

Green Energy Markets Insight

States being asked to approve NEG mechanism that increases emissions

9 August 2018

Ric Brazzale

Director, Green Energy Markets

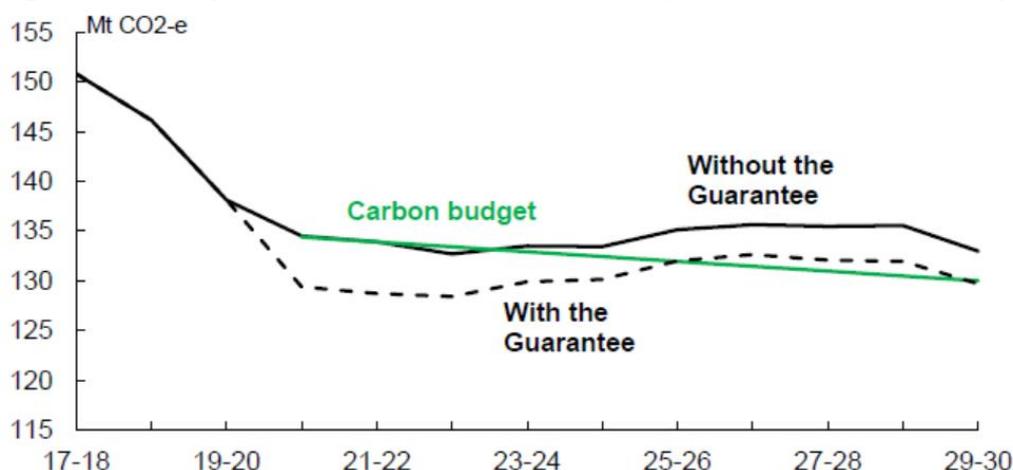
www.greenmarkets.com.au

With all the focus on the level of the National Energy Guarantee (NEG) 26% emissions reduction target there has been little attention on assessing the underlying NEG mechanism and whether it will work long term to reduce emissions at lowest cost to consumers. Our most recent assessment of the NEG design is that it locks in an increase in emissions from electricity from 2023 which means that a more ambitious target than 26% is more difficult and more expensive to achieve. Further the \$150 average annual household saving that the ESB claims is due to the NEG is illusory as it is based on heroic demand assumptions and takes credit for renewables investment that will take place anyway.

The Energy Security Board (ESB) release of information on the NEG has been a slow drip making it extremely difficult for anyone to assess the effectiveness of the mechanism. The ESB released a spreadsheet last Friday (3 August) that included further details on the assumptions and results of the modelling undertaken by ACIL Allen. The full ACIL Allen report to the ESB has not been made available with the ESB releasing certain information as and when it sees fit.

The ESB included an emissions reduction chart in their final report to CoAG (Figure 1) which shows the emissions trajectory under the NEG compared to a “no policy” case. There are a couple of puzzling things when we consider the emissions trajectory under the NEG. The most obvious one being the 5.1 million tonne of emission reductions that are assumed to occur in 2020/21 (more on that later). However, the more problematic issue is the projected increase in emissions from 2022/23 onwards. The NEG design seems to support a reduction in renewables generation (largely hydro) and supports an increase in brown coal-fired generation – both outcomes are counter intuitive and contrary to its stated objectives.

Figure 1. NEM equivalent emissions under the NEG (extract from ESB Final Report to CoAG)



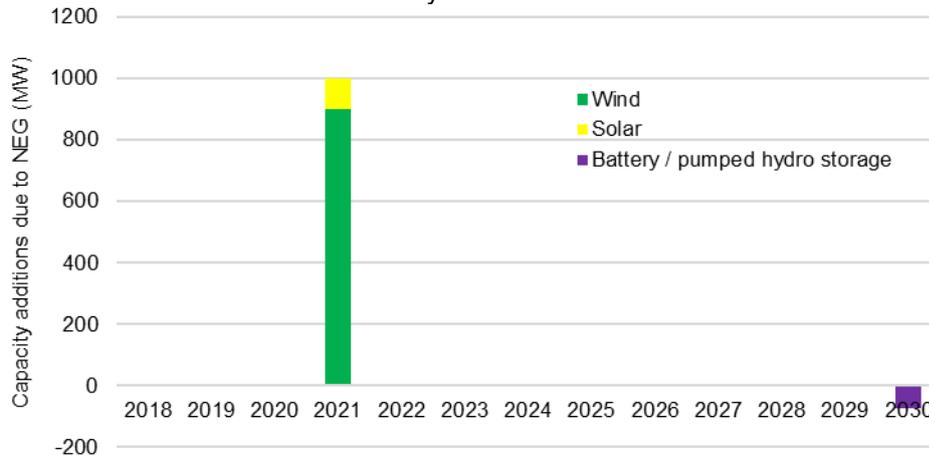
Source: ACIL Allen consulting

The data provided by the ESB included the projected generation mix under both the NEG and under the “no-policy” case. The difference between the two projections is thus the modelled impact of the NEG design. The differences between the two projections by fuel type is shown in the following two charts. The first chart looks at the changes in generation capacity due to the NEG. This is the so called new investment that is unleashed due to the investment certainty provided by the NEG. The second chart looks at the change in generation output in GWh terms which drives the overall level of emissions.

Green Energy Markets Insight

Figure 2. New Capacity additions due to NEG

Based on data released by ESB

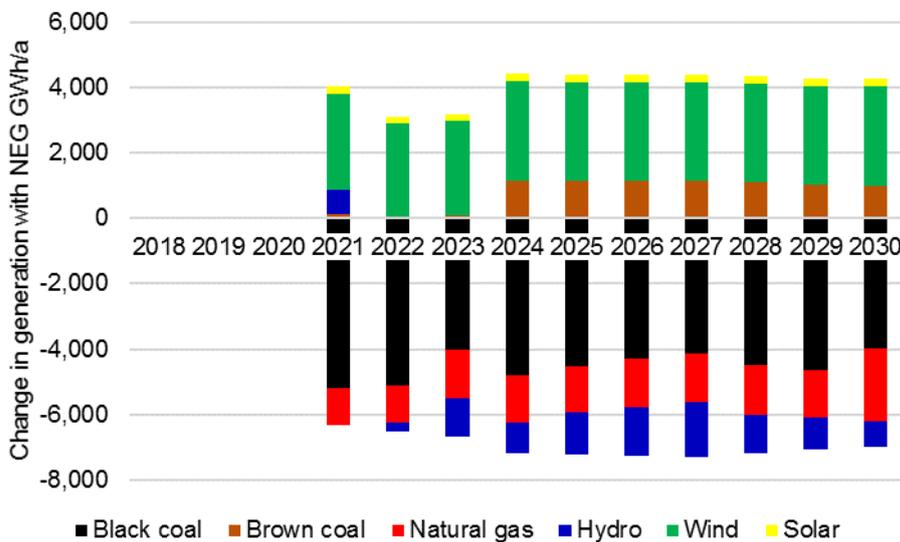


Based on the data released by the ESB there is only 1,000 MW of new investment supported by the NEG and that all happens in 2020/21. We estimate that 500 MW of this is already committed and that there is a further 1,200 MW that is contracted that has been excluded by the ESB (refer to detailed review later in this paper). Notwithstanding claims by the ESB that the NEG underpins significant new investment – there is no new investment caused by the NEG.

We have compared the changes in generation mix that have been attributed to the NEG in the modelling (Figure 3).

Figure 3. Changes in electricity generation due to NEG

Based on data released by ESB



The projected changes in fuel mix are much more interesting to consider, in fact there are some outcomes that are counter intuitive and difficult to rationalise.

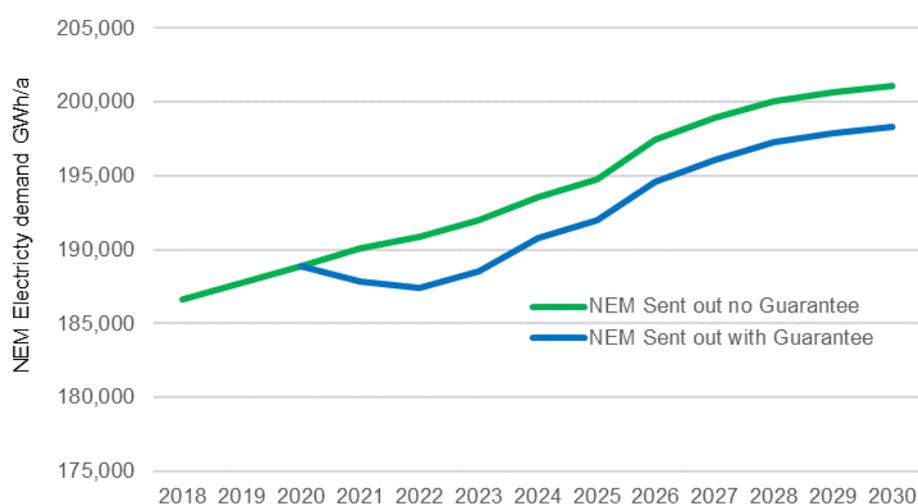
- The most concerning insight is that the NEG as modelled delivers an average reduction in electricity consumption of 2,900 GWh (refer to Figure 4) equivalent to a 1.5% reduction. In 2020/21 the NEG projection assumes that electricity consumption miraculously reduces by 2,300 GWh because we now have an emissions and reliability framework agreed. In Figure 3 this is the difference between the 6,300 GWh reduction in black coal and gas-fired generation

Green Energy Markets Insight

and the 4,000 GWh increase in renewable generation. This is an extraordinary and heroic assumption which we think is based on the use of AEMO's high demand side participation for the NEG projections and AEMO's weak demand side participation projections for the "no policy" scenario:

- For some reason the NEG causes a surge in hydro generation in 2020/21 but a reduction in gas fired generation that same year; and
- The NEG results in an increase in emission intensive generation (brown coal generation increases by 1,100 GWh per annum from 2024) and a reduction in low and zero emission generation (hydro is 1,200 GWh per annum lower from 2023 onwards and gas is 1,450 GWh lower from 2021 onwards). It is not clear why this happens as this results in increasing emissions from electricity from 2023 onwards. We suspect that it may be due to the carry forward provisions incorporated into the NEG design which mean that over-achievement in the early years gets carried forward and results in higher emissions in later years.

Figure 4. Comparison of electricity demand under the NEG and No policy projections
Based on data released by ESB



ESB understate projects that are due to come on line without the NEG

The ESB claim that a range of renewable projects that are currently committed and contracted will only proceed with the NEG. ACIL Allen included a table of Renewable Power generation projects that are included under the "no policy" case. This list included the 650 MW Victorian Government tender and the 400 MW Queensland tender.

We have cross referenced these projects with the list of accredited and committed projects that the Clean Energy Regulator (CER) reports on and have found that there are 503 MW of projects that the CER included as committed as at 30 June 2018 that were not on the ACIL committed list. These projects should have been incorporated by ACIL into the "no policy" case.

We have also identified in our latest Renewables Report that there are 1,172 MW of projects in the NEM that have been announced that have Power Purchase Agreements with credible off-takers. Not all of these may proceed to financial close, however from previous experience in tracking renewables projects, most of these will reach financial close. As a result, we would expect that at least 1,000 MW of these should have been included in the ACIL modelling under the "no policy" case.

In addition, ACIL did not include the Snowy tender for 800 MW of renewables and AGL's tender for 500 MW of renewables.

Green Energy Markets **Insight**

Implications

Following assessment of the further information released by the ESB we conclude that:

- The NEG locks in an increase in emissions from electricity from 2023 which means that a more ambitious target is more difficult and more expensive to achieve; and
- The household electricity savings that the ESB attributes to the NEG are illusory as electricity demand will not miraculously reduce in 2020/21 if the NEG is legislated. Further there are more than 2,800 MW of renewables that are already committed, contracted or subject to tender that will proceed in the absence of the NEG