Power savings

The Fund provided $210 million to help households, businesses, community organisations and government save an estimated 810,000 megawatt hours of electricity, 870,000 tonnes of greenhouse gas emissions and $135 million in power bills a year, as well as 48,000 kilowatts of peak demand.

These savings are being delivered through 428 projects, 198,471 residential rebates, 12,168 public housing retrofits, 40,948 lower income household assessments and retrofits, and by assisting 14,850 businesses.

Power savings for households

To date $142 million support from the NSW Climate Change Fund, more than 251,000 NSW households are saving an estimated 531,000 megawatt hours of electricity, 564,000 tonnes of greenhouse gas emissions and $85 million off their power bills a year, as well as 10,700 kilowatts of peak demand.

Achievements

NSW households have taken advantage of 148,413 NSW Home Saver Rebates and switched from an electric system to a solar, heat pump or gas hot water system to make their homes more energy efficient. An additional 26,088 households installed ceiling insulation to improve comfort levels and the efficiency of heating and cooling their homes with the support of a Home Saver Rebate.

The Home Saver Rebate program finished, as scheduled, on 30 June 2011. Power savings for the NSW Home Saver Rebates are shown in Table 5 below.

A total of 23,970 NSW households in Metropolitan Sydney, Central Coast, Blue Mountains, Illawarra and Shoalhaven areas recycled their inefficient second fridge through the Fridge Buyback Program. On 4 June 2011, the Minister announced the Fridge Buyback Program would be extended until 30 June 2012. The program was also expanded in September 2011 to include parts of the Hunter region.

The $63 million Home Power Savings Program offers 220,000 lower income households across NSW a free home energy assessment, energy refit and tailored advice to save up to 20 per cent off their power use and help the environment. Items in the Power Savings Kit include a stand-by power switch, energy efficient light bulbs, a water saving showerhead, low-flow tap aerators, and draught excluders. By the time it is completed in June 2014, the program is expected to have reduced annual household bills by $58 million and carbon pollution by 233,000 tonnes a year.

A total of 5,523 public housing residents had electric storage hot water systems replaced with climate-friendly systems, and 7,285 homes have been insulated. Together, these initiatives are saving residents an estimated 16,462 megawatt hours of electricity, 17,450 tonnes of greenhouse gas emissions and $2.2 million their power bills a year.

The $15 million Save Power program is increasing people's understanding of their power use and how to save power. The program uses best practice social marketing integrated with education and social research activities. It includes:

- mass-media communication (including the Save Power advertising campaign, information resources, campaign website – savepower.nsw.gov.au – and below the line advertising)
- community education (including the Save Power Retail Program, the Save Power at Home Library program and the CSIRO partnered Energymark NSW program)
- social research and evaluation (including campaign tracking and program evaluation).

The Save Power program informs and motivates changes in energy use and informs the community of other energy efficiency initiatives, to help people make their homes more water and

Table 5

Energy efficient NSW Home Saver Rebates (to 30 June 2011)

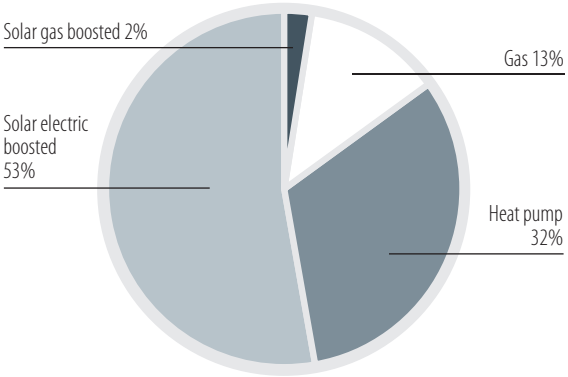
Rebate	Number of rebates	Estimated savings MWh/yr)	Estimated savings (tCO_2e/yr)	Estimated bill savings ($/yr)
Climate-friendly hot water system	148,413	350,031	371,033	36,361,185
Fridge Buyback rebate	23,970	15,829	16,779	6,352,050
Ceiling insulation (ended on 30 June 2009)	26,088	12,306	13,044	3,130,560
Total	**198,471**	**378,166**	**400,856**	**45,843,795**

energy efficient. It also provides the communications framework for all other elements of the Energy Efficiency Strategy.

An additional 11 energy saving projects for households are being implemented with $6.5 million in funding. Projects include residential audits, refits with energy efficient appliances, and education and awareness campaigns. These projects will help save 92,900 megawatt hours of electricity, more than 99,800 tonnes of greenhouse gas emissions and $25 million in power bills a year. Ten of these projects have been completed.

Figure 1

Hot water system rebates paid by system type



One in eight households get a rebate

On 30 June 2011, the Home Saver Rebates program ended as scheduled. Since the program began in July 2007, NSW households have received 339,575 rebates to help invest in water and energy efficient appliances or systems in their homes, and 23,970 inefficient second fridges have been removed. This represents one in eight households across the state taking advantage of the NSW Home Saver Rebates.

Rebates have been available for rainwater tanks, solar, gas or heat pump hot water systems, insulation, water efficient washing machines, dual flush toilets and hot water circulators.

One in three rainwater tanks are connected to a toilet and/or washing machine, compared to one in six in July 2007, when the rainwater tank program began.

The rebate program helped transform the washing machine market so it now offers consumers a higher proportion of machines with a minimum 4-star Water Efficiency Labelling and Standards (WELS) rating.

When the NSW Home Saver Rebates Program began in August 2008, four per cent of all available washing machines in NSW had 4.5 or more stars, compared with 60 per cent of available washing machines when the rebate ended in July 2010.

■ CASE STUDY

Free advice and Power Saving Kits

Heather and Brian from Richmond are set to save at least $129 a year from their free Power Savings Kit and around $340 more by following the advice of the energy expert who visited their home as part of the NSW Government's Home Power Savings Program.

Like many pensioners and families on a lower income, Brian and Heather were feeling the pressure of the increasing cost of living, so they decided to join the program to see if there was more they could do around their home to lower their utility bills.

Brian and Heather said the energy expert's advice and the power saving items they received for free are really making a difference.

"We realised that we probably weren't doing enough to save energy," Brian said.

"Times are tough – particularly for pensioners – so it was great that these items and the service are offered free of charge.

"We got a powerboard, a shower timer, weather proofing for the door and a lot more. Not only were these things free but we noticed the difference they made.

"This program has been fantastic and given us many tips to help save power and save money," he said.

Energy expert Rob Hili says that like the Donkins, most families are very grateful for the advice they receive – be it finding out the running costs of their appliances or learning how to understand their electricity bill.

"I believe that information is empowering. When people know where and how they are using electricity in the home, they can make informed decisions as to what they want to do to reduce how much they use," Rob said.

"That's the beauty of this program – by visiting each household we can provide tailored information to suit their needs," he said.

Brian and Heather have recommended the program to their family, friends and neighbours.

"Have we had to sacrifice any of our comforts to reduce power bills? Not at all! It's been really worthwhile," Brian said.

■ **CASE STUDY**

Households get energy smart

NSW households are taking advantage of Save Power Kits and the Save Power Retailer Program to help make their homes energy efficient and lower their power bills.

Funded by the NSW Climate Change Fund, these programs help households tailor energy saving solutions for their circumstances and needs.

Save Power Kits can be borrowed for free from many local libraries across NSW. The kits help households identify which appliances in their home use the most power, and provide easy steps to save power, money and the environment.

The Save Power Kit includes:

- a Power-Mate Lite energy meter to measure how much power appliances use, how much they cost to run and the carbon pollution they create
- thermometers to help find draughts and to make sure fridges, freezers and heating and cooling appliances are on the right settings
- a stopwatch for timing showers and the amount of hot water used
- a compass to identify which rooms and windows face north and west to maximise access to the sun in winter and cool these rooms with shading in summer.

The kit also includes a guide book, worksheet and action plan to identify items that use the most power and suggest simple ways to lower power bills.

The Save Power Retailer Program provides energy efficiency training to sales staff in white goods and appliance stores across NSW, so they can advise their customers on the long-term running costs of the different appliances available.

In the long term, the more efficient products will cost less to run. For example, every extra star on a fridge or freezer will save 23 per cent of the running costs over the life of the appliance.

Staff and stores also have information and energy calculators to help customers make an informed decision when buying televisions, fridges, freezers, dishwashers, washing machines and dryers. Participating retailer stores include Harvey Norman, the Good Guys, David Jones and Myer.

Visit www.savepower.nsw.gov.au for more information.

Power savings for businesses

The NSW Climate Change Fund allocated $34 million to help more than 13,550 NSW businesses save an estimated 230,000 megawatt hours of electricity, 256,000 tonnes of greenhouse gas emissions, and $42 million off their power bills a year as well as 26,940 kilowatts of peak demand, through 43 projects and two key assistance programs.

Achievements

Under the Green Business Program, the Public Facilities Program and the former Energy Savings Fund, the Fund provided $16 million to implement 43 energy saving projects for businesses. These projects will help save 90,700 megawatt hours of electricity, 72,400 tonnes of greenhouse gas emissions and $8.5 million in power bills a year. To 30 June 2011, 35 of the 43 projects have been completed.

These projects include generation (including cogeneration), energy efficiency, education and power factor correction initiatives. Technologies being employed include absorption chilling and high efficiency compressors in industrial processes; multi-level lighting systems; and installation of utilities management systems and efficient speed drives. Power savings by project type are shown in Table 6.

In addition, 550 medium to large businesses have participated in Sustainability Advantage program activities including Energy Saver audits, energy saving projects and sector transformation projects. To 30 June 2011, the program has helped businesses identify measures to save 106,000 megawatt hours of electricity, 539,000 gigajoules of gas, 148,000 tonnes of greenhouse gas emissions and $25 million on power bills a year.

More than 14,300 businesses that spend up to around $20,000 a year on power bills or employ up to 10 full-time staff have joined the $15 million Energy Efficiency for Small Business Program. To 30 June 2011, more than 13,000 businesses have received energy assessments and a tailored action plan. It is estimated that these businesses will save an average of $600 in energy costs and 2.6 tonnes of greenhouse gas emissions a year. Rebates of up to $5,000 are available for improvements to lighting, heating, ventilation and cooling, commercial refrigeration, hot water systems, insulation, boilers and compressed air use.

Energy Savings Action Plans have been prepared by 206 business sites that use more than 10 gigawatt hours of electricity a year. Of the cost-effective annual savings of 729,000 tonnes of greenhouse gas emissions (identified in these plans), 48 per cent have already been implemented, with estimated savings of $52 million on electricity and gas bills a year. Commonly implemented measures include installing, upgrading or optimising industry equipment; modifying industrial processes; and improving heating, ventilation and air conditioning (HVAC) by adding sensor controls or replacing systems.

NSW tradespeople and professionals boosted their energy efficiency knowledge and skills under the $20 million Energy Efficiency Training Program, managed by the Office of Environment and Heritage and the NSW Department of Education and Communities. The program targets key trades and

Table 6

Business energy saving projects estimated savings and cost-effectiveness by project type (to 30 June 2011)

Project type	No. of projects	Funding allocated ($)	Estimated savings (MWh/yr)	Estimated savings (tCO_2e/yr)	Estimated peak savings (KW)	Estimated bill savings ($/yr)	Cost-effectiveness ($/(MWh x 10 yrs))
Efficiency measures	31	8,322,112	39,648	40,812	6,400	5,615,070	20.99
Education	2	580,000	15,673	16,613	2,442	2,068,783	3.70
Alternate power generation	5	6,780,000	35,346	14,993	8,536	816,659	19.18
Power factor correction	5	602,804	–	–	9,216	–	–
Total	**43**	**16,284,916**	**90,667**	**72,418**	**26,594**	**8,500,512**	**17.96**

Table note: does not include water saving projects with associated power savings.

professions, such as electricians, plumbers, building managers, engineers, planners and service professionals, to help them improve the design, installation and maintenance of energy efficient products and services.

In the first two years of the program, 1,329 vocational students completed energy efficiency training. A total of 31 industry partnerships have been developed to deliver innovative training in industries such as property and construction, manufacturing, business, sales and IT.

Two universities (University of Wollongong and University of New South Wales) are developing energy efficiency courses for engineering students and practising engineers, and four universities (University of Western Sydney, University of Technology, Sydney, University of New South Wales and Macquarie University) and their industry partners are developing energy efficiency courses for accounting students and practising accountants.

■ **CASE STUDY**

Refrigeration costs slashed

Despite having a heavy reliance on refrigeration, NSW businesses Tamburlaine Wines and Swire Cold Storage have slashed their energy use and costs by participating in the Industrial Refrigeration Program.

The Industrial Refrigeration Program, part of the NSW Climate Change Fund's Energy Saver Program, provides medium to large NSW businesses with subsidised independent energy audits.

Tamburlaine Wine's Managing Director Mark Davidson said an energy audit conducted through the Sustainability Advantage Program showed refrigeration accounted for 75 per cent of the winery's energy use.

Energy saving actions implemented as a result of the audit are saving $110,000 a year and will pay for themselves in less than two years.

"I thought I must have misheard my environment manager when he told me how much money we could save," Mark said.

"The energy audit identified the problem and helped us break some old wasteful energy habits.

"By doing some really simple things – such as running time and thermostat controls, upgrading heat exchangers and making pipework modifications – we have reduced our overall electricity use by 48 per cent and our refrigeration energy use by 54 per cent."

In a similar success story, Swire Cold Storage conducted an energy audit that identified potential energy savings of 786 megawatt hours and $57,000 off electricity bills each year.

Sam Czyczelis, General Manager – Engineering Services at Swire, said the global company had already implemented the recommendations from one of the business cases.

"I was surprised at the amount of energy savings found as a result of the audit. It was better than I thought. I would absolutely recommend the Industrial Refrigeration Program and Energy Saver audits to other businesses," Sam said.

■ CASE STUDY

A cool thirty per cent saved

Vinidex is one of Australia's leading thermoplastic pipe system manufacturers.

The company is now saving energy and producing plastic pipes more efficiently after installing a new energy efficient chiller at its Smithfield site.

Vinidex's pipes are used in many industrial sectors, such as plumbing, electricity, water, sewerage, drainage, mining and telecommunications. Pipe production runs 24 hours a day, seven days a week.

After completing an Energy Savings Action Plan, Vinidex identified the chiller water system as an opportunity for significant energy savings.

Vinidex received $75,000 under the NSW Climate Change Fund to contribute towards the $410,000 total project cost of installing the latest chiller technology. In the first seven months of production, Vinidex reduced the chiller's monthly energy consumption by 30 per cent. The project is estimated to save 300 megawatt hours of energy each year.

Chilled water is essential to the pipe making process. After the pipes have formed the desired shape, the plastic solidifies in chilled water. Chilled water is also used on each production line to cool process water in spray tanks.

The benefits of the new chiller extend beyond significant energy savings. The chiller uses an ammonia refrigerant that is highly efficient and environmentally friendly. Its higher cooling capacity will allow Vinidex to expand the production capacity in the future and the variable speed drive increases efficiency by regulating the compressor speed according to heat load and ambient conditions.

■ CASE STUDY

Patisserie makes sweet energy savings

Le Breton Patisserie has used $5,000 received under the Energy Efficiency for Small Business Program to halve its refrigeration costs and save $1,700 a year.

Owner Dominic Le Breton has been running his authentic French patisserie in Sydney's lower north shore for 23 years, and has an annual turnover of $250,000. As a program participant, he completed an Energy Action Plan to identify ways to reduce electricity costs.

"Refrigeration was approximately 50 per cent of my energy use and my Energy Action Plan recommended upgrading the bakehouse refrigeration. As a result, I decreased the number of fridges from five to one. This has made a huge difference to the store's energy use," Dominic said.

Dominic reduced energy use by a further 10 per cent by replacing 27 incandescent lights with single fluorescent lighting, and turning off equipment during off-peak baking periods.

"I've also installed time switches to reduce unnecessary lighting use. Since installing these switches and upgrading the lighting, there has been a definite gain in the store's energy efficiency," Dominic said.

"When not in peak baking periods, we switch off equipment that's not in use. We also turn off all equipment at least 30 minutes before closing to make sure nothing is left in standby mode," he said.

Building on these energy savings, Dominic has been inspired to take his efficiencies even further.

"I'm considering generating my own power with solar panels. This will increase the cost efficiency of my future production processes," Dominic said.

"My advice to other businesses considering the Energy Efficiency for Small Business Program is to work out your priorities. I was prepared to outlay $15,000 to update the refrigeration because I wanted to reduce my electricity costs.

"By making changes to the refrigeration and lighting, I've increased the energy efficiency of the store. In the long run, the benefits are definitely worth the upfront cost," said Dominic.

■ CASE STUDY

Green technology good for business

Sydney Masonic Centre (SMC) is a landmark building in Sydney's CBD, operating 16 function and conference rooms across eight floors. Through the Energy Saver Program, SMC has identified opportunities to cut its energy bills by nearly $190,000 a year.

When an energy audit revealed that SMC could cut its electricity bill even further by installing new lighting, Operations Manager Doug Fyfe was delighted.

"With an annual energy bill nudging $300,000, our management team has always been acutely aware of the importance of conserving energy and containing costs," Doug said.

"The energy audit was wonderful because it took our energy initiatives to the next level, especially when it came to the Centre's lighting.

"The recommendations were simply presented, well laid out and clear, which made it easy for our Chief Executive Officer to put forward a business case for remedial works to the Board."

The energy audit identified eight business cases for energy improvements, including:

- installing new energy efficient LED lights
- resetting the chilled water temperature
- changing the speed of the car park exhaust fans
- installing a fresh air cycle in a function room
- installing building systems such as hot water timers, to reduce energy waste.

SMC contributed $4,500 towards the cost of the audit and the works will cost around $600,000, with a three and a half year payback.

Doug considers this money well spent, given the short payback period and the business benefits of improving the building's existing green credentials.

"As a conference and function centre, a green policy is no longer just nice to have; it's a business essential," he said.

"It's something clients expect a venue to have. So not only can an audit identify ways to contain costs and conserve energy, it can also improve your venue's 'sellability'."

■ CASE STUDY

Historic home increases efficiency and comfort

Tudor House was built in 1936, and is an historic landmark in the New England region. The House offers hotel accommodation and is considered a significant tourism attraction for visitors to the Glenn Innes area.

Tudor House participated in an audit under the Energy Efficiency for Small Business program, which identified the main energy using appliances in the hotel as air conditioning and electric hot water systems, as well as lighting and office equipment.

With a $1,400 subsidy, Tudor House installed insulation in the hotel walls and ceilings to reduce energy use by seven per cent and save $476 a year off power bills.

Owner Jenny Carne has been thrilled with the results after completing the insulation project.

"On hot days, when temperatures can get to 40 degrees Celsius and above, I would turn the air conditioning on at around lunch time. Now when the hotel is vacant or when guests have gone out for the day, the air conditioning is turned off," Jenny said.

"Installing the insulation has really improved the comfort of the house – I'm really happy with the result."

Jenny plans to make further savings by replacing incandescent lamps with LED downlights in 11 rooms, to reduce lighting energy use by 78 per cent in each room.

The hotel now plans to replace two electric hot water systems with solar systems to reduce energy use even further and increase bill savings.

Power savings for communities

The NSW Climate Change Fund has provided $6.7 million to 259 energy saving community projects. These projects will help community groups save an estimated 160,000 megawatt hours of electricity and 172,000 tonnes of greenhouse gas emissions in the first 10 years, as well as 119 kilowatts of peak demand. This translates to saving an estimated $2.7 million in annual power bills.

Achievements

Under the Public Facilities Program and the former Energy Savings Fund, the Climate Change Fund allocated $6.7 million to implement 259 energy saving projects for community groups. These projects are estimated to save 160,000 megawatt hours of electricity and 172,000 tonnes of greenhouse gas emissions in the first 10 years, as well as $2.7 million in power bills a year. To 30 June 2011, 136 of these projects have been completed. Power savings by project type are shown in Table 7 below.

The Fund made up to $40,000 available for community organisations to implement simple, low-cost energy and water upgrades in their facilities under the Community Savers stream of the Public Facilities Program. The Fund supported projects to reduce energy consumption and power bills, including lighting upgrades and installing climate-friendly hot water systems, ceiling insulation and skylights. Recipients included not-for-profit pre-schools, aged care groups, sport and recreation clubs, religious facilities, and disability and support services.

Projects are also being implemented through the Demonstration stream of the Public Facilities Program in larger public facilities, including Scout halls, community halls and education centres. The Fund is supporting demonstration projects including insulation, lighting upgrades, optimisation of HVAC and installation chillers. These demonstration projects will implement education initiatives such as practical workshops and events, educational brochures, signage and websites.

The Fund contributed $50,000 to Earth Hour 2011 – a worldwide 'lights-out' hour coordinated by the World Wildlife Fund – to encourage communities to save power and improve sustainability. Of the 27,620 Australian businesses, schools, government agencies and individuals that signed up to the event on Saturday 26 March, around 34 per cent were from NSW. During Earth Hour 2011, Ausgrid estimated a 12 per cent drop in energy use in the Sydney CBD area.

Visit www.environment.nsw.gov.au/grants/ccfund.htm for details of community power savings projects funded under the Climate Change Fund.

Table 7

Community energy saving projects estimated savings and cost-effectiveness by project type (to 30 June 2011)

Project type	No. of projects	Funding allocated ($)	Estimated savings (MWh/yr)	Estimated savings (tCO_2e/yr)	Estimated peak savings (KW)	Estimated bill savings ($/yr)	Cost-effectiveness ($/(MWh x 10 yrs))
Demonstration	7	1,014,792	8,183	8,332	119	1,031,133	12.40
Community Savers	252	5,671,390	7,004	7,718	0	1,375,295	80.98
Total	**259**	**6,686,182**	**15,187**	**16,050**	**119**	**2,406,428**	**44.02**

Table note: does not include water saving projects with associated power savings.

■ CASE STUDY

Wagga Wagga campus targets energy saving and education

Charles Sturt University (CSU) has implemented energy and water saving upgrades across 17 facilities at its Wagga Wagga campus, with the support of $75,000 from the NSW Climate Change Fund.

By installing new energy and water efficient technologies, CSU is saving 206 megawatt hours of energy and 218 tonnes of greenhouse gas emissions a year. The project has a payback period of four years.

The project included installing energy efficient lighting and energy saving modules for air conditioning systems. CSU also installed power factor correction technology to determine how much power its electrical equipment uses. This technology helps the university to effectively identify and monitor energy use onsite.

Edward Maher, Acting Manager of CSU Green, said that the university is committed to reducing its environmental footprint. The university has set a target to reduce its energy consumption by 25 per cent by 2015.

"The outcomes of the project make a significant contribution to these objectives, as well as reducing operational costs of the Wagga Wagga campus," Edward said.

"The project also shows students and staff that the university is actively pursuing its sustainability objectives.

"The university also developed some really engaging case study videos that we are promoting to our student body through our website and Facebook page."

CSU's NSW campuses are located in some of the state's fastest growing regional cities. Wagga Wagga is CSU's largest campus, with around 126,000 square metres of floor area and 224 hectares of campus grounds.

CSU is continuing to pursue its 25 per cent energy reduction target by providing energy efficiency training to its operations and maintenance staff, and implementing a university-wide Building Management Information and Energy Management System.

■ CASE STUDY

Stadium lighting leads the way

Bankstown Basketball Association is the third largest basketball association in NSW, providing the local community with basketball and other social sport programs such as futsal, soccer, volleyball and badminton.

The Association received $40,000 under the NSW Climate Change Fund towards a $60,000 lighting upgrade at the basketball stadium. Energy efficient e5 fluorescent lights were installed to replace the existing high bay lights, saving an estimated 60 megawatt hours of energy a year.

General Manager Alex Bacic said cost increases are a significant challenge for the not-for-profit organisation.

"We undertook an analysis of our electricity use and discovered that our costs were projected to increase by around $17,000 each year," Alex said.

"As a not-for-profit organisation, we need to pass the costs onto our members.

"The funding has allowed us to avoid any cost increases to our participants, the lighting at the stadium has improved, and we are doing our bit to help the environment.

"I've had visitors from a number of other associations, including some from interstate, to see what we have done in the stadium."

The Association has also installed solar power and is currently investigating how to use its expansive roof space to harvest rainwater.

Power savings for government

The NSW Climate Change Fund has provided $27.4 million to 115 energy saving projects to help government facilities save an estimated 371,000 megawatt hours of electricity and 377,000 tonnes of greenhouse gas emissions in the first 10 years, as well as 16,000 kilowatts of peak demand. This translates to saving an estimated $5.8 million in annual power bills.

Achievements

Through the Public Facilities Program, the Schools Energy Efficiency Program and the former Energy Savings Fund, 115 projects are being implemented in schools, local government and state government sites, saving 371,000 megawatt hours of electricity, 377,000 tonnes of greenhouse gas emissions in the first 10 years, as well as $5.8 million in power bills a year. Power savings by government type are shown in Table 8 below.

The Fund provided around $14 million in lighting upgrades at 85 NSW high schools under the $20 million Schools Energy Efficiency Program, jointly managed by the Office of Environment and Heritage and the NSW Department of Education and Communities. The upgrades are expected to save an estimated 41,000 megawatt hours of electricity and 43,000 tonnes of greenhouse gas emissions in the first 10 years, as well as $867,000 on annual power bills.

Energy Savings Action Plans have been completed by 46 local councils that have populations of more than 50,000 people, and 15 government sites that use more than 10 gigawatt hours of electricity a year. Of the cost-effective annual savings of 96,000 tonnes of greenhouse emissions identified in these plans, 49 per cent have been implemented, with estimated savings of $8 million on electricity and gas bills a year. Commonly implemented measures include lighting upgrades, improving HVAC and installing energy efficient appliances.

The Fund is also supporting frontline and iconic state government facilities, with $6.4 million allocated to the Government Building Retrofit Program pilot, which will upgrade water and energy efficiency in government buildings in the Illawarra and Lower Hunter regions, and the Circular Quay Precinct.

To 30 June 2011, 21 assessments have been completed, identifying estimated savings of 19,505 kilolitres of water, 956 megawatt hours of electricity, 3,155 gigajoules of gas, 1,179 tonnes of greenhouse gas emissions, and $242,425 in power and water bills a year. In addition, the Sydney Opera House will save 870 megawatt hours of electricity, 922 tonnes of greenhouse gas emissions and $110,000 in energy bills a year.

Table 8

Government energy saving projects estimated savings and cost-effectiveness by project type (to 30 June 2011)

Project type	No. of projects	Funding allocated ($)	Estimated savings (MWh/yr)	Estimated savings (tCO_2e/yr)	Estimated peak savings (KW)	Estimated bill savings ($/yr)	Cost-effectiveness ($/(MWh x 10 yrs))
Local government	15	5,486,950	18,452	19,292	9,195	2,882,567	29.74
State government	13	7,688,725	14,327	13,813	1,806	2,057,701	53.67
Schools	87	14,270,878	4,099	4,345	9	868,911	348.19
Total	**115**	**27,446,553**	**36,878**	**37,450**	**11,010**	**5,809,179**	**74.43**

Table note: does not include water saving projects with associated power savings.

■ CASE STUDY

Council targets energy guzzlers

Fairfield Council, located in Sydney's south west, received $95,732 under the NSW Climate Change Fund to make the council's leisure centre and Wakeley administration building more energy efficient.

The Council is slashing energy use by 196 megawatt hours a year. The project has a payback period of just over three years.

Hong Nguyen from Fairfield Council said the project is an important part of the Council's Sustain 'n' Save Program that aims to reduce energy consumption and help local business implement energy efficient projects.

"The Council has set a target to cut 20 per cent of its greenhouse gas emissions by 2015," Hong said.

"To meet this target, Council committed to reducing energy consumption at 10 of our highest energy using sites through implementing an energy efficiency program and alternative energy sources."

After completing an Energy Savings Action Plan, the Wakeley administration building and the leisure centre were identified as two of the top energy using sites.

An economy cycle air conditioning system and nine electric heat pump units were installed at the leisure centre to improve the efficiency of the hot water service in the change rooms. The pool pump motors were also replaced with two energy efficient motors, resulting in high energy savings.

The administration building, which includes the Council Chambers and committee rooms, was upgraded with energy efficient lighting.

Hong is delighted with the project results and energy savings, and the improved services for local residents and council staff.

Since completing the project, the council has also implemented water saving projects, such as installing rainwater tanks and water efficient tapware and fittings.

■ CASE STUDY

Chillers cut air conditioning costs

After installing the latest chiller technology to service its air conditioning system, Westmead Hospital has reduced its energy use by at least 11 per cent.

Westmead Hospital, located in western Sydney, is a specialised facility servicing around 1.5 million people. The hospital received $710,000 from the NSW Climate Change Fund to contribute to the $2.7 million air conditioning chiller system upgrade.

The new technology installed at the hospital has reduced the chiller system's energy consumption by around 28 per cent, saving an estimated 5,000 megawatt hours of energy a year.

Glen Hadfield, Manager of Asset Systems and Sustainability at Westmead Hospital said the chillers and fans needed to operate the air conditioning system had to cover 170,000 square metres and were the largest users of energy at the hospital.

"Reliable air conditioning is essential for the hospital and our patient care," Glen said.

"The challenge is the sheer size of the space that requires air conditioning and how we balance the costs associated with it.

"By undertaking this project, we now have a more efficient system, which has significantly cut our energy use," Glen said.

Two new high efficiency chillers and chilled water pumps have been installed at the hospital, to provide chilled water for the air conditioning system. A feature of the new chillers is their ability to operate efficiently at 10 per cent of their peak capacity.

Chilled water pumps circulate cold water to the air conditioning system. The new pumps are more energy efficient due to variable-speed drives, which enable regulation of the chilled water and condenser water flows.

The new system reduces peak demand by 650 kilovolt amperes. This positively impacts the local electricity network, which during summer months often operates near full capacity. As a result of this change in demand by the hospital, the local network operator can delay increasing the local network's capacity.