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Climate Change Authority

Lodged via submissions@climatechangeauthority.gov.au

Consultation Paper: Modelling illustrative electricity sector emissions reduction policies

GDF SUEZ Australian Energy (GDFSAE) appreciates the opportunity to make a submission in response to the policy modelling paper.

GDFSAE owns and operates 3540MW of brown coal, gas fired and renewable generating plant in Victoria, South Australia and Western Australia, with its retail arm, Simply Energy, serving markets in Victoria, New South Wales, South Australia and Queensland.

GDFSAE is keenly interested in the development of carbon and environmental policies. These comments outline a number of points on important aspects of the policy modelling work.

We encourage the Authority to make the full report publically available to facilitate informed discussion and consideration of the policy options by stakeholders.

Wealth transfer identification and quantification

From the documentation it is not clear if the study will identify and quantify potential wealth transfer issues. It is important to understand these impacts and the modelling scope needs to specifically include the identification and quantification of potential wealth transfers (both within the sector and external to the sector). These wealth transfers should be clearly documented in the report.

Plant closure due to sustained losses

Ideally the model will be configured to determine plant closures based on the least cost methodology and having taken into account all costs including closure and rehabilitation costs.

Should a manual approach be applied it is recommended plant should be closed/retired if it makes a cumulative loss of 30 per cent of its avoidable costs over a 5 year period (i.e. short-run marginal cost and FOM (fixed operating and maintenance costs) – “Stay in business capital”) AND doesn’t have a prospect (“perfect foresight” concept) to make sufficient revenues in the future.

Inclusion of demolition and site rehabilitation costs.

The modelling of plant closures must also include the costs of demolition and site rehabilitation. These costs will be amplified in case of stations with their own mines. It is suggested that the AEMO estimates

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should be used for this purpose as participants will not be in a position (technically and/or commercially) to disclose more accurate data.

Demand assumptions (p14)

There is a large difference between the Department of Environment demand forecast when compared to the AEMO/IMO forecasts. This difference is further amplified when the average growth rates are used to extrapolate the demand to 2050.

AEMO has had a track record of overestimating demand; however its forecasting accuracy is continuing to improve. It is recommended that the AEMO medium case projection is a more appropriate choice for a base case model run. It is suggested that the Department of Environment forecast could be used as a sensitivity.

Reserve plant (p15)

According to the documentation, generating capacity is introduced to meet the reserve requirements. It is imperative that the modelled market prices are consistent with such investments. Simply put, new entrants must achieve revenue adequacy, and not operate at a sustained loss.

Regulatory approach, use of rules vs a least cost approach (p9&10)

In order to meet an emission constraint, the model should determine a least cost manner to offload or close plant. This least cost solution can then be used as a policy efficiency benchmark.

Should policy makers wish to examine a specific set of regulations to close plant, such as plant closures based on age, resource costs under such regulations should be compared to the least cost solution to quantify the loss of economic efficiency.

In the context of a least cost solution, the best practice benchmark should be defined as emission intensity rather than a quantity per annum which presupposes a certain amount of generation per annum.

Gas prices (p22)

Gas prices assumptions in Figure 5 are not labelled and it is assumed that these are shown in real dollars.

The steady decrease in gas prices post 2020 is of concern in face of increasing demand (not shown) for lower CO₂ emitting fuels to meet emission constraints. The explanation suggests that this is due to the shortage of local gas in the early years of the modelling, followed by a convergence with international prices.

If the IEA (International Energy Agency) international prices are used to determine the local net-back price, it is imperative that the IEA scenarios are internally consistent with the policy options being modelled in this study. Specifically, the overarching assumption needs to be that Australia is in step with the rest of the world in undertaking CO₂ abatement actions, and that global gas prices are consistent with the resultant demand for cleaner fuels.

Inclusion of fixed operating and maintenance costs (FOM) and consistency of assumptions (p38)

It is imperative that fixed operation and maintenance costs are included in the modelling (these represent “stay-in-business” capital). The costs table in Appendix E contains data that is internally and externally inconsistent. The table contains incorrect differentials between stations in fuel costs and FOM, and differs vastly to the assumptions used by AEMO.

The AEMO assumptions book is reworked periodically by consultants, is reviewed by industry participants and is considered by the industry as a good approximation to actual costs (given the commercial sensitivity of such data). It is recommended that the AEMO assumptions book be used for the policy modelling.

Consider new plant build rate limitations

It is possible that due to a range of factors, including learning rates, the model determines that the least cost plant mix undergoes a significant change a short time frame. It is suggested that maximum build rates per technology and per region are included in the assumptions book and applied in the model as a constraint.

Asset life and payback period

The physical life of an asset may be quite long (in line with the table in Appendix D) but in a merchant market investors are exposed to a range of risks and are not prepared to accept such a long payback period.

Examples of some typical risks for an investment in CCGT plant are as follows:

- Economy and demand
- Technology developments (supply and demand side)
- Climate change policy
- Gas price and availability
- Competitor behaviours and market outcomes

Investors will seek much shorter payback periods than physical life of the asset; 8 years on a discounted basis (or 6 years on a nominal basis), are considered appropriate.

This will impact the electricity market and increase prices, as investments will need to receive revenues commensurate with such investment criteria. Clearly, unless investors have a reasonable prospect of adequate returns, they will not invest, and the market will become unsustainable.

In addition, it is important that the level of WACC (weighted average cost of capital) is consistent with investors’ drivers and is appropriate to a given scenario depending on the level of risk created by the policy studied (i.e. if there is no compensation for disproportionate loss of asset value, the WACC will need to be significantly higher than for a long term PPA/FIT (Power purchase agreement/Feed in tariff)).

Availability of nuclear and geothermal technologies

Nuclear power is not permitted in Australia, and the development of the regulatory frameworks is expected to take considerable time to develop and implement. Australia would also need to develop (or import) expertise and capability to plan, build, operate and maintain such facilities. It is not envisaged that this

could be achieved inside of circa 15 years and therefore there should be a restriction on use of nuclear in the near/medium term.

Geothermal developments have faced a range of challenges and availability of this technology should be quite limited, particularly in the first 5-10 years of the modelling horizon.

Clarify how the CO₂ price will be determined

If the CO₂ price is determined as a shadow price of the sectoral emission constraint, it is likely to be significantly higher than if a national or international price was to be used. Check the suggested methodology used in the paper.

Should you have any queries in relation to this submission please do not hesitate to contact me by telephone, 0417343537.

Yours sincerely,

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