

Major Energy Users (MEU) supplementary submission to AEMO's Draft Integrated System Plan (ISP) Methodology

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Att: Andrew Turley

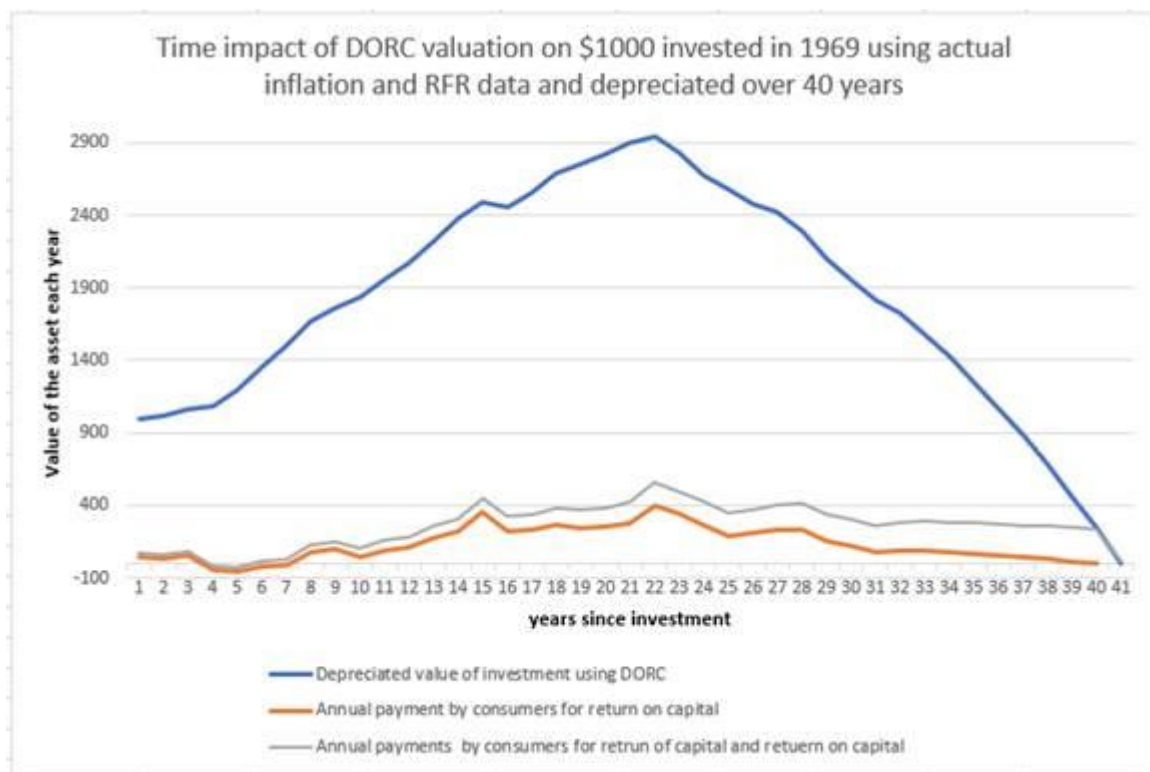
I appreciated the opportunity to provide some oral input into the ISP methodology and I reinforce the point I made in the MEU submission that the AEMO response to the earlier input really was a good effort in explaining why (and why not) you would incorporate the stakeholder comments into the methodology. As I noted there were some bits I still didn't agree with but I accepted that the issues had been addressed reasonably in the explanation.

Despite this fairly wide acceptance of the methodology as revised, I still have a major concern about the annuity approach and I tried to explain this in my comments in the forum yesterday. I am not sure that my message got across so below I have tried to better explain my concerns.

I have developed a very simplistic model which show the impact of the regulatory approach to the asset valuation for a network under the NER. This model is not as refined as that used by the AER in that it doesn't incorporate equity/debt, use the trailing average approach to debt or treat inflation the way the AER does. Despite this it does reflect the principles behind the regulatory approach as to how asset values are treated under the regulatory approach. The AER uses the depreciated replacement value for a network investment (in years gone by this used to be called the DORC model where the "O" stood for optimised but we don't optimise the value any more) hence the use of the acronym DORC in the model I use

This model uses actual data for a 40 year investment of \$1000 in 1969. The chart from the model shows

- the DORC value for the \$1000 invested (the blue line) and
- the red line is the cost to consumers for the return on the capital. I have used as WACC = 10 year bond rate +3.5% less inflation which is simplistic. By deducting inflation from the WACC, this creates a "real" WACC so inflation is only added once through the asset valuation
- The grey line shows the addition of the depreciation consumers pay each year to the return on the investment



The chart focuses on the costs that consumers bear for the investment. The point I was making yesterday was that the asset valuation rises over the life of the asset to between the halfway to 2/3rds mark and then falls rapidly but the cost to consumers starts low and then increases, and this increase is more marked if interest rates increase in the future. As we are at the very lowest point of interest rates we will see these rise in the future and so the time frame in my model reflects well what we can expect in the coming years.

Over the next 20-30 years interest rates are likely to return to more typical levels. So the WACC*RAB forecast will be much higher in 20 years than it is now so the consumer benefits have to match this or more. This is what happens in the model above where bond rates went from ~6% to 15% about 13 years later and back to ~5% at the end of the 40 years (real bond rates went from 1.3% to 10.9% and then back to 2.9% over the period). Does the AEMO model reflect this reality of consumer costs changing?

I think that if AEMO is going to use an annuity approach it has to be done with in accordance with the regulatory model as we need to reflect the costs to consumers against the benefit to consumers. The AEMO approach tends to mix the cost to the networks with the benefit to "the market" (including consumers) that incur the costs, so while the benefits are to the market, it is also the market (via consumers) that pays the cost. This means there is a discontinuity in the AEMO approach because the methodology mixes different elements. To avoid this, if AEMO wants to use an annuity approach, it must be on a consistent approach where the models addresses the costs the market (via consumers) incurs against the benefits that the market gains from the investment. This has an internal consistency.

We must also never forget that the costs the networks incur are almost entirely underwritten and so have a low risk factor (this is why the AER regulatory WACC is so low) but the future costs incurred by the market (consumers) is dependent on future movements in the rules (like the AER recent

decision to change the approach on inflation), and interest rates and benefits are much less certain than the certainty of the costs the market (via consumers) will pay to the networks.

This reinforces the need to a higher discount rate than is assumed in the AEMO methodology to reflect that the cost of capital (and hence consumer costs) will be much higher in the future – so the costs part of the consumer experience need to reflect this potential. But will the benefits change with interest rate changes? I doubt that the cost of coal will as an avoided cost! And the cost of gas might fall when there is an abundance due to the world reducing demand.

So the assumptions that AEMO makes with its annuity approach are flawed in that:

- The bulk of the capital will not be eroded within the 20 year time frame as exemplified in chart 13 at forum yesterday
- The residual capital at the end of the 20 year window will not be small
- The model needs to be consistent in that the costs the market (consumers) incurs are balanced against the benefits the market (consumers) gains
- Because of the mismatch between the certainty of the costs vs the uncertainty of the benefits, the discount rate needs to be much higher. At the moment, MEU members are using a real discount rate between 10% and 12% to reflect the mismatch that see in the uncertainties

Regards

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Further supplementary comments

6 July 2021

I agree that the bulk of the design, construction, operating and maintenance costs will be incurred by the TNSP within the 20 year window as the largest part of the costs are the capex involved. What a commercial firm would do is to include the capex and opex costs as they are incurred over the time period and each year include the expected revenue that the investment will deliver. From this cashflow, an IRR will be determined and the firm would decide if the outturn IRR meets its hurdle rate before deciding to further consider the project.

However the use of an annuity approach effectively converts the capex into an annual payment. For example an alternative for the firm is to outsource the making of the product to avoid the capital investment but they would still do an IRR analysis (which would include the costs for avoiding the investment – a notional non-network solution – by including an annual cost from the external provider). They would then compare the IIR for both options to identify the best outcome for the firm.

So either the ISP costs comprise the capex incurred in the first few years in the amounts when the costs are incurred or the ISP uses an annuity approach which looks at the costs and times the market incurs the costs charged by the TNSP. As it is consumers that pay the bulk of the TNSP costs, the costs consumers are charged can be used as a surrogate for the annuity charge that the market incurs.

As I highlighted, the costs consumers are charged are based on the DRC value of the assets in each particular year. As I outlined at the meeting, the annuity costs will still be considerable after the time window so it is wrong to assume that the annuity costs are negligible after the window. That is the core point I am making. In practice, under the NER, the annuity continues to run until the end of the asset life.

The benefits the market incurs tend mostly to be achieved late in the window period and after it but the further out of the window period, the less certain the benefits will be realised.

I accept that “wealth transfers between generators and consumers or between NSPs and consumers” is not a market benefit and should be excluded but what I am proposing does not involve this. What I have identified is that if AEMO calculates an annuity for the provision of the TNSP investment then the annuit cost element must be based on what the TNSP will charge the market each year for the service it provides. For example, using the example above, if the TNSP decides that a non-network solution is preferable to a network investment, the annual cost of the non-network solution will effectively be an annuity that stretches into the future.

So my concern is that you are not assessing the value of the annuity properly or when the costs for providing the annuity option expire. The annuity has to deliver the capital costs over the determined timeframe which might be the construction period, the window period or the asset life but whatever the timeframe used, the outcomes still have to be equivalent on an NPV=0 basis. I don't think the AEMO approach does this.

Regards

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