



Exempt load – Emissions Reduction Requirement

Issues Paper

Introduction

The purpose of this paper is to facilitate discussions with Jurisdictions and the Technical Working Group (TWG) on how the detailed design should give effect to the policy to exempt emissions intensity trade exposed (EITE) load. Following the SCO Reference Group and TWG meetings, a more detailed technical working paper will be developed. The technical working papers and draft final design document will be available for public consultation in mid-June.

High level design

In the February 2018 ESB consultation paper, the Commonwealth Government set out the following parameters regarding the exemption of EITE load from the emissions reduction requirement of the Guarantee:

- The Commonwealth Government's intention is to exempt all electricity used to conduct an EITE activity from the emissions reduction requirement under the Guarantee, consistent with its approach established under the *Renewable Energy (Electricity) Act 2000* (the RET Act) from 2020 onwards.
- All EITE activities eligible for exemption under the Renewable Energy Target (RET) could be eligible for an exemption from the emissions reduction requirement under the Guarantee.
- EITE businesses could apply to the Clean Energy Regulator (CER) for an exemption under the Guarantee in addition to their application for an exemption certificate under the RET.
- The CER could establish a process to calculate the exemption, consistent with the 'electricity use method' under the RET, taking into account any adjustments required to this method, based on differences between the RET and the Guarantee.
- The emissions target for non-EITE load would need to be adjusted for the exemptions EITEs receive in order to achieve the overall sector target.

In the April 2018 Update on Commonwealth Design Elements Paper, the Commonwealth Government noted it will need to carefully consider stakeholder feedback about avoiding creating incentives for retailers to choose the most emissions-intensive generation to be exempt from the emissions requirement of the Guarantee. Some stakeholders suggested deeming an emissions intensity rather than allowing retailers to nominate their own.

Detailed design elements

The Commonwealth Government will be responsible for determining the EITE qualification and application process and, if necessary, the rate at which EITE exemptions are provided (whether it is a deemed emissions intensity or whether retailers can choose), and method of adjusting emissions target for non-EITE load.

The detailed design of the Guarantee will need to determine how the exemption is factored into the calculation of a retailer's (or any market customer's) emissions intensity calculation used to determine compliance with the emissions intensity target for the compliance year.

Issues for consultation

1. How the EITE exemptions are factored into the calculation of a retailer's emissions intensity

There are two broad approaches for applying the EITE exemption. Both transfer the responsibility of meeting the emissions target to non-EITE loads.

The first approach involves exempting both EITE load and an amount of emissions associated with this load. The emissions associated with EITE load could be determined in a variety of ways¹ and would be a matter for the Commonwealth to determine. This method would require the Commonwealth to take exempt EITE loads and emissions into account when setting the targets for remaining non-EITE loads (that is, the targets for non-EITE loads would be more stringent than they would have been if EITEs had not been exempt).

The second approach involves spreading EITE loads proportionally across non-EITE loads – that is, scaling up non-EITE loads to account for exempt loads. This method does not require the Commonwealth to determine the emissions associated with exempt EITE load or to take EITE loads into account when setting emissions targets.

Approach 1: Load and emissions exemption method

This approach includes two possible ways to calculate the EITE exemption from a retailer's emissions intensity.

First, the load and emissions used to determine the retailer's emissions intensity could be reduced by the amount associated with supplying EITE load, such that the retailer needs to meet the emissions intensity target for a compliance year for its non-EITE load.

This could be expressed using the formula:

$$\widehat{EI}_{Retailer} = \frac{Emissions_{Total} - Emissions_{EITE}}{Load_{Total} - Load_{EITE}}$$

Where:

$\widehat{EI}_{Retailer}$ = The weighted-average emissions per MWh of the retailer's non-EITE load.

$Emissions_{Total}$ = The total emissions from contracted and uncontracted load.

$Emissions_{EITE}$ = The emissions from EITE load.

$Load_{Total}$ = The retailer's total electricity purchases.

$Load_{EITE}$ = The retailer's electricity supplying EITE customer/s.

Box 1: Worked example

Take a retailer with a load of 10,000 MWh with output allocated in the registry from generators and the residual for that load at a weighted average emissions intensity of 0.8 tCO₂-e/MWh. Assume the emissions intensity target for the compliance year is 0.7 tCO₂-e/MWh.

If the retailer has 2,000 MWh of EITE load and the associated emissions were determined to be 2,000 tCO₂-e (either because the retailer nominated the level of emissions or it was deemed at that level), then the emissions intensity of the non-EITE load could be calculated as:

$$\widehat{EI}_{Retailer} = \frac{10,000MWh \times 0.8tCO_2e/MWh - 2,000tCO_2e}{10,000MWh - 2,000MWh} = 0.75tCO_2e/MWh$$

¹ For example allowing retailers to nominate the emissions intensity of supplying their EITE load or setting deemed emissions intensity/intensities for EITE load.

The retailer's compliance position at the end of the year would be an exceedance of:

$$\begin{aligned} & (\widehat{EI}_{Retailer} - EI_{Target}) \times (Load_{Total} - Load_{EITE}) \\ & = (0.75tCO_2e/MWh - 0.70tCO_2e/MWh) \times 8,000MWh = 400tCO_2e \end{aligned}$$

This formula breaks down in the situation where the exempt load is equal to the total load (say in the case where an EITE business purchases directly from the wholesale market). In this case the denominator would be zero and so the formula is undefined. The emissions intensity of the retailer in this situation could be deemed at a certain rate, and the generation simply excluded. However, this approach could create an imbalance between supply and demand in the registry, which would need to be addressed.

Alternatively, a retailer's EITE load could be deemed to have met the emissions intensity target by adjusting the retailer's aggregate emissions intensity for the proportion of EITE load it has. This could address the issues above about balancing supply and demand in the registry because the retailer still needs to allocate output within the registry to cover its EITE load. This could preserve the incentive for retailers to contract for low emissions generation even for its EITE load.

This can be calculated using the formula:

$$\widehat{EI}_{Retailer} = EI_{Retailer} - (EI_{EITE} - EI_{Target}) \times \frac{Load_{EITE}}{Load_{Total}}$$

Where:

$\widehat{EI}_{Retailer}$ = The weighted-average emissions per MWh of the retailer with the EITE exemption factored in.

$EI_{Retailer}$ = The emissions per MWh of the retailer used for compliance under the Guarantee, measured across the retailer's full load.

$Emissions_{Total}$ = The total emissions from the retailer's assigned and unassigned load.

EI_{EITE} = The emissions per MWh from EITE load (EITE emissions factor).

EI_{Target} = The electricity emissions target in that year.

$Load_{Total}$ = The retailer's total electricity load.

$Load_{EITE}$ = The retailer's electricity load supplied to EITE customer/s.

Box 2: Worked example

Take the previous example with the same retailer that has a load of 10,000 MWh and output allocated in the registry from generators and the residual for that load at a weighted average emissions intensity of 0.8 tCO₂-e/MWh. Assume the emissions intensity target for the compliance year is 0.7 tCO₂-e/MWh.

If the retailer has 2,000 MWh of EITE load and the associated emissions were determined to be 2,000 tCO₂-e (or 1.0tCO₂-e/MWh), then the retailer's emissions intensity, adjusted for EITE, could be calculated as:

$$\widehat{EI}_{Retailer} = 0.8tCO_2e/MWh - (1.0tCO_2e/MWh - 0.7tCO_2e/MWh) \times \frac{2,000MWh}{10,000MWh} = 0.74tCO_2e/MWh$$

The retailer's compliance position at the end of the year would be an exceedance of:

$$\begin{aligned} & (\widehat{EI}_{Retailer} - EI_{Target}) \times Load \\ & = (0.74tCO_2e/MWh - 0.7tCO_2e/MWh) \times 10,000MWh = 400tCO_2e \end{aligned}$$

Note that the retailer's adjusted emissions intensity in this example ($0.74\text{tCO}_2\text{-e/MWh}$) is different to the retailer's emissions intensity of non-EITE load in the previous example in Box 1 ($0.75\text{tCO}_2\text{-e/MWh}$). This is because the approach in Box 1 takes the emissions intensity of a load net of EITE load (8,000 MWh), whereas the approach in Box 2 takes the emissions intensity of the total load (10,000 MWh). Both cases result in the same net compliance position because in the approach in Box 1, the EI is multiplied by the net load, and the approach in Box 2 the EI is multiplied by the total load.

Approach 2: load spreading method

The second broad approach is to spread exempt EITE load across all non-EITE retailer load. This method does not require any assumption about the emissions intensity of EITE load. Under this approach, each retailer's total load is first reduced by the EITE load it supplies in a compliance year (or potentially in the previous year's compliance year). Then, each MWh of all retailers' non-EITE loads are scaled up, so that retailers' non-EITE loads are equal to total load in aggregate. This way, the obligation to meet the emissions intensity target for the EITE load is placed on non-EITE load instead, and there is no requirement for the Commonwealth to adjust targets in respect of EITE loads. However, this method involves challenging timing issues: retailers do not know EITE load in advance. A way of ensuring that any scaling up of non-EITE load occurs in a predictable and timely way would be required.

Box 3: Worked example

Take three retailers, each supplying 1,000 MWh of load, and Retailer 1 supplies 500 MWh of EITE load. The 500 MWh of EITE load is apportioned across the 2,500 MWh of non-EITE load such that each MWh of non-EITE load is increased by ($500\text{MWh}/2,500\text{MWh}$). Retailer 1 would then be responsible for meeting the emissions intensity target for 600MWh of load, and the other two retailers would be responsible for meeting the emissions intensity target for 1,200 MWh of load. In aggregate the sector still needs to meet the emissions intensity target for an aggregate of 3,000 MWh of load, but the responsibility is spread over the non-EITE load.

Questions:

- What are the advantages and disadvantages of the approaches considered above to calculating the adjustment for exempt load?
- How could approaches where exempting EITE load that result in an imbalance between supply and demand in the registry be addressed without creating any perverse incentives?
- Are there other appropriate approaches to calculating the adjustment for exempt load?

Interdependencies with other elements of the Guarantee

- Calculation of Load
- Emissions registry