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20 October 2016

Submitted via email: energycouncil@environment.gov.au

Response from EnerNOC to Review of the Regulatory Investment Test for Transmission Consultation paper.

EnerNOC is a global provider of energy intelligence software and demand response services. We work with commercial and industrial end users to offer their demand side flexibility into wholesale capacity, energy, and ancillary services markets, as well as demand response options made available by retailers and network service providers. Locally, EnerNOC is a market participant in the Wholesale Electricity Market (WEM), the National Electricity Market (NEM) and the New Zealand Electricity Market (NZEM). EnerNOC's regional head office for Asia-Pacific is located in Melbourne.

EnerNOC is grateful for the opportunity to provide comment on the COAG Energy Council Energy Project Team's ("Council's") Review of the Regulatory Investment Test for Transmission consultation paper. In the context of electricity networks, EnerNOC is a proponent of non-network demand management solutions, where such solutions are technologically feasible and economically efficient. Regarding how the RIT-T might be improved, EnerNOC offers the following comments:

A TNSP may not prefer a non-network option, even when it is the most efficient

The biggest weakness EnerNOC sees in the current RIT-T is that the RIT-T is unlikely to produce preferred options that are non-network in nature unless some sort of incentive scheme is put in place that allows a TNSP to benefit equally from investing in an (opex-based) non-network option as it would from investing in a (capex-based) asset build option. Because capex-based asset build investments get included in a TNSP's regulated asset base (RAB), we consider that TNSPs are naturally incentivised to prefer such options over spending opex on non-network solutions – for which they are not able to earn a regulated rate of return.

An appropriate incentive scheme would be a mechanism by which a TNSP is allowed to earn a financial return on their non-network opex investment (with costs recovered from their regulated rate base), in line with what they would have earned from an investment in a new network asset in its RAB. Such mechanism should remove the TNSP's bias when selecting a preferred option under the RIT-T – where the TNSP currently has unilateral decision-making power in selecting the preferred option. EnerNOC understands that the AER is currently designing such an incentive

scheme for distribution networks in the RIT-D context, with a draft guideline to be published for consultation in late 2016. The Council may wish to engage the AER on this topic to understand if and how the mechanism can or should be adapted for the RIT-T. A more radical alternative approach would be to follow the lead of Ofgem in Great Britain: under its "RIIO model" of regulation, it entirely removes the distinction between capex and opex, so that there should be no possibility of differing regulatory treatment biasing regulated company's choices.

Option value is not properly accounted for in the current RIT-T

A second weakness of the RIT-T is that while the list of "Market Benefits" in the National Electricity Rules (NER) seems to be comprehensive, the AER's *Regulatory investment test for transmission application guidelines* do not allow the "option value" benefit to be fully accounted for when calculating the net economic benefit of each credible option. EnerNOC considers that option value is likely to be a significant component of the benefit of any credible non-network option under consideration in a RIT-T, in that investments in non-network options (for example, a demand response programme) are more flexible than investments in network assets. This is because demand response programmes can be designed and implemented relatively quickly, their size and scope can be changed flexibly as needs require, and they are reversible (i.e. they can be cancelled if they are no longer required). Conversely, once a network asset is constructed, ratepayers are locked-in to finance its existence in the following decades.

When estimating the expected benefits of the various options, the RIT-T proponent has to rely on forecasts. Forecasts are often wrong; the further ahead into the future they look, the less accurate they tend to be. This can lead to regrettable investment decisions being made, even though they appeared to be the right decisions at the time they were made. To take a simple example, in year N, forecasts may indicate that peak demand on part of a network is likely to exceed the network's secure capacity by year N+3. On this basis, the NSP could decide to carry out augmentation works to increase the network's secure capacity, and that it is necessary to start these works in year N+1 for them to be commissioned in time for the peak season in year N+3. It may be that demand does not grow as forecast: year N+3 arrives, and revised forecasts now show that secure capacity is unlikely to be exceeded until year N+5. The TNSP's decision to start building in year N+1 is irreversible: the money was spent before this better information was available.

If instead the TNSP had chosen in year N to defer the network augmentation using a demand response programme, they (and their regulated rate-paying customers) would have benefited from option value: as revised forecasts became available, the TNSP could have changed the commissioning date of the augmentation to maximise the net benefits. A demand response programme itself can adapt over time to suit changing circumstances. For example, while it may be thought in year N that a demand response programme will need to grow year-on-year at a particular rate, this need not be an irrevocable commitment: it could be revised up or down as needed. It is not only the required commissioning date for an eventual network augmentation that might change in the light of newer forecasts. It may be that a different network augmentation option becomes optimal, or, in extremis, that no augmentation is required at all. This is not far-fetched: the Council's consultation paper notes that in recent years, system level demand

forecasts have been revised sharply downwards, to levels that would not have been considered credible just a few years ago. EnerNOC considers that demand forecasting has only become more challenging in recent years due to the uncertainties posed by distributed energy resources, behind the meter energy storage, and electric vehicles. Deferring the making of irrevocable investment decisions increases the likelihood that the optimal decision will be made. This can bring significant benefits to consumers through lower long-term costs, and should be quantified and counted as a benefit.

The AER's current RIT-T application guidelines contain a reasonable discussion of the problems of making irreversible decisions on the basis of uncertain information, but then states:

"The AER believes that appropriate identification of credible options and reasonable scenarios captures any option value, thereby meeting the Electricity Rule requirement to consider option value as a class of market benefit under the RIT-T."[1]

We believe that this guidance is wrong: to model option value correctly using this approach, dozens of scenarios and sub-options would be needed, e.g.:

1. Build Option A.
2. Build Option B.
3. Start a DR programme, then either:
    a. Demand forecasts do not change significantly, so build Option A deferred by 1 year.
    b. Demand forecasts change, so build Option A deferred by 2 years.
    c. Demand forecasts change further, so build option A deferred by 3 years.
    d. Demand patterns change such that Option B is now preferable, so build that instead, deferred by 2 years.
    e. Demand forecasts change such that no augmentation works are actually needed, as the constraint can be alleviated indefinitely by a modified DR programme.
    f. etc…

This is a cumbersome approach which, in EnerNOC's experience with RIT-Ts to date, has not been employed by proponents. Instead, RIT-T proponents have simply quoted the AER's statement, but then not considered option values at all. In EnerNOC's view, simply identifying all credible options does not sufficiently capture option value. We consider that it is important that option value is properly estimated, using a robust methodology, and that it flows through to the calculation of "net economic benefit" which the TNSP uses to select its preferred option. The AER's application guidelines would be the best place to detail a methodology.

[1] AER, Regulatory investment test for transmission application guidelines, June 2010, accessed 19 October 2016. https://www.aer.gov.au/system/files/Final%20RIT-T%20application%20guidelines%20-%2029%20June%202010.pdf

The Council may wish to explore the asymmetries between the RIT-T and the RIT-D

The NER require that RIT-D proponents explicitly consider non-network options in ways that RIT-T proponents are not similarly obliged:

Specifically, the NER requires that RIT-D proponents:

1) Must consult non-network providers on the RIT-D project (in addition to Registered Participants, AEMO, and interested parties)[2]

2) Have an obligation, under some circumstances, to produce a "Non-Network Options Report"[3]

3) Must maintain a "demand side engagement register"[4]

EnerNOC notes that all three provisions above are missing from the RIT-T, and considers that the Council's report may wish to explore why this is. EnerNOC cannot conceive a reason why the viability of a non-network option would be fundamentally different between a DNSP and a TNSP, and that there are situations where both types of networks should consider non-network options. EnerNOC has delivered demand response projects for both DNSPs (Ausgrid, NSW) and TNSPs (Transgrid, NSW) in the past.

Replacement expenditure

Another weakness of the RIT-T is the exemption for replacement expenditure.[5] EnerNOC notes that the AER has recently proposed a rule change to the AEMC concerning this issue. From the Council's consultation paper – EnerNOC notes that since the current RIT-T was designed in 2009, only 15 RIT-Ts have been initiated, and that only 5 have run to completion. This indicates to EnerNOC that either:

1) Declining demand has led to few TNSPs requiring to invest in network augmentation since 2009, or, that:

2) Most of the TNSP investment that has occurred since 2009 has been in services that are outside the purview of the current RIT-T (i.e. replacement expenditure).

EnerNOC is curious to know how many RIT-T processes would have been run since 2009 if replacement expenditure had been within the RIT-T's scope. EnerNOC is hopeful that the AEMC will quantify these figures in their upcoming consultation paper on the proposed rule change.

[2] NER 5.17.4 (a) (1)
[3] NER 5.17.4 (e)
[4] NER 5.17.4 (g)
[5] NER 5.16.3 (3)

Thank you for the opportunity to comment on the Council's RIT-T Review. Please do not hesitate to contact me if you have any queries.

Regards,

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