Example 1: Incidental augmentation associated with an asset replacement project

A RIT-D proponent has identified a 40 year old, 10 megavolt amperes (MVA) zone substation transformer to be at the end of its serviceable life. There are no emerging capacity constraints at the substation. The lowest available standard transformer size of sufficient capacity is 15MVA. 'Like-for-like' replacement through the procurement of 10MVA transformer is likely to be more costly as it is a non-standard size.

Replacement with the 15MVA transformer results in an incidental increase in substation capacity. However, as the identified need is an asset condition and not an augmentation to the network; the RIT-D proponent is not required to apply the RIT-D.

In addition, where the project involves an associated augmentation, the cost of the augmentation component should be based on the cost difference between the current equivalent replacement solution (described above) and the cost of the integrated solution that addresses both the replacement and augmentation requirements. (Sometimes referred to as the with-without principle.)

Example 12: Demand Scenario Analysis

This example shows how a RIT-D proponent could undertake scenario analysis of forecast demand. Assume this example is for reliability corrective action and therefore a relative ranking of credible options is required (as opposed to a comparison with a 'do nothing' base case to quantify market benefits).

Assume there are two credible options.

1. augmentation of a distribution line – $60 million

2. connecting an embedded generator – $15 million.

The first option is chosen as the base case credible option. Therefore, only the relative market benefits and costs of the second credible option are required need to be calculated.

The RIT-D proponent forecasts that energy and peak demand in the region will grow by 3 per cent over the period of the analysis.

In the central reasonable scenario, the market benefits of the embedded generator credible option will be determined as follows:

- variable electricity costs will be higher than under the base case network augmentation option
- planned augmentation of the distribution network will occur in year 13 as opposed to year 3 in the base case.

As the cost of the embedded generator credible option are lower than the costs of network augmentation credible option, the incremental costs of the embedded generator will be negative, -$45 million. Assume that the RIT-D proponent calculates the relative market benefits of the embedded generation credible option as -$40 million. This results in a relative net economic benefit of the embedded generation credible option is $5 million.

The RIT-D proponent now runs scenario analysis on the assumption regarding growth in energy and peak demand. Alternative growth scenarios, growth in energy and peak demand over the period of the analysis in the region are;

- 1 % per annum (low growth);
- 3 % per annum (base/medium case);
- 5 % per annum (high growth).

Under the various scenarios, the market benefits of the embedded generation credible options will change from that in the central reasonable scenario in that:

- incremental total variable electricity costs will be lower/higher than under the central reasonable scenario; and
- planned augmentation of the distribution network will be earlier/later than year 2 in the base case.

Under the high demand scenario, the embedded generator will defer the need for network augmentation by 5 years as opposed to 10 years in the central reasonable scenario of medium demand. Under the of low demand scenario, the embedded generator will defer the need for network augmentation by 15 years as opposed to 10 years in the central reasonable scenario of medium demand. Assuming project costs do not change, the RIT-D proponent calculates the relative market benefit of the embedded generation connection credible option as -$55 million and accordingly the relative net economic benefit of the embedded generation connection credible option is -$10 million. (A corresponding impact would need to be developed for the low growth scenario.)

The analysis shows that, in the event that growth in energy and peak demand is higher/lower than forecast, the ranking of net economic benefit between the two credible options may change. Therefore, it may be necessary for the RIT-D proponent to develop additional reasonable scenarios with varying levels of forecast demand in its assessment of the credible options.