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***Performance Audit: Administration of the
Smart Grid, Smart City Program***

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Introduction

Climate change, caused by the emission of greenhouse gases, is a global issue and has the potential to affect ecosystems, water resources, food production, human health, infrastructure and energy systems in all countries.¹ Australia, along with many other countries has introduced a range of programs to address climate change.

The Australian National Audit Office (ANAO) has conducted performance audits across a number of these climate change programs including:

- Audit Report No. 23, 2011–12, *Administration of the National Greenhouse and Energy Reporting Scheme*;
- Audit Report No. 27, 2009–10, *Coordination and Reporting of Australia's Climate Change Measures*;
- Audit Report No. 26, 2009–10, *Administration of Climate Change Programs*; and
- Audit Report No. 34, 2003–04, *Administration of Major Programs, Australian Greenhouse Office*.

Audit reports No. 26 and 27 were part of an international collaboration audit undertaken through the International Organisation of Supreme Audit Institutions (INTOSAI) Working Group on Environmental Auditing.

In 2013–14, the ANAO examined the implementation of the Smart Grid, Smart City Program. This audit was particularly important as modernising electricity infrastructure, such as the adoption of smart grids, is seen as an important element underpinning more efficient energy consumption by consumers. A smart grid facilitates improvements to the management of electricity supply and demand. It involves new technologies for both the transmission and distribution network electricity systems (grid-side applications), and for consumers.

There are currently smart grid trials and demonstration projects, involving partnerships between governments, utilities and private sector stakeholders, or wholly funded by utilities and/or commercial entities, across Europe, the United States and Asia (for example, projects in Malaysia, Korea, and China).

Background and audit planning

Against a background of increasing domestic electricity prices and a greater focus on encouraging Australians to embrace energy efficiency measures, the Smart Grid, Smart City Program was announced by the Australian Government in the 2009–10 Federal Budget. The then Government committed up to \$100 million for the program to:

create, in one Australian city, town or region, an energy network that integrates a smart grid with smart meters in homes, thereby enabling greater energy efficiency, reduced emissions and use of alternative energy sources such as solar power.²

A smart grid combines advanced communication, sensing and metering infrastructure (including smart meters) with the existing electricity network. A smart grid can also improve the reliability of electricity services by remotely identifying and resolving faults on the electricity grid, better managing voltage and identifying infrastructure that requires

¹ International Organisation of Supreme Audit Institutions, Working Group on Environmental Auditing, *Coordinated International Audit on Climate Change; Key Implications for Governments and their Auditors*, November 2010, p.9 (Sourced from the Intergovernmental Panel on Climate Change; Synthesis Report, 2007).

² Australian Government, Budget Paper No.2: 2009–10, *Expenses Measures for the Department of the Environment, Water, Heritage and the Arts*, Commonwealth of Australia, Canberra, 2009, p. 199.

maintenance. In addition, smart grids have the potential to assist consumers in managing their individual electricity consumption by providing real-time information on electricity use, and enabling the use of 'smart appliances' that can be programmed to operate on off-peak power.

The Smart Grid, Smart City Program had the following four high-level objectives: deploying a demonstration and/or commercial scale smart grid rollout; building public and corporate awareness of the economic and environmental benefits of smart grids; gathering robust information and data on smart grid applications; and investigating synergies with other infrastructure.

The program was established as a competitive, merit-based grant program, with the aim of selecting one consortium led by an Australian electricity distribution network service provider (DNSP) to deliver the program. The grant application period opened in late October 2009, with four consortia submitting applications. The preferred applicant, EnergyAustralia (later renamed Ausgrid), was announced in June 2010. A funding agreement between the Australian Government and Ausgrid, with a total value of \$93 million, was signed in October 2010. The program was to be delivered in the city of Newcastle, New South Wales, surrounding districts in the Hunter Valley, and some areas of Sydney.

Objective, scope and criteria

The objective of the audit was to assess the effectiveness of the administration of the Smart Grid, Smart City Program, including the establishment, implementation and ongoing management of the program.

The criteria used by the ANAO to address the objective examined the:

- program's design and establishment, including governance and oversight arrangements;
- grant assessment process to select the provider for the program;
- negotiation and management of the funding agreement; and
- monitoring, reporting and evaluation arrangements put in place to determine the extent to which the program has achieved its objectives.

The audit scope focused on the implementation of the Smart Grid, Smart City Program by the responsible Australian Government departments (the responsibility for the administration of the Smart Grid, Smart City Program had been transferred across four administering departments since it was established in May 2009). A key focus of the audit was on the approaches used to manage the grant assessment and selection process.

The audit did not include a technical assessment of the various projects implemented under the funding agreement. The broader issues associated with smart grids and smart meters, such as potential advantages or disadvantages of time-of-use pricing regimes, or health and safety concerns that may be associated with smart meters, were also not examined.

Methodology

In undertaking the audit, the ANAO:

- reviewed departmental files and program documentation;
- interviewed departmental staff, Ausgrid and other relevant stakeholders, including consumers participating in the Smart Grid, Smart City Program;
- attended industry forums and meetings of the program's key external stakeholders as an observer;
- reviewed key program projects, including the retail trial, to determine the extent to which the program objectives had been achieved; and

- conducted site visits to implementation areas for the Smart Grid, Smart City Program in Sydney, Newcastle and the Upper Hunter Valley.

This methodology followed established ANAO practice and was in accordance with the ANAO's Auditing Standards. In particular, the conduct of the audit was informed by the ANAO's Better Practice Guides on *Implementing Better Practice Grants Administration*, with the most recent guide released in December 2013. The guide provided a sound basis on which to plan and conduct the audit.

Overall conclusion and findings

Summary of conclusion

As a demonstration program, a key outcome from the Smart Grid, Smart City Program was data and information that contributes to greater knowledge and understanding regarding the rollout of smart grids. To date, reports from the grant recipient, Ausgrid, and the department indicate that many of the program's trials have been successfully implemented, with a range of data collected.

Overall, the administering departments established appropriate arrangements to support the implementation of the Smart Grid, Smart City Program. There was, however, scope for improvement in several areas of the departments' administration of the program, including: aspects of the grant assessment and selection process, including probity arrangements; and the measurement and reporting of program performance.

Key Findings:

- In general, the established governance mechanisms for the program incorporated appropriate oversight arrangements.
- There was a range of information provided to stakeholders and the general public about activities conducted under the program, including through the establishment of an industry stakeholder committee, presentations at conferences and seminars, and the regular release of Ausgrid reports. However, the absence of a set of outcome-focused key performance indicators (KPIs) has made it difficult for stakeholders to assess the extent to which the Government's objectives are being achieved.
- While the administering department appointed a probity adviser for the grant assessment and selection process, the adviser had limited oversight of the process. The probity adviser did not prepare a probity plan or attend assessment panel meetings.
- The merit assessment process, which was undertaken by an Independent Assessment Panel (IAP), included each panel member undertaking an assessment of each grant application, against the five published selection criteria. These individual assessments were not, however, retained by the administering department. The Chair of the IAP advised the ANAO that the panel subsequently made a joint assessment of each application against the five selection criteria, taking into account the findings of the Expert Panel. However, documentation, including the minutes of the IAP meetings and its final selection report, did not clearly evidence this assessment. The IAP also undertook a secondary assessment of the two highest ranked applicants, intended to provide additional assurance regarding their suitability to deliver against the objectives established for the program. There would have been merit in outlining the potential for an additional assessment in the program guidelines and internal guidance materials.
- In general, the majority of the grant milestone payments were made in accordance with the funding agreement requirements and were appropriately documented. However, in June 2012, RET made an early payment to Ausgrid for several milestones that were yet to be achieved. The department informed the ANAO that the payment was made with the

intention of ensuring that the Australian Government could meet its obligations under the funding agreement. However, while carefully considered by RET, this approach was not in keeping with generally accepted principles of sound program management and presented a number of risks to RET's effective management of the agreement—in particular its ability to manage potential under-performance by Ausgrid, by withholding future grant payments.

- Some elements of the program did not progress as originally envisaged. Ausgrid's grant application and the funding agreement had foreshadowed a retail trial involving 'up to' 20 000 participants. A trial design study commissioned early in the program by Ausgrid, and verified by RET consultants, reduced the target to a minimum of 4453 (with a 'stretch target' of 8333). However, challenges in the retail trial implementation included customer resistance to the technologies, delayed availability of appropriate smart meters, technological issues and difficulties in securing an electricity retail partner for the trial. As a result, the final number of participants in the retail trial fell just short of the minimum target (at 4000 participants), and the trial was not fully in place for the optimal two summers (to gather the most comprehensive range of data).

Recommendations

The ANAO made two recommendations to enhance the administration of grant programs in those agencies that have had responsibility for implementing aspects of the Smart Grid, Smart City Program. The first recommendation (directed to the Department of Industry) related to measuring and reporting program achievement against established objectives. The second recommendation (directed to the Department of the Environment) related to implementing appropriate probity arrangements, and appropriately documenting grant assessment and selection processes.

Summary of agency responses

The agencies agreed to all ANAO recommendations.

Impact and results

The audit provided assurance to the Australian Parliament that the Government had established appropriate arrangements to support the implementation of the Smart Grid, Smart City Program, which was designed to provide important information on the wider roll-out of smart grids and smart meter technology in Australia and more broadly. The audit also highlighted several weaknesses in the administration of the program that required attention, in particular:

- the absence of a set of outcome-focused key performance indicators (KPIs) has made it difficult for stakeholders to assess the extent to which the Government's objectives are being achieved;
- there was limited probity oversight and weaknesses in probity arrangements for this large and complex grant assessment and selection process; and
- documentation of the grant assessment and selection process did not sufficiently evidence key aspects of the process.

The audit report also commented directly on the outcomes achieved from the program and highlighted potential challenges for service providers when seeking to roll-out smart grids in the future, specifically the challenges encountered when engaging with customers and the installation of equipment into customer homes.

Challenges

While the audit did not involve the technical assessment of the range of technologies being implemented under the Smart Grid, Smart City Program, the subject matter was highly complex and the audit team was required to gain a sound technical understanding. The audit team reviewed a range of background information on smart grids and examined international developments in relation to the deployment of smart grids and smart meters. The audit team also met with a range of key stakeholders to build its understanding of issues relating to the deployment of smart grids.

As mentioned previously, the program had been transferred between four different government agencies from 2009 to 2013. This created challenges for the audit team in relation to sourcing program documentation, and accessing key staff who had been involved at various stages of the program's implementation.

Lessons Learned

The ANAO's understanding of the complex subject matter examined under the Smart Grid, Smart City Program was greatly enhanced by the opportunity to inspect program implementation sites and to interview key stakeholders, including staff from the funding recipient and consumers involved in trials funded under the program.

The final section of the audit report examined the program's achievements against intended outcomes. The coverage in this was supported by several case studies in which the ANAO provided analysis of departmental and funding recipient data, and information obtained from the field visits and interviews with key stakeholders. These case studies helped to illustrate the achievements of the program in the context of the objectives set by government.