



SMART GRID, SMART CITY

Facts about the National Energy Efficiency Initiative

What is the *Smart Grid, Smart City* demonstration project?

- The Australian Government announced in May 2009 that it would provide up to \$100 million for a *Smart Grid, Smart City* demonstration project. This is an energy efficiency initiative designed to encourage the development of an innovative smart grid network in Australia.
- The *Smart Grid, Smart City* demonstration project will provide funding to demonstrate smart grid technology at sufficient scale to indicate best practice and inform a broader industry-led rollout of smart grid networks across Australia.
- The project will reduce the risk and uncertainty for investors in smart grids by demonstrating how the technology can improve network reliability, deliver environmental and economic efficiencies, and drive customer behaviour.
- The project will also explore ways to better integrate renewable energy sources, such as solar and wind power, and investigate other network improvements that can increase reliability of supply and enable distributed storage.

What is a smart grid and what will it do?

- Smart grids combine advanced telecommunications and information technology (IT) applications with 'smart' appliances to enhance energy efficiency on the electricity power grid, in homes and in businesses.
- Smart grids use advanced meters, sensors, digital controls and analytic tools to automate, monitor and control the two-way flow of electricity across networks, from the point of generation to homes and businesses.
- By using smart grids, transmission and distribution companies have improved control over the network and can gather complex, real-time information about grid performance. Smart grids can also help optimise the reliability of electricity supply by automatically preventing outages and improving the detection of faults on power lines.



- A smart grid can also manage voltage within the grid and help reduce the losses that occur as electricity travels along transmission and distribution lines. In this way, smart grids help to manage network infrastructure and can reduce maintenance costs.
- Combined with smart meters, smart grids can let consumers know how much electricity they are using in their homes and offices. Smart applications can also alert them to how they can change their energy consumption during peak periods in order to save money on their electricity bills.
- Intelligent appliances, such as whitegoods, can also be programmed using smart grids to run on off-peak power. They can also enable heaters and air-conditioners to be remotely controlled, giving customers the ability to better manage their energy costs and help reduce the demand for electricity in peak times.
- By encouraging consumers to avoid using electricity at the busiest – and most expensive – times, smart grids help reduce peak demands that can cause black-outs. Lowering the amount of electricity required during a peak period also reduces the need for Australia to build more power plants.
- By helping to integrate renewable energy sources such as solar and wind power into the electricity grid, smart grids will make it easier for schools, businesses and homes around Australia to share the electricity they make through the smart network.
- Smart grids have the potential to help with the charging of electric vehicles at appropriate times to make the most of the electricity currently generated.
- Smart grids also enable the benefits of distributed power generation (such as the power produced by solar photovoltaic systems and co-generation plants) and distributed storage, to be maximised throughout the network.
- *Smart Grid, Smart City* may also explore potential synergies with the roll-out of Australia's National Broadband Network.

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