoing feed-in tariff (57% of households) (Figure 3).

This pattern of responses was broadly similar across survey areas and income groups.⁴

Figure 3 Importance of reasons for installing solar panels (% of NSW households)



Note: The data are weighted to represent the NSW population. This means that respondents in Sydney receive a higher weight than respondents in the other survey areas, to reflect their higher proportion of the population (see IPART, *IPART 2015 Household Survey — About the survey*, September 2016).

Source: 2015 Household Survey.

We also asked households whether there were any other reasons for installing solar panels. Some of the reasons offered were: because the panels were free or a good deal; to avoid power blackouts; to earn extra income; and to increase the resale value of their house. A few households said their house already had panels when they bought it.

Most households said they like having solar PV panels

We listed seven statements and asked households which one best described how satisfied they were with their solar PV panels.

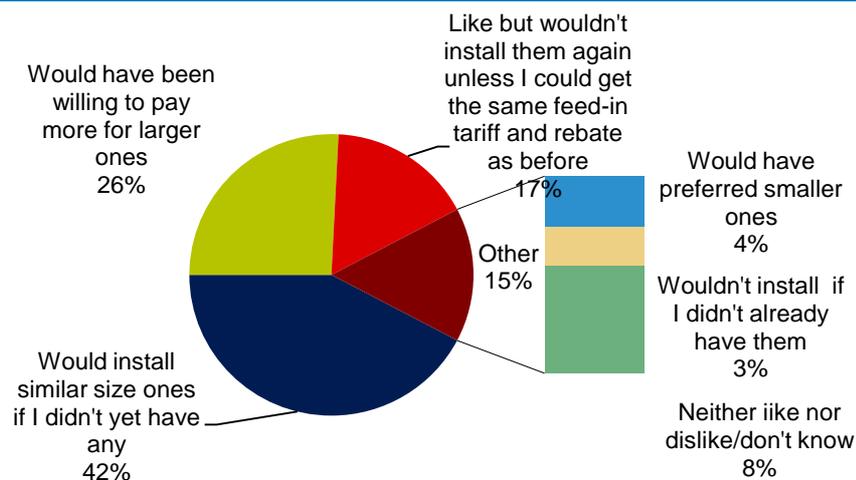
Most households appear to be satisfied with their solar PV panels, although some have reservations about the size of their system (Figure 4):

- ▼ 42% said they like having panels and would install similar sized ones if they didn't already have them
- ▼ 26% said they like having panels and would have been willing to pay more for larger ones, and
- ▼ 4% said they like having panels but would install smaller ones if they didn't already have them.

In addition, 17% said they like having panels but wouldn't install them again unless they could get the same feed-in tariff or rebate as before (ie, under the NSW Solar bonus scheme and the Commonwealth's Small-scale Renewable Energy Scheme).

Only a very small proportion (3%) said they wouldn't install solar panels if they didn't already have them.

⁴ Further details are provided in the Output tables.

Figure 4 Satisfaction with solar PV (% of NSW households)

Note: The data are weighted to represent the NSW population. This means that respondents in Sydney receive a higher weight than respondents in the other survey areas, to reflect their higher proportion of the population (see IPART, *IPART 2015 Household Survey — About the survey*, September 2016).

Source: 2015 Household Survey.

Box 2 Further information on our household survey

We have published the results of the 2015 household survey in a series of fact sheets and information papers together with two reports that investigate our findings on water and energy usage. We have also published a set of output tables (Excel files) that report the detailed responses to each survey question.

Fact sheets and information papers:

- ▼ About the survey
- ▼ Water usage (fact sheet only)
- ▼ Energy usage (fact sheet only)
- ▼ Energy and water conservation
- ▼ Solar PV panels (this one)
- ▼ Payment difficulties
- ▼ Concession cards and rebates

Reports:

- ▼ Residential energy usage (electricity and gas)
- ▼ Residential water usage

Output tables:

- ▼ Each survey area and NSW as a whole (the latter weighted to represent the regional distribution of the population)
- ▼ Sydney, by income group and as a whole
- ▼ Hunter, by income group and as a whole

We cannot report on the other survey areas by income group because the sample sizes for some of the income categories are too small.

We engaged Frontier Economics (Frontier) to conduct statistical analysis of the survey data for our reports. Frontier analysed the energy usage data and produced a separate report on its findings. It also analysed the water usage data, and we have included its findings in our report on water usage. The reports include detailed technical appendices to allow other parties to conduct further research into residential energy and water usage.

You will find the documents on our [website](#).