TRANSPOWER

2022 Capex IM Workshop

Transpower comment: responding to the Commerce Commission's discussion slides from the 11 November workshop

25 November 2022

Investment test discussion

Grid investment test – investment value, cost and benefit uncertainty

- Transpower submitted:

  "One of the problems with highly prescriptive requirements is that it results in a 'one size fits all' approach which does not necessarily take into account investment specific matters such as the value of the investment or the extent of uncertainty around its costs and benefits" (P+I submission p. 11)

- Some discussion points and questions:
  - How could the present investment test better "take into account" the value of the investment?
  - What additional uncertainties could be added to the present costs and benefits specified in the Capex IM investment test?
  - Regarding uncertainty of investment test costs or benefits – how could the Capex IM evaluation criteria - cl. 6.1.1(2)(c) provide more guidance when capex proposals are being developed?

One of the ways that the investment test could better take into account the value of the investment is a more future-focussed role of option value for future participants and consumers, and/or a least regrets option.

For example, when considering a small tactical investment compared with a larger one, the decision rule is "maximise net benefits" but the larger investments (net beneficial but perhaps not maximal) might open up more options / opportunities. Similarly sightly more costly investments may be more beneficial from a least regrets perceptive i.e. produce overall lower regrets when considering the range of possible future scenarios.

We believe the MCP evaluation would be improved by allowing the Commission to take a broader consideration of whether investments deliver longer term consumer benefits given the uncertainties of the transition to a low carbon economy. Specifically allowing for a least regrets approach which considers whether the cost of not making a transmission investment, given a range of future scenarios, outweighs the costs of making the investment.

This could be done by reducing the explicit requirements in the Capex IM, but noting the Commission's expectations in the IM reasons paper. This would provide guidance to Transpower on the Commission's expectations while allowing more discretion for us to propose variations that are commensurate each MCP.

Investment test discussion

Climate change effects – NZ Inc benefits

- Transpower submitted:

  "……a strict market benefit test may not be flexible enough to take into account wider NZ Inc benefits such as Government climate change policy and CO2 emissions, even if these benefits align with the long-term benefit of consumers" (P+I submission p. 11)

- Some discussion points and questions:
  - What NZ Inc benefits do stakeholders think are currently excluded from the investment test, but should be included'?
  - How would stakeholders think NZ Inc benefits could be calculated?
  - Schedule D4(1)(l) allows that Transpower can include, as a cost or benefit in the investment test "any other benefit or cost occurring in the electricity market proposed by Transpower prior to its consultation on the short list of investment options and agreed to by the Commission".
  - Given Transpower models CO2 costs for thermal plant in its generation modelling, what needs to be added to the investment test to capture all CO2 emission effects?

We also consider that the investment test (IT) undervalues the benefits to future consumers. This is due to the high discount rate, and the inability to consider any decarbonisation benefits on the demand side where transmission investment is able to accelerate the connection of renewables relative to the counterfactual of no transmission investment. Further work is required to determine how this could be done in practice, however an aggregate estimate of the differential between carbon emissions on the demand side under the counterfactual and the options with transmission investment.

We consider the IT should be less prescriptive for context of greater uncertainty i.e. greater discretion for TP about applying cost and benefits and their parameters to ensure the IT can accommodate decarbonisation pathways and electrification outcomes.

Investment test discussion

Grid investment test – sensitivity analysis

- Transpower submitted:

  "A comparison of the Fibre and Transpower Capex IMs' sensitivity analysis requirements provides a good example where we consider that the Transpower Capex IM includes unduly prescriptive requirements." (P+I submission p. 13)

  "The key elements of the existing requirements which should be retained are that Transpower can justify the choice of sensitivity analysis and the analysis is sufficiently robust to rely on to demonstrate an investment option should be approved." (P+I submission p. 14)

- Some discussion points and questions:
  - Schedule D7(1) sets out the sensitivity analysis Transpower needs to apply in the investment test "save where it is neither reasonably practicable nor reasonably necessary". What do stakeholders see as the relevant issue or concerns with the sensitivity analysis?
  - If the requirements of D7(1) were amended, how would stakeholders prefer to see this framed and applied?
  - We understand uncertainty has increased and should make sensitivity analysis even more relevant. How does this relate to the submission point raised?

Adopt a more discretionary approach to the sensitivity analysis requirements i.e. the inputs that should be subject to sensitivity. Purpose is to allow focus on the relevant sensitivities under scenarios that need to capture broad uncertainties. Relevant sensitivities would be a matter for consultation.

For example, change to Schedule D7(1) could be along the lines of:

"Sensitivity analysis means consideration, commensurate with the proposed **major capex proposal**, a reasonable range of sensitivities which could include varying the following parameters"

Capex IM drafting change *"must"* to *"may"* for D7(3)

Developing and running sensitivities is a key part of preparing the MCPs. However, these can be resource intensive. We consider that we should have more discretion to run a targeted selection of the most appropriate sensitivities commensurate with the MCP.

Investment test discussion

Grid investment test – evaluation criteria

- Transpower submitted:

  "The Investment Test could be improved by adopting the Fibre Capex IM's singular evaluation criteria (expenditure objective)." (P+I submission p. 10)

  "The evaluation criteria and assessment factors in the Fibre Capex IM are a notable departure from the Transpower Capex IM and may be better suited to challenges the electricity industry faces in adopting to the transition to a low emissions economy." (P+I submission p. 10)

- Some discussion points and questions:
  - How could the evaluation criteria and assessment factors set out in the Fibre IMs more appropriately justify transmission investment for a 'transition to a low emissions economy' and for the long-term benefit of consumers?
  - How would you see the prudent and efficient evaluation criteria interacting with the costs and benefits and cost-benefit test set out in the Capex IM?

We propose an investment test decision rule under "net benefits" instead of "maximises net benefits" that allows a least-regrets approach to decision making via valuing costs and benefits of different options. [This cost/benefit approach has precedence in Part 12 of the Code for grid investment decisions e.g. code clause 12.117].

We suggest that C2 of the Capex IM should simply state that "the Commission should evaluate whether the MCP demonstrates GEIP." We believe that at a minimum this covers all of the current prescription in C2.

Investment test discussion

Grid investment test – unquantifiable costs and benefits

- Transpower submitted:

  "The Capex IM should not include arbitrary constraints such as the limitation that unquantified benefits are capped at "10% or less of the aggregate project costs". The appropriate assessment of unquantified benefits is a matter which could be considered on a case-by-case (investment-by-investment) basis" (P+I submission p. 12)

- Some discussion points and questions:
  - Schedule D1(3) allows Transpower discretion to propose "an alternative percentage to 10%" when treating a cost or benefit as unquantified.
  - What percentage would be more reasonable than 10%?
  - We are interested to understand if unquantified costs and benefits are increasing in the transmission sector and if so, why?

All costs and benefits are subject to uncertainty. Our analysis uses the investment test settings to derive a range of options that can meet the investment need.

The capex IM was derived from a context of singular investments to meet a specific need. But as our Net Zero Grid Pathways (NZGP) analysis tests, investments may be needed to meet multiple needs or create multiple opportunities.

The shift for the analytical context means the decision rule for investment options test based on "maximise net benefits" could foreclose better options. "Better options" that create a broader range of flow-on investment opportunities and certainty, may be difficult to quantify, for existing and future electricity market participants which; and widen the consumption choices for current and future consumers of electricity.

If the "unquantified benefits" are to be valued by reference to project cost, then we consider a higher %, 30% (instead of 10%) , would be more appropriate anchor point to identify what are "similar" net benefit projects and to allow unquantified benefits and some judgement to be used to determine the best option. We consider 30% better reflects the uncertainty on the costs at the proposal stage.

Investment test discussion

Grid investment test – scenario modelling

- Transpower submitted:

  "The prescriptive requirements for demand and generation scenario modelling, including the requirement to model "all" the scenarios published by MBIE and "reasonable variation" (again with a prescriptive list of variations) have given rise to practical issues and would result in a modelling an excessive amount of scenarios and sensitivities if a 'black letter' interpretation of the IM is adopted" (P+I submission p. 14)

- Some discussion points and questions:
  - Can Transpower describe generally how it uses scenarios to inform its analysis of demand-driven and generation-driven projects?
  - The MBIE generation scenarios are energy scenarios and do not specify the location or capacity of demand and generation growth. What process should be followed to ascertain these specifics?
  - In what situations would the MBIE scenarios no longer be appropriate?
  - We understand demand and generation uncertainty has increased and should make scenario analysis even more relevant. How does this relate to the submission point raised?

For NZGP, we started with the current 5 EDGS scenarios and processed them into a more granular form to apply the investment test. We consulted on those scenario assumptions as part of our process. For that process we proposed reasonable variations as allowed under the Capex IM to reflect new information and industry views.

The EDGS are a good reference point but we would support adding some flexibility in the number we use and flexibility to be able to propose use of alternative scenarios if they are appropriate. In practice some scenarios may be very similar to others from a transmission investment perspective so some may not produce much in the way of new information to support the investment decision. In other cases such as a smaller regional demand investigation fewer scenarios (via a low, medium and high demand forecast) would likely provide a good coverage of potential benefits.

Another consideration is that modelling cases are multiplicative e.g. no. of scenarios X options analysed. Modelling is becoming more detailed and resource intensive with the need to take into account the impact of new technologies and the impacts of higher levels of intermittent generation. Having one less scenario to model can lead to a significant reduction in modelling required to apply the Investment Test.

Investment test discussion

Grid investment test – Project staging

- Transpower submitted:

  "We propose that the Commission considers clarifying the staging process to allow for expenditure forecasts to be revisited once a more thorough estimate is complete." (P+I submission p.9)

  "We are considering options for managing such risk, and how to advance long-lead time projects to match the generation build lead times. Unless these are closely aligned there is risk that new renewable generation investments will be delayed" (P+I submission p.18)

- Some discussion points and questions:
  - We will discuss project staging more generally but we have some questions regarding the issue of advancing "long-lead time projects to match the generation build lead times".
  - The 2022 Transmission Planning Report discusses generation runback schemes. Has Transpower considered runback arrangements to facilitate wider generation connections in lieu of transmission investment more generally and part of a staged investment process?
  - What, if any, issues do generator stakeholders have with runback arrangements?

There are two concerns here:

1) Under a P50 approach, early approval of costs creates significant uncertainty.

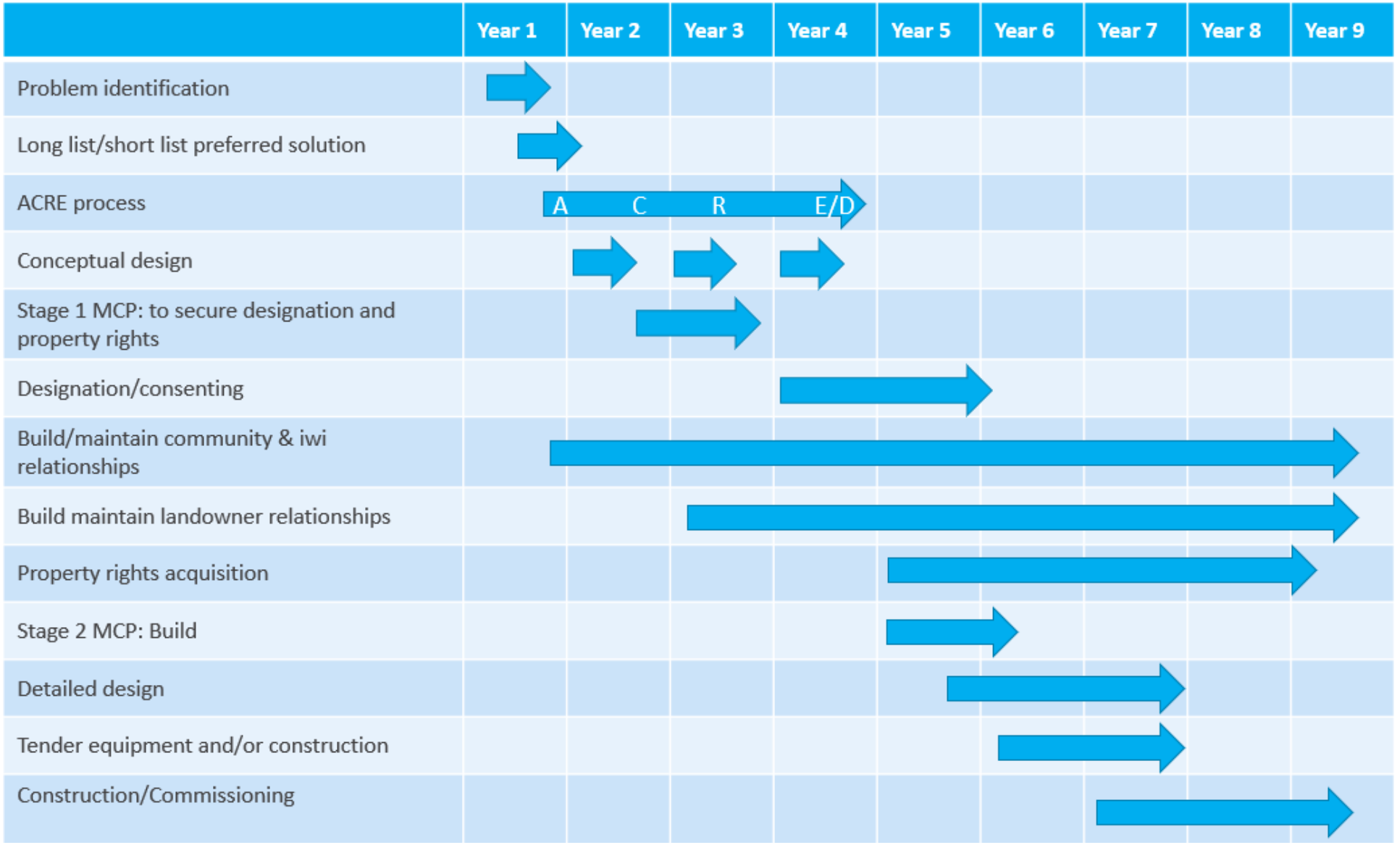
The shift to a P50 approach (although we note the introduction of low incentive rate offsets some of the risk to Transpower) has increased the time required to prepare MCP proposals by three to six months. The extra time is to get great certainty on the prices.

We propose that for certainty on how to treat highly uncertain cost areas, the Commission should consider introducing a process to better balance the risk between Transpower and consumers and speed the process up. Possible examples could be by removing incentive penalty/ rewards on expenditure up to a P90 level, or introducing an in principle decision where the final allowance could be determine by the Commission without further consultation if the cost changes are within a certain percentage of the overall project costs (and the preferred option is still net beneficial). An example of the latter is the Commission use of exempt capex for the BOB-OTA decision.

2) Long multifaceted projects (e.g. new lines) have many different stages with different implications. We are concerned that the staged process as currently articulated will not be viable for these major projects. The current clause 3.3.3(1) require "*any application by Transpower to the Commission for approval of subsequent stages of a major capex project (staged) must be made in a new major capex proposal*".

Our need is for a process where the stages of the proposal can be assessed (an approval *in principle*) but with the Major Capex Allowances (MCA) being approved at a later time to ensure that time is used to obtain better costings. The function of an "approval in principle" is to support Transpower obtaining property rights / designations (see next slide for an indication of the end-to-end process).

Indicative high-level process for a new line



- Before we can progress very far with the consenting and designation process we need a clear mandate for the need for a new line that comes from it being part of a Major Capital Project approval process.
- ACRE stands for 'Area, Corridor, Route, Easement'.
- Cost accuracy for the project improves through the whole process as more information is gained.
- Locking in an approved P50-type approved cost to early in the process exposes Transpower to high levels of risk.
- Any subsequent incentive would also likely reflect scope uncertainties in the P50 and not productive. efficiencies/inefficiencies.
- This could be addressed by:
  - Moving away from approving a P50.
  - Enabling approval of symmetric exempt capex in the MCA.
  - The ability to apply for a revised MCA.
  - A staged process for approval of the MCA/MCP with subsequent stages being significantly less onerous.

Investment test discussion

Resilience planning

- Transpower submitted:

  "….the Capex IM should be explicit that the expenditure objectives under base capex for asset replacement and refurbishment expenditure extend towards resilience expenditure." (P+I submission p.5)

  "We propose the IMs should be flexible enough for the Commission to consider uncertainty mechanisms that could range across the following areas: i. Funding for 'proactive' resilience projects" (P+I submission p.30)

- Some discussion points and questions:
  - Do stakeholders consider that the Capex IM definitions and IMs for base capex preclude the inclusion of capex for resilience?
  - The Transpower P+I submission mentions several times, that a change to a low-emissions economy and greater electrification "heightens the importance of…..resilience". Would VoLL not capture this effect?
  - The RCP2 proposal contained a pro-active resilience programme that was accepted by the Commission. Is this resilience analysis considered no longer appropriate or applicable to the present situation?

We do not believe the Capex IM precludes our inclusion of resilience expenditure. However, we do not consider the characterisation of resilience expenditure is as E&D. E&D, being lower value major capex, is demand/generation-driven investment.

Expenditure is for risk reduction and readiness to recover. Resilience expenditure may not be driven by condition or performance; or to extend economic life.

The terms asset replacement/refurbishment in the Capex IM (under base capex) are too criteria-specific to capture some resilience expenditures.

We think it is beneficial in the shifts of stakeholder attention to resilience (e.g. as a lifeline utility and expectations on both the Commission and Transpower under the National Adaption Plan) that resilience expenditure objectives can be identified. While we could get some resilience expenditure under existing base capex categories (for example, when we replace or refurbish assets, we make sure they meet the latest standards) we consider resilience is an area where we *should be* more proactive, to mitigate risks associated with major events, natural and otherwise. Climate patterns are changing, and extreme weather events are becoming more common. We also need to continue to stay abreast of the risk of cyber-attack and of the existing dangers of earthquakes and volcanic eruptions. The grid needs to change to stay resilient in this more challenging environment. A starting approach is to identify what is vulnerable/critical and consider what options are most cost-effective.

Investment test discussion

Grid investment test – minor clause issues

- Transpower submitted:

  Regarding Clause 3.2.1 "The definition should be clarified to avoid capturing ongoing programmes of work which are already consulted on via the base capex proposal." (P+I submission p. 37)

  "….determining net market benefits for programmes or projects related to reliability may not be a reasonable evaluation criterion" (P+I submission p. 37)

  "Schedule A clause A1 "general evaluation" contains a multitude of factors to have regard to that we consider are complicated to understand and apply." (P+I submission p.36)

- Some discussion points and questions:
  - We would like to discuss clause 3.2.1 further for clarification.
  - In what circumstances would a Net Market Benefits test for reliability driven programmes and projects not apply?
  - What would be more reasonable alternative evaluation criteria?
  - What factors in clause A1 should be clarified and are there reasonable alternatives to those that are considered complicated?

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Clause 3.2.1. We now propose to remove "consistency with nbt"…The NBT test is designed for mcp > $20m driven by demand and generation scenarios. The origin for the base capex clause was for reconductoring projects and their options analysis does fit with a CBA that maximised net benefits.
However many replacement investments are driven by condition (and asset management strategies) and these are a continuation of existing benefits rather than creating new / additional benefits (unless incidentally).
A "to avoid doubt" clarification that the consultation under 3.2.1 is only for discrete projects that are R&R > $20m (not programmes, as programmes are consulted and approved under the RCP proposal processes).

Clause 3.2.3 Clarification whether the "per project" approval process (listed/mcp) should be linked to the driver of project or outcomes from the project; and whether the listed project approach should account for non-grid projects?

- condition driven = listed (noting we think options analysis is currently restricted to grid projects)
- demand and generation driven = MCP

Clause 3.3.3 (1) As earlier raised (slide 8) this clause is problematic and needs to be reviewed for clarity on the intent for staging an MCP. We consider staging was not intended to be a sequence of MCPs (as clause 3.3.1(1) implies) rather that one mcp is analysed in stages for efficiency and better estimation.
The Commission's decision and reasoning (para 249) in 2018 stated **"***Staged approvals will better promote s52A(1)(b) by more effectively promoting efficiencies in delivering major capex projects. This will be achieved by:*
249.1 the Commission being able to approve a major project allowance with greater confidence in scope and cost estimates;
249.2 reducing uncertainty in timing and need date of a project; and
249.3 retaining option value to be able to respond to a changing environment.

Investment test discussion

Climate change effects – decarbonisation and sustainability

- Transpower submitted:

  "The IMs could provide greater clarity on how expenditure proposals for sustainability (opex and/or capex) will be assessed" (Better Regulation submission p.8)

  "There are several major challenges to meet these low carbon objectives within our transmission network portfolio – notably in the area of Sulphur Hexafluoride (SF6) reductions" (Better Regulation submission p.8)

  "As the single largest contributor to our total carbon footprint (5,037 tCO2e in 2019/20), we are investigating the feasibility and costs of a strategy to minimise SF6 leakage and look at alternatives to SF6. However, such a strategy will require investment in alternative technologies that will come at a higher cost" (Better Regulation submission p.9)

- Some discussion points and questions:
  - How could the IMs be amended to incorporate sustainability effects and provide greater clarity on expenditure proposals for sustainability?
  - What does the future of sustainability look like for Transpower's network, and how should this be addressed in the IMs? e.g., ETS, alternative technologies to SF6.

We consider sustainability expenditure is not an "investment test" issue.

The clarity we were seeking, and it may not need to be in the Capex IM itself, is how the Commission will consider investments where it is difficult to justify on a purely economic basis, but which our customers/ consumers may support.

For example, it is difficult on an economic CBA to evaluate biodiversity gains, however we consider there is a desire from consumers for improvements in our environmental outcomes.