

National Smart Grids Forum 2011

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Adelaide Solar City

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SolarCity  
Adelaide

# About Solar Cities...



The Consortium..

## The Solar Cities Program

- A \$94 million Australian Government initiative across 7 locations.
- The program objectives are to:
  - : successfully implement solar PV, pricing, smart metering and energy efficiency products to test the barriers of take up of these products
  - : obtain data on the impact of the products and technologies on consumer behaviour
  - : maintain an ongoing consumer engagement with the program.
- Program ends on 30<sup>th</sup> June 2013.



## Adelaide Solar City

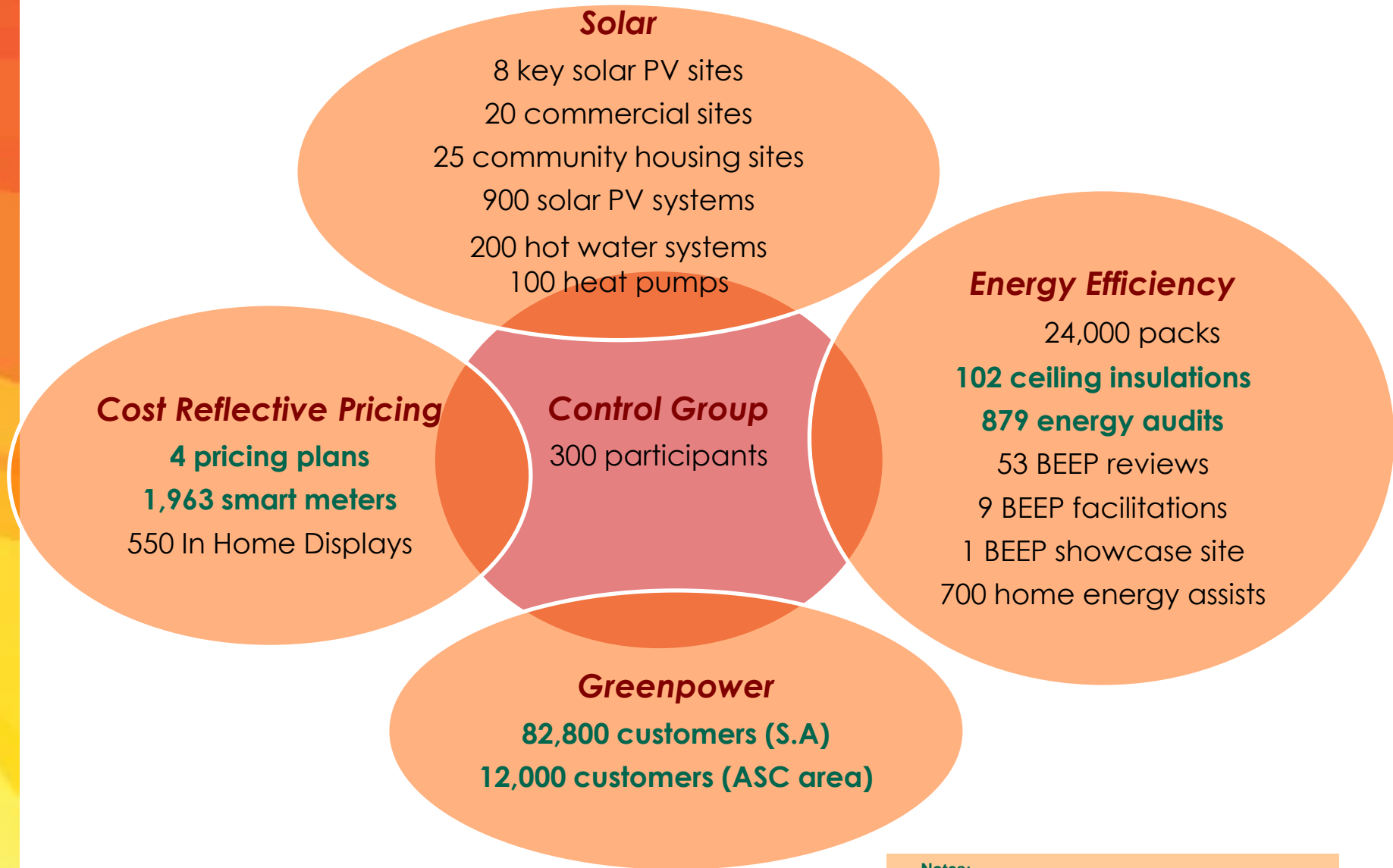
- The Adelaide Solar City (ASC) Consortium includes Origin (lead proponent), ANZ, Big Switch Projects, BP Solar, City of Salisbury and Delfin Lendlease. In association with Adelaide City Council and the Cities of Tea Tree Gully and Playford.
- Area includes;
  - approx. 130,000 homes with 300,000 residents
  - four Councils in area up to 30 kms north of Adelaide.



# *Expected Program Benefits*

- consumers will receive monetary and other benefits for better managing their energy use.
- utilities will obtain a better understanding of the cost to service peak electricity demand and investment in infrastructure.
- industry will be able to test new sustainable energy options.
- better information will be available on which to base future energy strategies.

# Project Targets



Notes;

Completed: in bold  
BEEP: Business Energy Efficiency Program

# Progress to Date

- 1,963 customers have signed up to 4 pricing products (completed May 2011).
- 7 key solar PV installations completed, and more than 350 residential solar PV systems sold.
- 400 In Home Displays and 2,382 smart meters installed.
- 879 Home Energy audits conducted and 135 Home Energy Assistance audits provided to low income families.
- 20,390 Energy Efficiency packs have been distributed.
- 18 Business Energy Efficiency Programs have been undertaken.
- 101 Ceiling Insulation packages installed (completed June 2009).
- 21,745 Greenpower customers in ASC area and 82,800 in S.A (completed June 2010).
- 280 Control Group customers signed up.

# Pricing Products/Smart Metering

- Technology platform includes smart meters, In Home Displays (IHD's) and a GPRS based communication link.
- Approx. 1,960 Origin customers trialling Time of Use (ToU) and Critical Peak Pricing (CPP) products.

Smart meter rollout completed on 26<sup>th</sup> May 2011.

- Control Group launched on 30<sup>th</sup> May 2011. Recruitment close to completion.
- CPP callouts conducted in 2009, 2010 and 2011.
- CPP event notifications sent to customers via IHD's, Internet, SMS or phone messaging.
- Customers provided with 24 hour notice prior to a CPP event being called.



# Cost Reflective Pricing Trial

- Two ToU (All Year & Seasonal) and two CPP products have been implemented.

Pricing Product	Pricing Structure	Peak (7am-9pm, Mon-Fri) (c/kWh)	Off Peak (Other Times) (c/kWh)
Time of Use (Seasonal)	Summer: 1 Jan - 31 March. Non Summer: other times.	49.56	13.64
Time of Use (All Year)	Same all year.	43.47	
Pricing Product	Pricing Structure	Peak (2pm-8pm, up to 10 days p.a.) (c/kWh)	Off Peak (Other Times) (c/kWh)
Critical Peak Pricing (Option 1)	1 Dec - 31 March.	315.33	23.12
Critical Peak Pricing (Option 2)	1 Dec - 31 March.	144.88	26.48

# Cost Reflective Pricing Trial: Outcomes

- Customer take up of the products is heavily skewed towards Critical Peak Pricing.

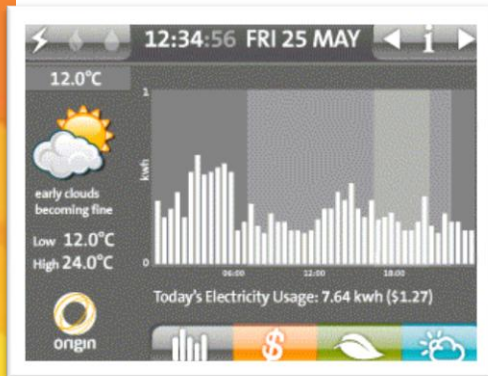
Pricing Product – Customer Take Up	%
Time of Use	11
Critical Peak Pricing	89

## CPP Trial Outcomes

- CPP participants reduced their overall energy consumption by an average of 15% (2009-2011) on the days where a 'Critical Peak' event was called.
- ToU participants averaged a 7% shift from Peak to Off-Peak (2011), saving up to \$140 per bill (compared to a standard tariff).

# In Home Displays

- Aim is to provide participants with close to real time information to assist in managing their energy usage throughout the year.
- IHD content includes energy usage, weather reports and Greenhouse Gas Emissions data.



Energy Usage



Weather



Greenhouse Gas Emissions

# *In Home Displays: Market Research*

In December 2010, Origin conducted market research with customers who had been provided with an IHD.

Some of the key outcomes of the research were;

- 75% of the interviewed customers were positive to very positive (most believed they saved energy)
- customers liked having a physical IHD (very easy - direct visibility) and preferred a dedicated screen
- all customers interviewed would and have recommended the IHD to others (half joined the program via a friend)
- energy consumption and weather reports were the most interesting functions
- all customers found the installation process very easy
- customers interviewed had very little interest in Greenhouse Gas Emissions
- about 50% of customer were prepared to pay a small amount for the product.

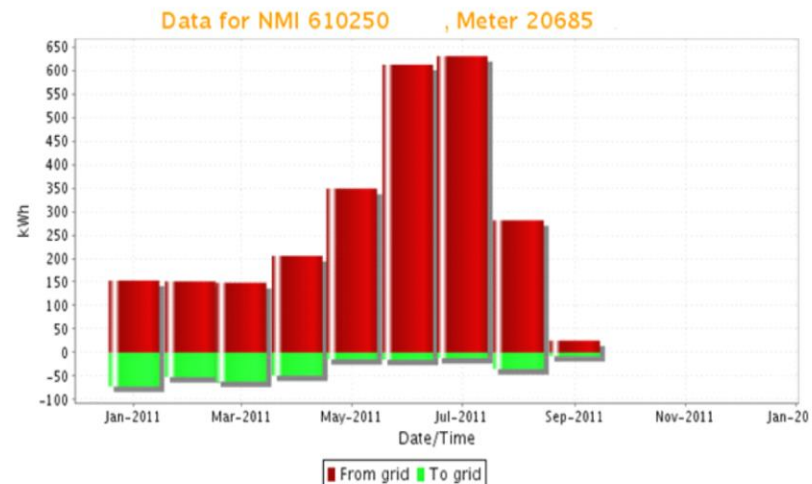
# Access to Data on Line

- All pricing and solar PV customers have been able to access their energy usage and emissions data on line since 2008.
- Information provided on the website includes both current and historical data on:
  - Electricity usage in 30 minute intervals
  - GG emissions in 30 minute intervals.
- Data provided on line and through the IHD will enable a comparison of customer preferences.

## ADELAIDE SOLAR CITIES ELECTRICITY USAGE

Year  Go < > Energy

This graph shows you monthly electricity consumption for a selected year. (From when the time data has become available)



Daily Total is 4.21, Month to date is 246.35, Year to date is 2,220.5 Download Logout

# Consumer Engagement Strategies

- Aim is to help educate residents on more sustainable energy use, inform them of the Project and encourage participation.
- A series of community engagement activities have been conducted across all four councils to educate residents on how they can change their energy use behaviours.
- Advertising of project offerings is targeted to the trial area using TV, press and editorials in local community newspapers and a range of direct marketing activities and communications.
- “Solar Citizens” recruited as ambassadors for the program.



# Solar In Home Display

- Solar PV version of IHD to be released with 40 customers in October 2011.
- IHD includes the following information:
  - : electricity imported from the electricity grid
  - : electricity exported into the electricity grid
  - : electricity consumed at the residence
  - : gross generation from the solar PV system.



Summary screen

# Solar In Home Display: Screens

- Examples of Solar In Home Display screens.



Import screen



Meter configuration



Consumption screen



Export screen



Generation screen

# Solar Installations

- 7 out of 8 key solar PV installations have been completed.
- The 7<sup>th</sup> installation at the Central Markets was launched by Minister Kate Ellis and Adelaide Lord Mayor Stephen Yarwood on 8<sup>th</sup> April 2011.



Minister Kate Ellis at  
Central Markets launch



Central Markets



Golden Grove Recreation Centre

- Solar Hot Water & Heat Pumps trial commenced in July 2011. Trial includes smart meters and customers can access their energy usage data on line.