Australian Government

Department of Resources, Energy and Tourism

clean energy future

Extension of the EEO Program to Energy Transmission and Distribution Networks

Options Paper

21 February 2012

Contents

Consultation Process

The Commonwealth Department of Resources, Energy and Tourism (RET) is undertaking public consultation to inform the design of the Energy Efficiency Opportunities (EEO) program extension to electricity and gas transmission and distribution; and develop a regulation impact statement (RIS) evaluating EEO program implementation options and impacts. RET has engaged the Sapere Research Group (Sapere) to work with it to develop this options paper and an implementation RIS.

This paper examines the current EEO program and proposes changes to the EEO regulations with the aim of making the program as effective and efficient for electricity and gas transmission and distribution businesses while also achieving its objective of improved information on energy use, energy losses and opportunities to cost effectively address these in electricity and gas transmission and distribution.

It also looks at the regulatory frameworks in which electricity and gas transmission and distribution businesses operate with the aim of identifying areas that may require further consideration for the EEO program to be as effective as possible.

Preliminary industry consultation was undertaken by RET and Sapere to inform this options paper.

Stakeholders are invited to make written submissions by **Tuesday 13 March 2012**. The dates for the consultation process follow.

Options paper release	Tuesday 21 February 2012
Presentation to the Energy Networks Association's Asset Management Committee Melbourne	Tuesday 21 February 2012
Sydney stakeholder forum Mercure Sydney Airport, 20 Levey St, Wolli Creek	24 February 2012, 1 – 4 pm Register by Wednesday 22 February
Perth stakeholder forum Seasons of Perth, 37 Pier St Perth CBD	Friday 2 March 2012, 9 am – 12 pm Register by Wednesday 29 February
Written submissions close	Tuesday 13 March 2012
Regulatory Impact Statement and proposed changes to the EEO regulations released	Late May 2012
EEO regulation changes come into effect	1 July 2012

Please email tania.milovanovic@ret.gov.au to register for a forum.

Submissions should be sent to: energyefficiencyopportunities@ret.gov.au or

Energy Efficiency Opportunities Development
Attention: Geoff Houen
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Background

In July 2011, as part of the Clean Energy Future policy package, the Australian Government announced its decision to extend the Energy Efficiency Opportunities (EEO) program to corporations whose main activity is electricity and gas transmission and distribution.[1] Currently, these businesses are exempt from the EEO program. This decision was in line with recommendations of the Prime Minister's Task Group on Energy Efficiency. The intention is for the EEO regulations to be in place by 1 July 2012.

The EEO program targets information failures and organisational barriers preventing the greater uptake of energy efficiency. The aim of the program is to encourage large energy using businesses to increase their energy efficiency by improving information on energy use and losses and the identification, evaluation and implementation of worthwhile energy savings opportunities.

The Australian Government is of the belief that further efficiency, environmental and financial benefits could be achieved through the extension of the EEO program to energy transmission and distribution networks.

The Prime Minister's Task Group on energy efficiency, in its July 2010 report, identified improved transmission and distribution losses as an option to support energy efficiency. The report estimates that the current national average for combined losses in distribution and transmission could be reduced from 8 per cent to 6.5 per cent by 2020 through cost effective changes.[2]

See Appendix 1 for further information on the EEO program.

[1] 10 July 2011 – Securing a Clean Energy Future, Australian Government. http://www.cleanenergyfuture.gov.au/clean-energy-future/securing-a-clean-energy-future/

[2] Report of the Prime Minister's Task Group on Energy Efficiency, July 2010, p. 169

Executive summary

Transmission and distribution energy use covered by the EEO program

It is noted that electricity and gas transmission and distribution sectors are primarily about the transportation and delivery of energy. Under the EEO program, delivered energy does not constitute energy used in transmission and distribution and it is not required to be reported by transmission and distribution businesses.

Energy use that transmission and distribution businesses will be required to be assess under the EEO program can be divided into two sets of activities:

1. Business operations: this includes use of electricity and gas to operate offices and other sites, and liquid fuel for vehicles and machinery. For the purposes of this options paper, this is referred to as **Type 1 energy use**.

2. Transmission and distribution: this covers energy used distributing and transmitting electricity and gas via networks and pipelines and includes items such as electricity lost in lines and transformers and gas used in pipeline compressors and lost from gas networks. For the purpose of this options paper, this is referred to as **Type 2 energy use**.

Proposed amendments to the EEO regulations

Amendments to the regulations may be necessary to ensure the application of the EEO program to transmission and distribution businesses is effective and efficient. This reflects the distinctive characteristics of these businesses. Proposed amendments include:

1. Extend the payback period from 4 to 5 years or longer. This would reflect the fact that transmitters and distributors are subject to price control where high returns (shorter payback periods) may rarely be permitted.

2. Expansion of the concept of benefits to allow for the fact that, for some energy saving opportunities, the benefit may be in the form of additional recovery from tariffs , while the direct value of energy cost savings accrues to a third party.

3. Provide flexibility in the timing of a business' first EEO assessment cycle – longer or shorter - to enable the assessment cycle to be aligned with key processes, such as a business' regulatory determination cycle. The proposed length, structure and rationale for any change in the first cycle would be outlined in the business' assessment plan. Subsequent cycles would revert to 5 years.

4. Require a specific category of energy use in transmission and distribution (described as type 2 energy use in this paper) for EEO reporting. This would not affect reporting under the National Greenhouse Reporting System (NGERS).

5. Further consider specifying a set of indicators so EEO reporting is consistent and transparent across the sector.

Implementation options

Three implementation options are proposed.

Option 1: Remove the current exemption only

Under this option, the current exemption under sub-regulation 2.1(2) of the EEO regulations is removed from 30 June 2012. No other changes to the regulations are made and the EEO program will apply on 1 July 2012 to transmission and distribution businesses, on the same basis as any other corporation operating under the EEO program.

Option 2: Remove exemption plus limited amendments

Under Option 2 minor amendments to the EEO regulations would be made along with the removal of the exemption per Option 1. Option 2 would provide the minimum amendment to the EEO regulations necessary to make the regulations effective for Type 2 energy use.

Regulation changes will be made so the regulations are effective. This may involve tidying up references to energy savings and payback periods.

Option 3: Remove exemption plus targeted amendments

Under option 3, EEO regulations incorporate changes outlined for Options 1 and 2 and the majority of proposals outlined above.

Option 3 would seek to optimise the benefits for the transmission and distribution sector to fullest extent possible, without energy market framework changes, and remove inconsistency in regulations for the sector which may otherwise increase the compliance burden.

Further scenario: Option 3 + complementary changes to energy market regulation

In addition to the three identified options for amending the EEO regulations, a further scenario can be identified where the EEO program is implemented along with or feeding into complementary changes to sector-specific regulation. It would maximise the benefits of the EEO program to transmission and distribution businesses and the broader economy.

Such complementary regulatory changes could include improved clarity over the recovery of energy efficiency opportunity implementation costs where tariffs are set by economic regulators. It could also include the introduction of an incentive scheme focusing on Type 2 energy use.

This further scenario could also include broader changes to energy market frameworks to encourage the parties using energy delivered via distribution and transmission to minimise Type 2 energy use. Such changes may include the creation of a national energy efficiency incentive scheme that encompasses Type 2 energy use, as envisaged under the National Energy Savings Initiative. It may also include other changes currently under consideration to reduce Type 2 energy use, such as greater demand side participation (DSP), possibly including distributed generation.

1. Energy use in electricity and gas distribution and transmission

Energy use that transmission and distribution businesses will be required to be assess under the EEO program can be divided into two sets of activities:

1. Business operations: this includes use of electricity and gas to operate offices and other sites, and liquid fuel for vehicles and machinery. For the purposes of this options paper, this is referred to as **Type 1 energy use**.

2. Transmission and distribution: this covers energy used distributing and transmitting electricity and gas via networks and pipelines and includes items such as gas used in pipeline compressors and electricity lost in lines and transformers. For the purpose of this options paper, this is referred to as **Type 2 energy use**.

Under the EEO program, delivered energy does not constitute energy used in distribution and transmission. Responsibility for energy delivered via transmission and distribution rests with other participating corporations.

Under 2.3 of the EEO regulations, corporations (or classes of corporations) whose main business is the transmission and/or distribution of gas and/or electricity, and where their Type 1 energy use does not exceed 0.5 PJ in a year, are exempt from the obligation to participate in the EEO regulations. This exemption automatically ceases to have effect at the end of 30 June 2013. As a result of the Government's policy decision to extend the EEO program to include transmission and distribution, the removal of the exemption is brought forward one year so that it is effective from the end of 30 June 2012.

Type 2 energy use represents the bulk of energy that is affected by the extension of the EEO program to transmission and distribution.[3] Type 2 energy use gives rise to the need to consider modifying the EEO regulations.

[3] See for example Table 5.1 of *Energy network infrastructure and the Climate Change challenge 2009*, a report prepared for the Energy Networks Association.

1.1 Scale and impact of energy use

Substantial Type 2 energy is used in the transmission and distribution of gas and electricity.[4] As shown in table 1 below, Type 2 energy use represents more than six per cent of aggregate electricity and gas delivered, nationally.[5]

Table 1

PJ (2009)	Electricity	Gas	Total
Energy delivered	735.5	1,049.0	1,784.5
Type 2 energy use	79.4	32.5	112.0
Type 2 energy use as per cent of energy delivered	10.8%	3.1%	6.3%

Source: *ESAA, 2011, Sapere analysis. Gas values may include exports as well as domestic consumption.*

Around 79 per cent of the Type 2 energy use relates to electricity. This electricity use represents around 10 - 11 per cent of electricity delivered.[6]

[4] In addition to physical "losses", and energy used in compression (gas) or heat loss (electricity), Type 2 energy use may also include energy that is not measured or that is otherwise unaccounted for.

[5] This discussion is derived from data published by the Energy Supply Association of Australia (ESAA) for the 12 months ending 30 June 2010, specifically tables 1.2 and 3.2 of *Electricity Gas Australia 2011*.

[6] This is an aggregate value. There is of course significant variation between transmission and distribution, and between different networks, depending on a range of factors. Energy use for a single network may also vary over time, for example as peak demand increases relative to average demand. Over the 5 year period to 30 June 2010, electricity distribution and transmission energy use has averaged 9.8 per cent.

On an indicative basis, the aggregate economic cost of Type 2 energy use appears to be $4.5-$5.8 billion annually. This is summarised in table 2 below.[7]

Table 2

$m 2011/12	Electricity	Gas	Total
Value of consumption annually	48,418.2	13,929.4	62,347.6
Value of Type 2 energy use – low	4,061.7	471.9	4,533.6
Percentage	8.4%	3.4%	7.3%
Value of Type 2 use - high	5,280.2	495.5	5,775.7
Percentage	10.9%	3.6%	9.3%

The overall impact of Type 2 energy use on household energy bills is significant. As detailed in table 3 below, Type 2 energy use appears to represent between $211 and $263 of annual typical household expenditure on electricity and gas.[8]

Table 3

$2011-12	Electricity	Gas	Total
Household annual expenditure	1,975.0	1,338.5	3,313.5
Type 2 energy use – low	165.7	45.3	211.0
Type 2 energy use – high	215.4	47.6	263.0

Source: AER, ESAA, ABS, Sapere analysis. Gas values in particular may be overstated depending on the extent reported gas volumes are exported.

The range of estimates in the two tables above reflects complexity and uncertainty in estimating the effect of Type 2 energy use on delivered energy costs and prices. One source of complexity is that both Type 2 energy use and the value of Type 2 energy use, as a proportion of delivered energy, are dynamic. This is especially so for electricity, to which the following comments apply.

[7] The estimated economic cost varies depending on a number of factors and is subject to significant degree of uncertainty.

[8] These estimates are derived from Table 4.4 of the Australian Energy Regulator's *State of the Energy Market* report for 2011. They are based on assumed annual household consumption of 7.5MWh (for electricity) and 21GJ (for gas) per annum. A note to Table 4.4 refers to an assumed 60GJ of consumption per annum. An assumption of 21GJ of consumption per annum has been used in the present analysis. Due to data availability limitations, the value data in this table relate to 2011-2012, while the consumption data in the preceding table relate to 2008-2009. Therefore all values should be treated merely as indicative.

The high end of the range attempts to take dynamic factors into account by applying an explicit "peak" factor to Type 2 energy use. The low end of the range assumes the value of Type 2 energy use is identical to the average value of delivered energy.

As a proportion of energy delivered, Type 2 energy use increases substantially during high demand periods. This energy use takes the form of conductor losses and one aspect of transformer losses.[9]

These high Type 2 energy use periods are likely to overlap with periods where wholesale energy prices are likely to be substantially greater than otherwise.[10] In addition, there is a substantial overlap between high wholesale cost periods and periods where the cost of transmission and distribution capacity is also likely to be substantially greater than otherwise. In combination, these three factors mean it is possible the value of Type 2 energy use may be materially higher than the average price of delivered energy.[11]

In a far weaker form this possible cost premium effect may also apply to gas. For example during periods of peak gas demand, gas transmission may require greater use of energy to run pipeline compressor equipment, to maintain line pack supply and system pressure. For the "high" estimate, a 'peak factor' loading of 30 per cent has been applied to electricity while a loading of five per cent (0.05) has been applied for gas.

Question 1: How does your corporation assess the value of Type 2 energy use? Does it take into account dynamic factors? Do you have any comments on the initial estimates set out above?

The Prime Minister's Task Group on energy efficiency, in its July 2010 report, identified improved transmission and distribution losses as an option to support energy efficiency. The report estimates that the current national average for combined losses in transmission and distribution could be reduced from 8 per cent to 6.5 per cent by 2020 through cost effective changes.[12] This is equivalent to a reduction in total estimated losses of 18.8 per cent.

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[9] Conductor losses and load related transformer losses are typically known as I2R losses. No-load transformer losses do not vary with load.

[10] In Western Australia's WEM, prices during peak demand periods are capped under short term and balancing market arrangements. However, peak demand energy use gives rise to the need to procure additional generation capacity and hence imposes a much higher combined energy and capacity cost compared with low demand periods.

[11] This proposition is after taking into account the following. 1. The portion of retail electricity prices that is customer related and would not decrease with any reduction in Type 2 energy use. 2. Delivered energy prices (and hence the value of energy used in transmission and distribution) for large energy users may be at a discount compared with prices for small energy users. 3. Some Type 2 energy uses occur at the wholesale level (transmission) and would therefore not incur distribution energy use and capacity related costs. 4. Existing frameworks and methods for settling wholesale markets (in the National Electricity Market (NEM) and Western Australia's Wholesale Electricity Market (WEM). It does not imply any market-wide shortfall arising from wholesale settlement methods and frameworks, taking into account settlement residues and the like.

[12] Report of the Prime Minister's Task Group on Energy Efficiency, July 2010, p. 169

In addition to carbon related savings, any significant reduction in Type 2 energy use would have value and price implications for the entire supply chain. Significantly less primary energy and electricity generation capacity would be required to sustain a given level of consumption. Similarly, significant transmission and distribution infrastructure investments could be deferred or avoided altogether, as system capacity requirements could reduce at the margin. Any reduction in system capacity requirements could also contribute to system reliability and security benefits.

These points suggest that existing Type 2 energy use is higher than is economically efficient. This is also consistent with the experience in implementing the EEO program in other sectors.

Question 2: How far can Type 2 energy use be economically reduced? What are the feasible opportunities to reduce Type 2 energy use?

1.2 Why amendments to EEO regulations are required

The transmission and distribution sector has a number of characteristics that may require amendments to EEO regulations to be effective and efficient. These characteristics do not appear to apply to Type 1 energy use. For such energy use the existing EEO program can be applied in its current form.

As a result of energy sector reforms and subsequent transactions, there is now widespread separation between corporations that own transmission and distribution infrastructure and corporations that access this infrastructure.[13] The majority of Type 2 energy use typically does not have a direct bearing on transmission and distribution access charges – or infrastructure related costs[14] which means that energy transmission and distribution businesses typically face limited financial incentives to minimise Type 2 energy use. The majority of energy savings in type 2 energy use will typically be realised by the energy end user or retailer, who is generally paying for the type 2 energy use. There is a broader benefit to the economy but the ability to quantify savings with a payback to the EEO participant becomes difficult or may be in the form of return on capital rather than energy savings.

Further, a substantial portion of energy transmission and distribution businesses are subject to economic regulation where prices or revenues are controlled or capped by an independent regulator (the Australian Energy Regulator in NEM jurisdictions, the Economic Regulatory Authority in Western Australia and the Utilities Commission in the Northern Territory). Economic regulators may not be explicitly obliged to optimise the cost of Type 2 energy to its full extent alongside other costs under relevant governance frameworks. This may inhibit the ability of an EEO participant to implement some of the cost-effective energy saving opportunities.

[13] Some vertical integration remains, most notably Horizon Energy in WA and Power and Water in the Northern Territory.

[14] Notable exemptions are gas distribution networks and at least one gas transmission pipeline, where the operating corporation is required to purchase system gas and recover this cost via tariffs.

Also, under at least some existing frameworks for price regulation, there may be little incentive for the early retirement of high energy use sunk assets. In contrast to competitive markets, regulated entities can continue to recover the costs of assets even where the assets are no longer economic. This may result in the retention of inefficient assets even where it would be economic to replace them.

The quantum of Type 2 energy use, particularly in the case of electricity, varies due to factors such demand and the location of generation and load, which are beyond the control of transmission and distribution businesses. This can make it difficult to measure the impact of incremental capital and operating expenditure to reduce Type 2 energy use.

Further, frameworks (particularly electricity) for wholesale market settlement may not always allocate Type 2 energy use on a causer pays basis as energy use is pooled within regions and on a temporal basis.[15] As a result, end users of electricity may not be fully incentivised to minimise Type 2 energy use.

If not addressed, it is possible that cost-effective energy efficiency opportunities could be identified but face regulatory barriers to implementation. Some of these issues can be resolved through changes to the EEO program and regulations as proposed in this paper, however, some barriers will need to be addressed through other regulatory frameworks. The Department will be identifying these barriers and seeking to make recommendations for change in these areas. Some preliminary recommendations have been identified in Chapter 4.

Question 3: Do you consider there are specific features of Type 2 energy use that need to be taken into account in designing EEO regulations? If so, to what extent do you agree or disagree with the observations above? Are there other factors that should be considered?

[15] At least in part this represents practical limitations arising from the fact that wholesale markets are settled on half hourly intervals, whereas most consumption data is measured on an accumulation basis using quarterly meter data. Geographical pooling could in theory be addressed by moving from zonal to nodal wholesale pricing, but this is not being advocated here.

2. Proposed amendments to EEO regulations

This section proposes changes to the EEO regulations, as they will apply following the removal of the existing exemption, to corporations whose primary activity is electricity and/or gas transmission and/or distribution. The section does not purport to be exhaustive. Instead, it highlights some key issues that emerged over the course of an initial round of discussion with stakeholders..

This Chapter covers:

1. Determining Participation in the EEO program
2. Assessment Planning
3. The Assessment Framework
4. Assessment reporting
5. Proposed implementation options

2.1 Determining Participation

The requirement for a corporation to register and participate for the EEO program is determined by legislated rules. The corporation must be a controlling corporation which is a constitutional corporation that does not have a holding company incorporated in Australia.

The controlling corporations group must also meet the energy use threshold (0.5 PJ in a financial year). Whether a corporation meets the energy use threshold is determined by who has *operational control* over energy use at a facility.

2.1.1 Operational Control

Under Part 1 of the EEO regulations, the user of energy is determined by reference to 'operational control' over the "facility" in which the energy is consumed. Operational control has the same meaning as in section 11 of the NGER Act. In accordance with the NGER Act, a controlling corporation has operational control over a facility if it has the authority to introduce and implement any or all of the following for the facility:

- operating policies;
- health and safety policies;
- environmental policies; and
- meets the requirements of the regulations; or
- the Greenhouse and Energy Data Officer declares the corporation or member to have operational control under the NGER Act.[16]

[16] Note that this is abbreviated and not the complete definition contained within the NGER Act.

Part 1 of the EEO regulations refers to Section 9 of the NGER Act for the definition of 'facility'. A facility is defined as an activity, or a series of activities (including ancillary activities), that involve the production of greenhouse gas emissions, the production of energy or the consumption of energy, and that form a single undertaking or enterprise and meet the requirements of the regulations; or are declared by the Greenhouse and Energy Data Officer to be a facility.

The NGERS regulations provide that, to be part of the same facility, activities must be attributable to the same 'industry sector'. Section 7 of the NGER Act provides that 'industry sector' has the meaning given by the regulations, and the regulations provide that 'industry sector' means an ANZSIC industry classification and code. These are listed in Schedule 2 of the NGER Regulations and include:

Item	ANZSIC code	ANZSIC industry classification
54	261	Electricity distribution
55	262	Electricity transmission
70	270	Gas supply
76	310	Heavy and civil engineering construction
113	264	On selling electricity and electricity market operation
140	502	Pipeline and other transport

It can be assumed that if a corporation is registered under the NGER Act, it has defined its facilities and determined that they have operational control of the facilities. If the corporation as a whole use over 0.5 PJ of energy in a financial year, according to energy use rules, following the removal of the exemption, they will be required to register for the EEO Program.

Stakeholders have noted that other bodies such as retailers, customers, and market operators, also have control over energy use and losses. The nature of energy use and energy efficiency is that this is the case to a lesser or greater extent in many sectors of the economy. The question to ask is who is in the best place to assess and identify opportunities to reduce energy use and losses.

Proposal

The intention is for a controlling corporation that is registered under the NGER Act, and so has defined their facilities and determined that they have operational control of the facilities, to have the same defined facilities and operational control for the purposes of EEO reporting.

2.1.2 Energy use threshold – 0.5 PJ

The energy use threshold for the EEO program is 0.5 PJ. For a transmission and distribution business, the energy used to calculate whether a corporation exceeds this threshold will be made up of both type 1 and type 2 energy use.

There are some businesses in the transmission and distribution sector that will not trigger this threshold, and consideration has been given as to whether it is appropriate to lower the threshold to capture the remaining type 2 energy that would remain outside of the program.

This would simply require all corporations whose main activities are transmission and distribution to participate in the EEO program. The public policy case for varying the energy use threshold in this area is not strong. It would amount to imposing a more stringent set of requirements on Type 2 energy (and the activities that lead to this use) than on other types of energy use.

Proposal

It is proposed the existing 0.5 PJ annual energy use threshold apply to electricity and gas transmission and distribution businesses and no lowering of the threshold would occur.

Question 4: Is there value in applying the EEO assessments to raising or lowering threshold for transmission and distribution businesses?

2.2 Assessment Planning

Part 5 of the EEO regulations set out requirements for the assessment plan and assessment cycle. The assessment plan outlines how and when a corporation will undertake assessments and report and also provides a corporation's baseline energy use against which they can track potential energy savings both internally and within their Government reports.

A controlling corporation must submit a registration application within nine months following the end of the financial year in which the energy use of a corporate group exceeds 0.5 PJ. That year is referred to as the trigger year. (The trigger year will be 2011-12 for most networks). After registering, a corporation must prepare and submit an assessment plan to RET within 18 months following the end of the trigger year. The assessment plan covers a five-year assessment cycle and includes:

- information on the corporate structure;
- current (baseline) energy use and savings data;
- an assessment schedule – outlining how and when the corporation intends to conduct assessments in accordance with the Key Elements; and
- a reporting schedule – outlining how, where, and when the corporation intends to report to the RET and to the public.

The five-year assessment plan is redeveloped for each cycle.

Energy use information should be provided for the corporation's nominated baseline year. This can be any continuous 12 month period commencing 24 months before the beginning of the assessment cycle, and ending 12 months into the assessment cycle. Participants must provide the annual energy use for the group as a whole and disaggregated by members of the group, business units, sites or key activities.

Current energy use for the members of the corporate group covered by the assessment plan must be provided with the best available accuracy. For the first assessment cycle this will ideally be within ±10 per cent for the assessment plan. It is expected that participants entering their second assessment cycle will have achieved ±5 per cent energy use data accuracy in their assessment plan. Participants must indicate the error margin of their energy use data.

2.2.1 Defining "indicator"

As part of assessment plan, energy use is expressed using an indicator to a level that will provide meaningful performance improvement information Overtime. This is included in a corporation's reports to the Government. Currently, the indicator is determined by the corporation.

Part 1 of the EEO regulations defines an "indicator" as a measure of the energy use of a controlling corporation's group, or a part of a controlling corporation's group, that is expressed by reference to a unit of production or service that is reasonably relevant to an industry, its energy use, or both. While Type 1 energy use should be relatively straightforward, there are likely to be several possible approaches to applying the concept of an indicator to transmission and distribution. This reflects the specific characteristics of Type 2 energy use, discussed earlier.

A central EEO program objective is to overcome informational barriers, both within and outside a corporation. There could be benefit in seeking to define a common set of indicators to apply across the gas and electricity sectors, or at least in significant sub-sectors. This would facilitate benchmarking both over time and across the sector. Indicators may be useful for tracking outcomes where energy efficiency opportunities are implemented. They could also be linked to reports on energy performance, as required under Schedule 7 to the EEO regulations.

Proposal

Stakeholder feedback and further consideration is required before making a definitive proposal regarding indicators. One option is to work with industry to identify the most appropriate indicators for transmission and distribution businesses to allow comparison across the industry / technologies. Another is to apply the regulations as they are and leave it to each business to determine the indicators they will use.

Question 5: Are there likely to be benefits from developing a common set of indicators specifically for distribution and transmission? What indicators could be used?

Question 6: Is the accuracy requirement for providing current energy use achievable? What level is achievable by the sector?

2.2.2 Consideration of demand side management in EEO

In the draft Energy White Paper the Australian Government flagged the need for further reforms to improve energy productivity to, among other things, help reduce future cost pressures, and noted that pursuing cost-effective opportunities can yield individual and national economic benefits.

In the white paper the Government identified opportunities to improve energy production productivity, particularly the utilisation of energy infrastructure, and identified further potential to realise cost-effective demand side efficiencies.

The extension of the EEO program may be an opportunity for transmission and distribution businesses to consider demand side management options, particularly ones the sector may have some influence on, for example distributed generation. Any such mechanism would primarily be about providing better information to the sector, energy users and the

Government, and would build on one of the EEO program's objectives of improving information flows.

This opportunity would need to be considered in the context of other reforms. In particular, the rule change proposal on distribution network planning and expansion, currently being considered by the AEMC, includes distribution network information provision and planning requirements with respect to demand side and other non-network options. The AEMC Power of Choice demand side review, which the Government initiated with other Ministers of the Standing Council on Energy and Resources, is looking into further opportunities for reform.

Question 7: Are there opportunities for transmission and distribution businesses to examine demand side management options as part of their EEO participation? How would this relate to or complement obligations and opportunities under existing or emerging regulatory frameworks?

2.2.3 Assessment cycle

Under Part 1 of the EEO regulations, an assessment cycle is:

(a) the period of 5 years beginning on 1 July in the financial year after the trigger year;

(b) each subsequent five year period after the end of the period mentioned in paragraph (a).

Under regulation 5.3, a controlling corporation must ensure that within the first two years of the assessment cycle:

- each member of the corporate group that is scheduled to conduct assessments completes its first assessment for at least one site, key activity or business unit, or
- 40 per cent of the group's energy use is assessed.

Further, the controlling corporation must also ensure that at least 80 per cent of its total baseline energy use is assessed (including all sites that use more than 0.5 PJ per year) within the first 5 year assessment cycle, and assess or re-assess at least 90 per cent in the second and subsequent cycles. All sites over 0.5 PJ must have an individual assessment.

An issue raised by some stakeholders is that for many transmission and distribution businesses the EEO assessment cycle may not align with common industry practices and activities. An example is five yearly price or revenue control (regulatory) cycles, in which the major network planning and capital budgeting decisions are made broadly half way through price control cycles. This could result in a requirement for additional resources to be applied for the purpose of EEO assessments which could be avoided if EEO assessment and regulatory cycles were better aligned – or there was more flexibility around the definition of EEO assessment cycles.

Further, some corporations are already operating under one or more price control cycles and hence it may not be practical to seek to align the EEO assessment and regulatory cycle or cycles in these cases.

Proposal

It is proposed that transmission and distribution businesses retain a trigger year of 2011 – 2012 in line with the Australian Government's intention to bring these businesses within the EEO program from 1 July 2012.

Further, it is proposed that transmission and distribution businesses be given flexibility to align their first assessment cycle with key business processes, for example with their regulatory cycle. This means a business' first cycle may be longer or shorter than 5 years. The proposed length and rationale for a modified first assessment cycle would be outlined in the business' assessment plan. Subsequent cycles would return to a five year cycle once aligned.

Question 8: Could the cost effectiveness of EEO assessment cycles be improved by aligning them with regulatory cycles and, if so, how.?

2.2.4 Potential energy efficiency opportunities - electricity

The table below identifies some broad types of energy efficiency opportunities that could be assessed in the course of an assessment cycle. These opportunities are illustrative only and not intended to be exhaustive or rigorous.

Action	Options	Comments
1) Upgrading to large capacity conductors	a) New installations b) Existing installations (upon retirement) c) Existing installations (targeted early replacement)	• Oversizing of conductors may impact overall line design (i.e. the number/strength of poles and towers) • Retirement based approach likely to be least cost alternative • Need to consider potential for new technology (e.g. high-temperature superconductors)
2) Installing reactive power sources	a) Setting changes to existing equipment b) Modifications to existing equipment c) Installation of new equipment	• Substation and line based options
3) Upgrading to low loss transformers	a) New installations b) Existing installations (upon retirement) c) Existing installations (targeted)	• Review of Minimum Energy Performance Standards for Distribution Transformers may limit potential benefits for (a) and (b) • Need to consider potential entry of new technology
4) System management	a) Enhanced monitoring of network status b) More active system management to reduce Type 2 energy use within reliability parameters	• Additional system management resources (skilled staff) and information technology to improve information on status of network components and to fine tune network configuration in real

	c) More sophisticated control systems and procedures to balance loads (see following)	time operations depending on state
5) Balancing loads	a) Individual user loads (High Voltage and Extra High Voltage) b) Aggregate loads (Low Voltage and High Voltage)	• Ongoing requirement due to changing customer usage patterns • Individual user balancing requirements are subject to state regulation and not regularly considered post energisation • Passive and dynamic options
6) Rearranging distribution feeders	a) Whole of system assessment (one-off) b) Revised feeder review processes (embedded)	• Could be embedded as part of existing feeder review processes. • Ongoing requirement due to changing customer usage patterns • Passive and dynamic options
7) Consumer Power Factor (PF) correction	a) Use or improve existing PF regulations	• PF regulations vary between states • Possibly limited application of PF regulations provides opportunity in this area, but requires a form of demand side participation (behavioural shift)
8) Demand side participation and distributed generation	a) Targeted development of Demand Side Participation and Distributed Generation	• Possible integration with existing DG programs to incorporate loss reduction incentive
9) Voltage increases	a) Incremental voltage increases within existing systems (and regulations) b) Substation, feeder or line voltage increases.	• Transmitting electricity at high voltage reduces the fraction of energy lost to electrical resistance.
10) Technology advances	d) Superconductivity and low-temperature superconductivity. e) Lines and transformers	• Mainly experimental at present • Likely to be first applied to transmission and substantial power transformers

2.3 The Assessment Framework

The EEO assessment framework specifies how a controlling corporation is to assess its energy use and identify energy savings opportunities. Corporations are legislatively required to meet the key requirements of the framework's six key elements. The key elements are defined in Schedule 7 of the EEO regulations and are outlined below. Corporations should consider how they will meet each of the key requirements listed.

2.3.1 Key Element 1 - Leadership

Visible leadership and commitment from senior management provides clear direction and purpose to the assessment by:

- setting and communicating energy performance objectives; and
- ensuring that assessment objectives are aligned with business priorities.

Senior management support, motivate and value the efforts of staff and other stakeholders involved in the identification and implementation of energy efficiency opportunities.

Key Requirements

1.1 Senior management and operational management establish and communicate energy assessment and energy performance objectives to all personnel who are responsible for, or have an influence on, energy use and the energy assessment.

1.2 Resources (people, time and money) are made available to meet energy assessment and energy performance objectives.

2.3.2 Key Element 2 - People

Intent: Skilled and knowledgeable people, and people with direct and indirect influence on energy use, are involved in the assessment to effectively collect and analyse energy and process data, identify and evaluate energy efficiency opportunities, provide fresh perspectives and make the business case for identified energy efficiency opportunities.

Responsibilities and accountabilities are suitably allocated and team diversity is encouraged.

Key Requirements

2.1 Personnel with appropriate skills and expertise are involved in the collection and analysis of energy and process data.

2.2 The energy efficiency opportunity identification, evaluation and business case development process involves a broad cross-section of people, including:

a) people from various levels of the site or business unit who have a direct or indirect influence on energy use (e.g. site or fleet managers, operators, sub-contractors, tenants and people responsible for equipment procurement, maintenance, finance, marketing, production); and

b) people from within the corporation (internal or external to the site) who can integrate energy productivity into business productivity objectives and assist with making a business case for identified opportunities (e.g. chief financial officer, business case analysts, business or process improvement managers and people responsible for procurement, corporate and operations management, public relations, strategic planning, operational excellence); and

c) internal and external people with energy, technology and process expertise (e.g. suppliers of current and alternative equipment and technologies, systems modelling experts, engineers); and

d) people external to the site who can provide alternative perspectives, question assumptions and practices, and encourage innovation (e.g. operators from other sites, corporate expert groups, internal or external engineering experts, academics, PhD students).

2.3 Clear roles, responsibilities and accountabilities are attributed to people involved in the assessment and the business response.

2.3.3 Key Element 3 - Information, data and analysis

Intent: Sufficient data, in suitable forms, is used to quantify and understand energy use, identify and quantify energy saving opportunities, and track performance and outcomes (where actions are implemented).

Energy data is analysed from different perspectives to understand relationships between activity and consumption, and identify energy efficiency opportunities.

Key Requirements

3.1 Business contextual information that influences energy use and returns on energy efficiency investments is analysed for its impact on current and future energy use during the assessment, including:

a) the key business priorities and plans (e.g. relocation, expansion, site and equipment replacement, maintenance and shutdown schedules affecting investment timing and returns); and

b) the key site processes and activities that use energy; and

c) other external factors affecting investment returns, if applicable (e.g. rising energy prices, interest rates).

3.2 Data collection processes are identified, documented and implemented to provide:

a) energy consumption and cost data for each energy source. Data should be entered at the frequency that bills and other records are received (typically monthly) for a total of 24 months. The accuracy of data must be within ±5%. A less accurate level may be used only if it was approved as part of the assessment schedule.

b) energy consumption data for each of the key site processes, systems and activities.

c) production (or output or service) data for a total of 24 months. Data should be entered at the same frequency and timing as the energy consumption and cost data.

d) information about the impact of the operating profile of the site or fleet on energy use.

e) data on other process parameters that impact on energy use (e.g. ambient temperature, geology (mining) and production inputs.

f) information about the energy and material flows through the site or fleet and its processes, systems and equipment (e.g. using an energy-mass balance or similar technique appropriate to the type of activity.

g) information about measures being undertaken to ensure the accuracy and completeness of the energy data.

h) information about measures being undertaken to identify and resolve material data gaps and anomalies.

i) information about assumptions used in the data collection process and their associated uncertainty.

3. 3 An energy analysis process to assist in the identification, quantification and evaluation of energy efficiency opportunities, using data from Key Requirement 3.2, is undertaken and documented, including:

a) energy use performance indicators, established at the appropriate level, with consideration of variations over time and major factors that affect energy performance; and

b) application of a range of analysis methods to explore relationships between energy use and variables (e.g. output or climatic factors) that may influence energy use, using data collected at appropriate times (e.g. review of graphs and charts, regression analysis); and

c) a comparison of performance to actual and theoretical energy use benchmarks, at the relevant level (process, technology, activity or site) to identify and quantify opportunities; and

d) if appropriate, other detailed analysis, comparative techniques or experimental approaches (e.g. engineering, vehicle trials, pilot studies, logistical approaches or thermographic imaging) are used to fully understand energy consumption; and

e) analysis of the energy and material flows through the site or fleet, and the processes, systems and equipment at the site or of the fleet, to systematically quantify if energy is being used, wasted or lost, compared with the amount of energy required by the specific products and services that the energy use delivers (e.g. energy-mass balance or similar).

Further consideration - Information, data and analysis

Key Element 3 is concerned with the provision of data that is sufficient to quantify and understand energy use and losses, and to quantify energy savings opportunities and track outcomes where identified opportunities are implemented. It is about an evidence based approach to identifying opportunities. The requirements may require the corporations to develop new data collection and extraction processes.

Key Requirement 3.2 requires a corporation to identify, document and implement data collection processes to analyse energy consumption in relation to input and outputs and variables impacting. It also encourages whole of system thinking by utilising energy material flows / energy mass balance and theoretical benchmarking techniques. It asks corporations to ask what are the outputs and products we want from this energy, across and within systems and processes, and how can we optimise outputs for minimum energy inputs – factoring in all costs and benefits.

Significant energy savings opportunities have been identified in the EEO program by having a clear understanding of how energy flows through the site/fleet etc, where energy is used optimally, where it is wasted and how it can be used better. An energy-mass balance can assist in this area.

An energy-mass balance should provide a thorough understanding of:

(a) the material flows and energy use through a site, its processes and systems, and items of equipment including items such as pipes, ducts and heat transfers through the building envelope; and

(b) the specific services and products the energy use delivers; and

(c) the energy conversion processes within a system, and identification of conversions that are essential and efficient; and

(d) the identification of energy waste and energy efficiency opportunities.

Some sectors within the EEO Program can find this requirement problematic. It is possible multiple energy-mass balance calculations need to be undertaken and reported for transmission and distribution. The Department believes that transmission and distribution businesses can meet this requirement, but welcome discussion on this requirement.

Question 9: What do you believe would be effective data analysis requirements for identifying cost effective opportunities to reduce losses in the transmission and distribution sectors? Could they be incorporated under the framework or would they need to be adjusted for your sector?

2.3.4 Key Element 4 - Opportunity identification and evaluation

Intent: An effective process is undertaken to identify all potential cost-effective energy efficiency opportunities. The process is informed by accurate data and rigorous analysis undertaken in Key Element 3 and involves the relevant people identified in Key Element 2. This process is broad, open-minded and encourages innovation.

Ideas are filtered to identify a documented list of potential opportunities that can then be analysed to a level sufficient for informed evaluation with a payback period of 4 years or less.

A whole-of-business evaluation is undertaken to enable decision-makers to make informed business decisions about energy efficiency opportunities.

Key Requirements
4. 1 A process to identify ideas is implemented and documented.

The process should involve a review of the contextual information and data that are collected and analysed as part of Key Element 3 and include the appropriate people as stipulated in Key Element 2.

The process as implemented should result in a comprehensive list of ideas.

4. 2 Ideas are examined to determine if they are feasible and have a potential payback of less than 4 years.

The examination process should result in the feasible ideas with a potential 4 year payback being categorised as either 'for implementation' or 'for further investigation'. These are potential opportunities.

Reasons why ideas will not be further investigated are documented.

4.3 Detailed investigation is undertaken (including sub-metering or real time metering) to quantify the energy use, and energy and financial costs and savings of potential opportunities, to an accuracy of within ±30%1.

If ±30% cannot be achieved, providing an indication in 5.3 of how the accuracy level will be achieved, including further investigation and sub-metering.

A whole-of-business evaluation (informed by the detailed investigation) is undertaken to quantify costs and benefits of each potential opportunity in order to calculate a payback period, to identify a list of opportunities with a payback of 4 years or less.

Note: Where an opportunity will require approval for significant capital expenditure, the costs and benefits should be evaluated to within ±10%, or to the level of accuracy required by the corporation's existing capital expenditure process.

4.4 For all opportunities with a payback period of 4 years or less, recommendations, based on appropriate business criteria, are made to the decision-maker/s responsible for resource allocation and investment.

Recommendations should include whether the opportunities should undergo further investigation, be implemented, or not be implemented.

Reasons for not pursuing opportunities are documented.

The concept of payback

Key element 4 requires businesses to evaluate the energy savings ideas and opportunities identified to a simple payback in order to determine whether a whole-of-business evaluation should be conducted i.e. whether an opportunity will result in a benefit with a payback of up to 4 years. The definition of "energy efficiency opportunity" or "opportunity" also refers to a payback period of 4 years.

In order to determine a payback, a corporation must be able to determine an energy savings amount or a benefit. For a substantial set of corporations whose main activities are transmission and distribution, the payback benefit for an energy efficiency opportunity may not take the form of *financial* savings ("payback") for itself. The financial savings from implementation of an energy efficiency opportunity may accrue in the first case to other corporations, such as energy shippers and retailers.

This complication mainly arises in the case of type 2 energy use, and as such it may be appropriate to amend references within the regulations to broaden the meaning of a payback to account for financial benefits to entities other than the transmission and/or distribution business.

One such option could be to "hypothecate" net annual savings, even where these fall to another party, for the purpose of reporting and assessments under the EEO program.

An example of this could be where the corporation assesses it is likely to be able to recover its initial capital cost by seeking increases in tariffs or charges. These increases would need to be at least sufficient to offset fully the initial capital cost (both depreciation and a capital charge related to the regulated discount rate, or weighted average cost of capital). In addition to this "floor", as a result of economic regulation, the ceiling (or allowed pass through) could be less than the full value of net annual savings.

Proposal

It is proposed regulations be revised so to allow transmission and distribution businesses to consider payback in terms of a combination of benefits to the broader market alongside recovery of efficient and prudent operating and capital expenditure for the entity that implements the opportunity.

Question 10: Do you support the proposal to expand the concept of payback to include benefits that accrue to the broader market, which for the implementing entity may include the recovery of opportunity implementation costs, and perhaps an incentive margin? Do you have any suggestions on how this expansion could be effective?

Increase the Payback period from 4 to 5 years

As discussed, the EEO program currently requires consideration of an energy saving opportunity when it has up to a 4 year payback. This means the EEO program emphasises opportunities with high returns on investment while avoiding a higher compliance burden by a requirement to identify a large set of positive opportunities.

In the transmission and distribution sector, the relatively low rates of return (regulated and commercially set) correspond to long payback periods. This could mean a 4 year payback period yields few opportunities in transmission and distribution compared with other sectors to the extent payback is limited by the regulated or commercial rate of return on capital.

There may therefore be a case for replacing the existing payback threshold (four years) with a higher payback threshold to align with existing practices for efficiency benefits sharing, and to optimise the balance between opportunity identification and EEO program cost. A threshold of five years or higher could apply. A higher threshold would increase the assessment and reporting requirements for a corporation, compared with a four year threshold and increase EEO program costs, however, if aligned with existing processes, it may yield a higher net benefit. For the purpose of estimating EEO program costs (and indirectly EEO program benefits), this document has assumed a payback threshold for EEO purposes of five years.

Proposal

It is proposed the payback for period for transmission and distribution businesses be increased from 4 to 5 years or higher.

Question 11: Do you agree with the proposal to increase the payback period from 4 to 5 years or higher in line with regulatory cycles ?for transmission and distribution businesses? If longer what would be the optimal payback period. ?

2.3.5 Key Element 5 - Decision making

Intent: Management responsible for resource allocation for opportunities identified by the assessments make informed decisions on the assessment based on investment quality information.

Corporations develop clear lines of accountability, appropriate resources and timeframes for all energy efficiency opportunities that a corporation decides to implement or investigate further.

Mechanisms for reviewing, monitoring and reporting on outcomes are established to learn from experience and enable public reporting.

Key Requirements
5.1 Management responsible for decisions about investment and resource allocation is presented with key background information and the relevant outcomes of the assessment. Information presented to management includes:

a) total energy use and energy cost relative to variable operating costs and profit for the manager's area of responsibility; and

b) energy savings identified for each opportunity; and

c) the costs and benefits based on a whole-of-business evaluation, including a payback period for each opportunity; and

d) the business recommendation for each opportunity; and

e) recommendations to improve data and evaluation accuracy (if necessary).

5.2 Management responsible for decisions about investment and resource allocation decide the business response, including the opportunities that are to be implemented, to be further investigated (including improvements in data and evaluation accuracy), or not to be implemented.

5.3 The appropriate decision-maker allocates timelines, resources and accountabilities for the business response to the assessment, covering all energy efficiency opportunities that the corporation decides to implement or investigate further (including improvements in data and evaluation accuracy). This includes processes for reviewing and monitoring to learn from experience and support public reporting.

2.3.6 Key Element 6 - Communicating outcomes

Intent: Senior management and the members of the board are aware of the outcomes of the assessment in a strategic business context (including the corporation's risk management, corporate social responsibility and major investment decisions).

The board reviews and notes the public report in the context of relevant business information.

Recognition and awareness within the corporation of the benefits of improved energy efficiency and the outcomes achieved by the assessment, including recognition and awareness of people who contributed to its success.

Key Requirements
6.1 For each relevant business unit or key activity, the board and the senior officer responsible for signing the public report are presented with the public report and:

a) total energy use and energy cost, relative to variable operating costs and profit, and other relevant business information (e.g. projected future energy use); and

b) total energy savings identified, and the business's response relative to the energy performance objectives set out in Key Element 1; and

c) total whole-of-business costs and benefits of the opportunities identified, and the business's response; and

d) recommendations for major investments; and

e) all information that will be included in the public report when it is released.

6.2 The board reviews and notes the information to be included in the public report.

6.3 A clear message about the outcomes of the assessments, in the context of the objectives set by the organisation's leadership, is to be communicated by senior management and operational management to relevant staff in the organisation.

Proposal

It is proposed the EEO assessment framework's 6 key elements and their requirements apply to transmission and distribution businesses.

Question 12: Are there any valid reasons why the EEO assessment framework requirements should be varied in the case of transmission and distribution businesses?

2.4 Assessment reporting

Under Part 7, Division 1 of the EEO Regulations participants must publicly report the outcomes of their first assessment or assessments, including their business response, within 30 months (2.5 years) after the end of the trigger year. They must then publish updates of further assessments and business responses every 12 months throughout the first and all subsequent assessment cycles.

Under Division 2, participants must also report to RET on the outcomes and the business response to the assessments within the first 30 months (2.5 years) of each assessment cycle, and again three years later (six months after the end of each assessment cycle).

The reporting requirements, particularly for publicly available information, are designed to increase the transparency of information across senior management, provide meaningful information to the market and allow program participants to demonstrate responsible and efficiency use of energy. In essence, public reporting provides an incentive, through open scrutiny of the corporation's response to energy efficiency.

The question that arises is whether or not the information and reporting requirements for the existing EEO Program are equally applicable for transmission and distribution businesses. Currently there is little information publicly available on network losses. Improved availability of this information would create transparency regarding Type 2 energy use and energy performance. This could contribute to greater awareness of Type 2 energy use, both on the supply and demand sides of the energy sector, and the economy wide cost

of this use. It could also facilitate the reporting of aggregated data on Type 2 energy use trends.

However, there is a question about the public utility of this information, how it would be interpreted and whether its public release would act as an incentive to encourage greater identification, assessment and implementation of energy efficiency opportunities.

With respect to government reporting, there is also a question about what information should be prepared and who in fact might best benefit from that information. Specifically, providing information on energy efficiency opportunities including energy savings and associated cost savings may be of value to both DRET and market operators to assist in infrastructure planning. In this instance, such reporting may be of benefit on an annual basis (as is currently the case with public reporting).

One reporting option might therefore be to establish a requirement for annual government reporting, and to not have any public reporting. Or alternatively, the existing arrangement involving annual public reporting and two government reports within each five-year cycle could apply.

The key issue is to establish the value provided through government and public reporting, and what reporting structure would facilitate delivery of the best energy savings outcomes from transmission and distribution businesses.

It should be noted that corporations are only required to assess and report on the energy use of 80% of their corporation's energy use (and all sites over 0.5 PJ). Network and pipeline losses are likely to make up the majority of energy use of most transmission and distribution businesses.

Proposal

It is proposed that for the purpose of EEO reporting (energy use and savings opportunities), that corporations only provide government reports, the first of which would be due 30 months (Dec 2014) after commencement of the assessment cycle.

Question 13: Do you consider there is merit in public reporting of energy use and energy savings opportunities?

Question 14: Do you believe that the current reporting requirements should apply to transmission and distribution businesses (i.e. annual public reports commencing after 30 months into the assessment cycle and 2 government reports over the 5-year assessment cycle)

Question 15: Do you believe that modified reporting requirements, involving annual government reporting (after 30 months into the assessment cycle), would be more applicable to transmission and distribution businesses, and who do you believe should be provided with the reporting information.

2.5 Proposed options for implementation

In light of the foregoing discussion on possible amendments to the EEO regulations, there appear to be three broad implementation options.

2.5.1 Option 1: Remove current exemption, only

Under this option, the current exemption under sub-regulation 2.1(2) of the EEO regulations is removed from 30 June 2012. No other changes to the regulations are made and the EEO program will apply on 1 July 2012 to corporations, whose main activities are the transmission and distribution of gas and electricity, on the same basis as any other corporation operating under the EEO program.

2.5.2 Option 2: Remove exemption plus limited amendments

Under Option 2 minor amendments to the EEO regulations would be made along with the removal of the exemption per Option 1. Option 2 would provide the minimum amendment to the EEO regulations necessary to make the regulations effective for Type 2 energy use. No structural change to the EEO Assessment Framework would be made.

Regulation changes will be made so the regulations are effective. This may involve tidying up references to energy savings and payback periods.

2.5.3 Option 3: Sector-specific EEO regulations

Under option 3, EEO regulations are amended in line with the majority of proposals outlined in chapter 2. Option 3 would incorporate changes outlined for Options 1 and 2.

Option 3 would seek to maximise benefits for the transmission and distribution sector and remove inconsistency in regulations for the sector which may otherwise increase the compliance burden.

2.5.4 Further scenario: Option 3 + complementary changes to energy market regulation

A further scenario can be identified where, in addition to the changes to the EEO regulations discussed above, the EEO program is implemented following complementary changes to sector-specific regulation. Some of these possible measures are briefly discussed in Chapter 3 above.

Such complementary regulatory changes could include improved clarity over the recovery of energy efficiency opportunity implementation costs where tariffs are set by economic regulators. It could also include the introduction of an incentive scheme focusing on Type 2 energy use.

This further scenario could also include broader changes to energy market frameworks to encourage the parties using energy delivered via distribution and transmission to minimise

Type 2 energy use. Such changes may include the creation of a national energy efficiency incentive scheme that encompasses Type 2 energy use, as envisaged under the National Energy Savings Initiative. It may also include other changes currently under consideration to reduce Type 2 energy use, such as greater demand side participation (DSP, possibly including distributed generation.

Proposal

It is proposed that option 3 be pursued to maximise the effectiveness of the EEO program for transmission and distribution businesses.

Question 14: Do you consider the options as identified so far are an appropriate way of framing the choices around amending the EEO regulations?

3. Complementary policies

3.1 Regulatory frameworks

As discussed in the preceding chapters, corporations considering implementing high value energy efficiency opportunities identified in EEO assessments may face financial barriers as a result of limits or uncertainty within existing economic or commercial frameworks. This suggests complementary changes to regulatory frameworks may be desirable in order to maximise potential benefits from reduced energy use in transmission and distribution.

The Australian Government could seek agreement to change energy market governance instruments, via the Standing Council on Energy and Resources (SCER), in pursuit of complementary measures. This could include seeking agreement from SCER to issue various forms of policy guidance with respect both to jurisdictions that have acceded to national gas and electricity market arrangements, and those that have not.

Possible changes to regulatory frameworks that could be pursued by the Australian government (via the relevant energy sector regulators, such as the Australian Energy Market Commission) could focus on the following areas.

- Regulatory investment tests: current regulatory investment tests require transmission and distribution businesses to identify investments that maximise the present value of net economic benefits to all those who produce, consume and transport electricity in the market. Energy used in transmission and distribution is explicitly provided for in the Regulatory Investment Test for Transmission (RIT-T) in the National Electricity Rules. A rule change is currently under consideration for similar consideration of losses in the Regulatory Investment Test for Distribution (RIT-D).
- Additional guidance to economic regulators regarding the recovery of prudent and efficient expenditure aimed at the reduction of Type 2 energy use. At present, there may be regulatory uncertainty (both for regulators and regulated entities) regarding the extent efficient trade-offs between Type 2 energy use and transmission and distribution costs need to be explicitly addressed in economic regulation.
- Incentive schemes: there may be merit in introducing a financial incentive/benefit-transfer scheme which would reward businesses for reductions in Type 2 energy use. This would create a benefits transfer mechanism, whereby a portion of the benefits of energy efficiency opportunity implementation is transferred from the immediate beneficiaries to the corporation that implemented the opportunity. Benefits sharing would be a matter for direct negotiation (where transmission and distribution access is not covered) or ultimately by relevant economic regulators (for covered access).
- Broader changes to energy market frameworks to minimise Type 2 energy use: such changes may include the creation of a national energy efficiency incentive scheme that encompasses Type 2 energy use, as envisaged under the National Energy Savings Initiative. It may also include other changes currently under consideration to reduce Type 2 energy use, such as greater demand side participation (DSP), possibly including distributed generation.

Policy proposal

Following this consultation, RET may further consider possible changes to energy market governance frameworks to complement the extension of the EEO program to transmission and distribution businesses and maximise potential energy efficiency opportunities in the sector.

Question 15: Do you support the proposal for the Australian Government to seek to initiate a process for identifying possible changes to energy market governance frameworks to maximise potential energy efficiency opportunities in the sector.

Question 16: What changes do you think would enhance the effectiveness of undertaking Energy Efficiency Opportunity assessments and increase the incentive to take up economically cost effective opportunities ?

3.2 Related Government policies and regulatory reviews

There are a number of other regulatory reviews and government policy and regulatory frameworks which may complement an expanded EEO program.

3.2.1 National Strategy on Energy Efficiency

In 2008 the Council of Australian Governments (COAG) agreed to develop a national strategy on energy efficiency to accelerate energy efficiency efforts in preparation for the introduction of carbon pricing. This led to the endorsement of a National Strategy on Energy Efficiency (NSEE) in July 2009.

The NSEE noted that distributed generation including co-generation and tri-generation can be a cost effective and economically efficient alternative to conventional supply arrangements, with the advantages of greater efficiency of use of the primary fuel, avoidance of transmission and distribution losses and potential reduction of the need for network augmentation.

Measure 1.1.3 of the NSEE calls for work to maximise the potential for the application of cogeneration, trigeneration and other distributed generation technologies that increase energy efficiency. A Cogeneration Working Group has been formed to implement this commitment.

Measure 2.1.2 of the NSEE encourages a smarter and more efficient energy network. The NSEE also includes expanding minimum energy performance standards (MEPS) and making MEPS more stringent.

3.2.2 Minimum Performance Standards for transformers

In May 2011, a consultation RIS was released as part of a review of MEPS for distribution transformers as part of the Equipment Energy Efficiency Program. The RIS concluded that

average losses for a new transformer under the more stringent MEPS (MEPS2) would be 11 per cent less than the losses under the existing MEPS (MEPS1). The move from MEPS1 to MEPS2 was projected to decrease energy losses by 10,197GWh, or a reduction in energy losses of 11.3 per cent.

3.2.3 Interaction with Government carbon price policies

When considering the benefits the EEO program is able to deliver, it is useful to note that the EEO program is intended to act as a complement to a carbon price. By improving information on the most cost effective ways to reduce an entity's energy requirements, the program aims to mitigate the carbon price impacts on that entity.

The use of policies such as the EEO program in complement to a carbon price policy was supported by the Strategic Review of Australian Government Climate Change Programs (the Wilkins Review) which identified information failures (of the sort that the EEO program is attempting to overcome) as a one of a range of rationales that may justify government intervention in addition to a carbon price policy.[17]

Further, the Prime Minister's Task Group on Energy Efficiency concluded that "our recommendations, in response to the terms of reference, have been framed to be economically and environmentally effective, and socially inclusive; to complement both a carbon price and the Renewable Energy Target; and to build on the National Strategy on Energy Efficiency."[18]

3.2.4 Energy Savings Initiative

As part of its Clean Energy Future Package, and following on from the recommendations of the PM's Task Group on Energy Efficiency, the Australian Government is investigating the merits, costs and benefits of a national Energy Savings Initiative (ESI).

If cost effective an ESI would seek to replace various state and territory based energy savings/efficiency programs and policies with a national white certificate scheme, and deliver a market-based regulatory approach to improving energy efficiency across different sectors. The ESI could place obligations on energy retailers to find and implement energy savings in households and businesses. It could also create opportunities or obligations for transmission and distribution businesses.

Should the Government decide to proceed with the ESI, information generated from the extension of EEO to transmission and distribution businesses may help develop the scheme. The scheme also has the potential to address the agency/incentive issue for transmission and distribution businesses to implement some identified opportunities, as previously discussed.

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[17] Depart of Finance and Deregulation, 2008, *Strategic Review of Australian Government Climate Change Programs*, p. 88

[18] Australian Government, 2010, *Prime Minister's Task Group on Energy Efficiency - Report on Energy Efficiency*, p. iii

3.2.5 AEMC Power of Consumer Choice Review

SCER has asked the AEMC to investigate and identify the market and regulatory arrangements needed across the electricity supply chain to facilitate the efficient investment in, and operation and use of, demand side participation (DSP) in the NEM. The Power of Consumer Choice review is stage 3 of the AEMC's Demand Side Participation (DSP) review. The review's focus includes all arrangements that impact on the electricity market supply chain, including the rules, other national and jurisdictional regulations, commercial arrangements and market behaviours.

The objective for this review is to identify opportunities for consumers to make informed choices about the way they use electricity, and provide incentives for network operators, retailers and other parties to invest efficiently so that the community's demand for energy services is met by the lowest cost combination of demand and supply side options

3.2.6 Distribution Network Planning and Expansion Framework rule change

The AEMC is currently considering a rule change proposal by SCER (formally the Ministerial Council on Energy) for electricity distribution network planning and expansion.

Of particular relevance in this rule-change is the proposal for distribution businesses to develop a demand side engagement strategy, intended to improve clarity and transparency for non-network proponents in working with distribution businesses. Under the draft rule change, distribution businesses would be required to set out their processes for considering non-network proposals and engaging with non-network providers, publish a database of non-network proposals and case studies, and maintain a register of parties interested in demand side opportunities.

Appendix 1 Summary of EEO program

Objectives

The Australian Government implemented the EEO program in 2006, under the *Energy Efficiency Opportunities Act 2006*. The EEO program is designed to encourage large energy-using businesses to increase their energy efficiency by improving the identification and evaluation of energy efficiency opportunities, and as a result, encourage implementation of cost effective energy efficiency opportunities.

The objectives of the EEO program are:

- to overcome information failures and organisational barriers which work against businesses identifying privately cost-effective improvements in energy efficiency; and
- to the extent that these opportunities are adopted, the Government's goal of a lower emissions future with reduced environmental externalities will be realised.[19]

Legislation and regulations

The legislative framework implementing the EEO program is a combination of the primary legislation in the form of the *Energy Efficiency Opportunities Act 2006* (EEO Act), and the Energy Efficiency Opportunities Regulations 2006 (EEO Regulations).[20] Consistent with the objective of the EEO program, the object of the EEO Act is to "improve the identification and evaluation of energy efficiency opportunities by large energy using businesses and, as a result, encourage implementation of cost effective energy efficiency opportunities."[21]

Since 2006, companies consuming above 0.5PJ of energy annually (equivalent to an annual cost between $10 and $20 million, depending on energy costs) have been required to participate in the EEO program.

The EEO Act contains all the legal obligations and requirements to meet the objective of the EEO program, and encapsulates the high level principles and obligations underlying the program. Supporting the EEO Act, the EEO Regulations detail how EEO program participants are to satisfy and meet the requirements of the EEO Act.[22]

The structure and content of the regulations mirror the EEO Act, providing more detail where relevant. The EEO program is further extended by the operation of the *National Greenhouse and Energy Reporting Act 2007* and its regulations, where specified in the EEO Regulations.

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[19] Energy Efficiency Opportunities Act 2006 Explanatory Memorandum, p. 10

[20] Further information on the EEO program is available here: www.energyefficiencyopportunities.gov.au

[21] Energy Efficiency Opportunities Act 2006, subsection 3(1)

[22] The EEO Act and regulations are available in full here: http://www.ret.gov.au/energy/efficiency/eeo/eeolegislation/act2006/Pages/default.aspx

Summary of program components

There are five key program steps embedded in the legislative framework. The program steps are summarised below.

Determining participation

The EEO Act requires a corporation's corporate group, using more than 0.5PJ of energy per year, to undertake an assessment of their energy efficiency opportunities and report publicly on the outcomes of that assessment. Responsibility for participating in the EEO program rests with the controlling corporation.

A controlling corporation is a constitutional corporation that does not have a holding company incorporated in Australia. Currently, exemptions are provided for controlling corporations whose main activities are in the transmission /or distribution (or both) of electricity or natural gas (or both).

The user of energy is determined by reference to operational control over the facility in which the energy is consumed.

Registering for the program

If an entity meets the energy use thresholds (i.e. uses 0.5PJ or more in a financial year) and it is not currently exempt from the EEO program, it must register with the RET within 9 months of the end of the financial year in which the energy use threshold was satisfied (the trigger year). However, this obligation does not apply if the corporation did not know (or could not have reasonably ascertained) that its group met the threshold. In these instances, the evidentiary burden is on the energy user to prove this.

Preparing an assessment plan

Following registration, corporations must prepare and submit an assessment plan to RET within 18 months of the trigger year. The assessment plans are for five year periods and comprise:

- an outline of corporate structure and related information;
- baseline energy use and savings data;
- an assessment schedule outlining how and when the corporation intends to conduct assessments with reference to the key elements of the assessment framework; and
- a reporting schedule outlining how, where and when the corporation intends to report to RET and the public.

Conducting assessments

The core component of the EEO program is the assessment of a corporation's energy use to identify cost effective opportunities for improving energy performance with up to a four year payback. The controlling corporation must ensure that within the first two years of an assessment cycle:

- each member of the corporate group scheduled to conduct assessments completes its first assessments for at least one site, key activity or business unit; or
- 40 per cent of the entire corporations energy use is assessed.

The controlling corporation must also ensure that at least 80 per cent of its entire corporate group baseline energy is assessed in its first assessment cycle. This will increase to 90 per cent in subsequent assessment cycles.

It is important to note that each individual site over 0.5 PJ must be assessed.

Public reporting

Program participants must publicly report the outcomes of their first assessment or assessments, including their business response, within 30 months after the end of the trigger year. This report is then updated, with inclusion of further assessments and business responses, and then published every 12 months throughout the remainder of the first and all subsequent assessment cycles.

The reports must contain:

- a description of the way in which the corporation has carried out the proposal in its approved assessment plan;
- the results of carrying out the proposal;
- the response of the corporation to the results; and
- other information as required by the regulations.

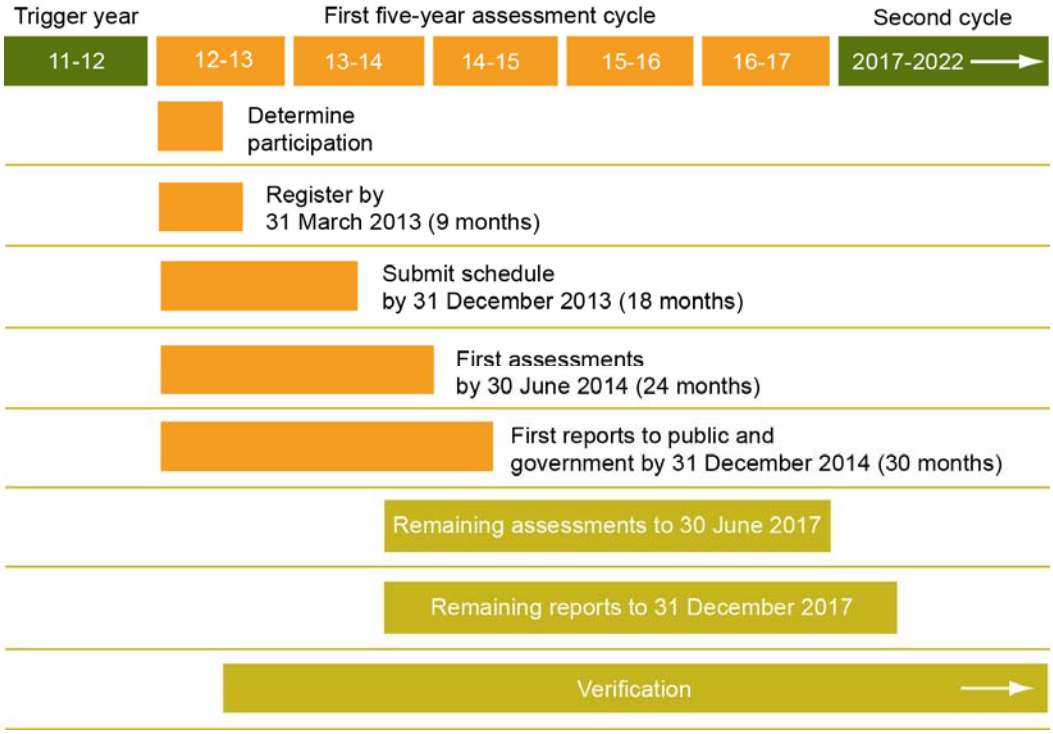
Public reporting aims to:

- encourage consideration of energy use and energy efficiency opportunities by senior management;
- provide meaningful information to the market about the energy efficiency opportunities identified through assessments and the corporation's business response;
- allow program participants to demonstrate responsible and efficient use of energy: and
- provide a measure of program effectiveness.

Assessment cycle

The assessment cycle spans five years. The trigger year is the year before the first year of the relevant assessment cycle. Within each cycle, the assessment steps outlined in the sections above apply. The figure below illustrates the main components of assessment cycles.

Figure 1: Assessment cycle



Outcomes

To date, the EEO program has been effective in promoting improved business practices in relation to energy performance. In 2010, the EEO program participants reported identifying annual energy savings of 141.9PJ (or 39.4 Terawatt hours). This is equivalent to net financial benefits of $1.2 billion per year.[23] From these identified savings, participating corporations have reported they will implement opportunities that will deliver annual energy savings of 1.3 per cent of Australia's total energy use or approximately 75.5 PJ of energy. These energy savings are equivalent to financial benefits worth an estimated $700 million per year.[24]

The EEO program does not mandate implementing the opportunities identified. The requirement is limited to identifying opportunities.

The EEO program is designed to deliver a range of benefits to both the registered entities and the broader Australian community. By overcoming the barriers to greater uptake of energy efficiency opportunities, the EEO program delivers a range of benefits, including:

- improving the identification and uptake of cost effective energy efficiency opportunities;
- enhancing productivity;
- reducing greenhouse gas emissions and therefore minimising the cost of abatement;
- improving financial outcomes for program participants; and
- facilitating greater scrutiny of energy use by large energy consumers.

[23] Australian Government Department of Resources, Energy and Tourism, 2010, *Continuing Opportunities – Energy Efficiency Opportunities Program – 2010 Report*, p. 4

[24] Australian Government Department of Resources, Energy and Tourism, 2010, *Continuing Opportunities – Energy Efficiency Opportunities Program – 2010 Report*, p. 4