# Assessing options for deeper or shallower connection pricing

TPAG Secretariat

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# Overview

1. Possible market/regulatory failures or efficiency gains
2. Alternative options
3. Assessment of options (efficiency considerations) relative to Status Quo
4. Reasons behind ‘no firm recommendation’

# 1. Market/regulatory failures or **efficiency gains**

## Current arrangements

- ‘Deep’ connection definition

## Possible inefficiencies

- Costs arising from boundary issues
- Possible efficiency gain if a deeper definition can signal benefits of deferral of reliability driven transmission investments

# Costs associated with current definition

- Current connection charges are around 20% of total AC charges = $122m/yr – approx $100m relate to shallow and $22m relate to ‘deep’ connection assets.
- Some costs could be saved by avoiding debate over the distinction between ‘deep’ connection and inter-connection assets where this relates to the allocation of costs between customers rather efficiency gains.

# Potential benefits in deferring reliability investments

- ≈$300m NPV of uncommitted reliability investments
- Updated SOO scenarios have around 30% of peak demand from ‘locate-able’ DSM(18%) and peakers(13%)
- Much of this DSM & embedded peaking generation is already incentivised via RCPD pricing.
- Up to $30-60m NPV gain if grid connected peakers can be located to defer 10-20% reliability transmission.
- Some of this may be obtained via the transmission alternatives regime. Up to $15-40m gain from incentives provided by “deeper” connection pricing methodologies?

# Summarising possible inefficiencies (CAP2)

TPAG agreed:

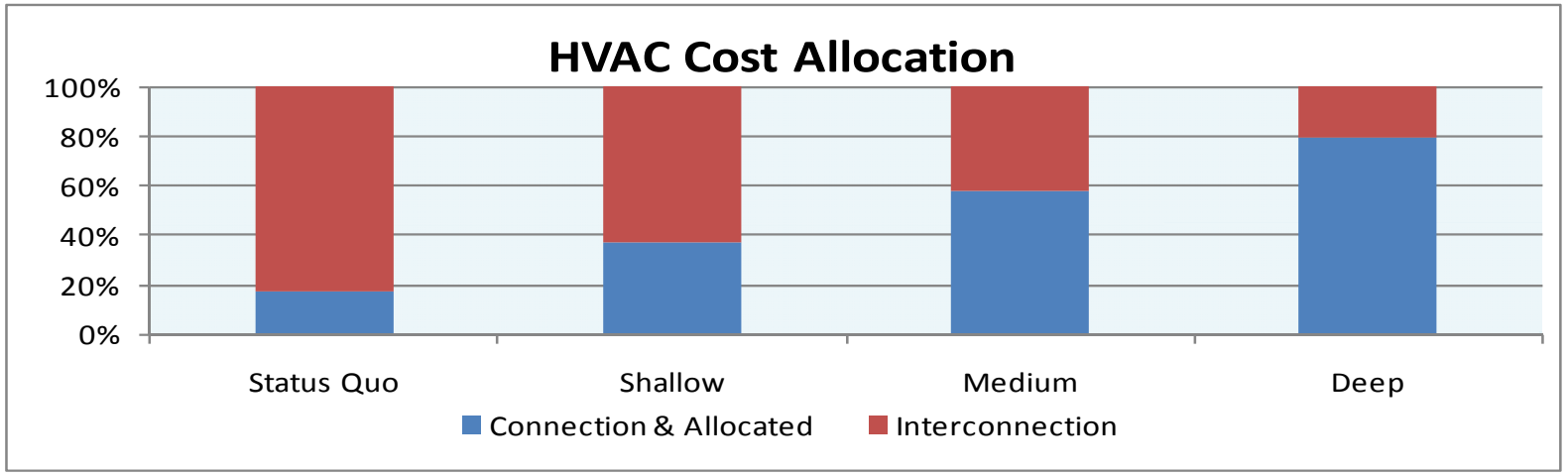
- The potential efficiency gain from ‘deeper’ definitions depends on the operation of the Commerce Commission’s (CC) investments approval process.
- Progressing work further requires close coordination between the CC and EA.
- Analysis provided to EA.

# 2: Alternative options assessed

| Options | Detail |
|---|---|
| Status Quo | Direct connection assets (shallow) and connection assets 'required' by customers (deep). |
| Shallow Definition | Revert to directly connected assets only. |
| Flow Trace | Allocate shares of transmission assets to offtakes according to a flow tracing algorithm with a cut-off threshold. |
| 'But-For' | One-off identification of the beneficiaries of new deep connection assets when these are approved under the grid investment process. |

# Flow Trace Option

- Approach has been prototyped by the EA – appears feasible
- Would apply to offtakes only.
- The cut-off threshold can be shallow, medium or deep.



# ‘But-for’ Option

- Would only apply to new assets when approved by CC.
- Little work has been done on this option.
- Could use flow-trace to help identify offtake beneficiaries.
- Would require guidelines e.g.
  - Investment cost thresholds
  - Definition of ‘new’ assets
  - Procedures to estimate beneficiary shares

# 3: Assessment of options

| Efficiency considerations | One line summary |
|---|---|
| 1. Beneficiary pays | Deeper options extend beneficiary pays approach |
| 2. Locational price signalling | Deeper options increase ex-ante price signals – incentivise participation in new investment decision making |
| 3. Unintended efficiency impacts | Shallow option reduces these, deeper options may increase these |
| 4. Competitive neutrality | Not assessed / all largely neutral |
| 5. Implementation, operating costs | Deeper options have significant costs |
| 6. Good regulatory practice | Significant wealth transfers for some, potential for disputes with deeper options |

# Summary: Relative to Status Quo (NPV)

| | Shallow | Flow Trace | 'But-for' |
|---|---|---|---|
| Locational pricing | negative | Up to $15-40m | Up to $15-40m |
| Costs | | Negative $12-10m | Negative $5-15m |
| Beneficiary pays | Less | More – usage proxy | More for new investment |
| Unintended impacts | Less | More? | More? |
| Good Regulation | | Some disputes<br>±$10/MWh price impacts | Co-ord with CC<br>More disputes<br>±$5/MWh price impacts |

# Conclusions

- No firm recommendation as this would require close coordination with the CC:
  - The incremental benefits from flow trace and ‘But-for’ would be low if the Transmission Alternatives regime being considered by CC proves to be effective.
  - ‘But-for’ would require development of guidelines coordinated with the CC investment approval process.
  - Incentives effects depend on CC treatment of costs in regulation of distribution prices.

# ADDITIONAL SLIDES

# Beneficiary pays

| Option | Change relative to status quo |
|---|---|
| Shallow | Allocates fewer assets to beneficiaries than status quo. |
| Flow tracing | Allocates more assets (new and old), 'usage' proxy for benefit, formulaic approach – less costly and may be reasonable for offtakes if not too deep, but still scope for disputes. |
| 'But-for' | Allocates more new assets, linked to investment approval, case by case assessment of beneficiaries – costly and debatable. Issues concerning different treatment of 'old' versus 'new' |

# Locational Pricing

| Option | Change relative to status quo |
|---|---|
| Shallow | Provides a weaker locational signal. |
| Flow tracing | Provides strong ex-ante signals, depending on the threshold. e.g. NIGUP and NAaN investments would have increased transmission charges to upper North offtakes by $14 to $27/MWh with medium or deep threshold. Strong incentive to provide good information to CC investment approval and to encourage transmission alternatives to delay or avoid investment if possible and cheaper. |
| 'But-for' | Provides strong ex-ante signal for new investment, similar to Flow Tracing. |

# Unintended impacts

| Option | Change relative to status quo |
|---|---|
| Shallow | Will reduce perverse incentives on customers to avoid deep connection costs. |
| Flow tracing | Incentives to restructure to change cut-off threshold. Some offtake customers may have incentives to spend resources to influence load or generator behaviour simply to reallocate cost shares. |
| 'But-for' | Strong incentives to dispute the identification of new assets and beneficiaries simply to reduce assigned asset shares. This may delay investments. This delay and the disputes will involve some economic cost. |

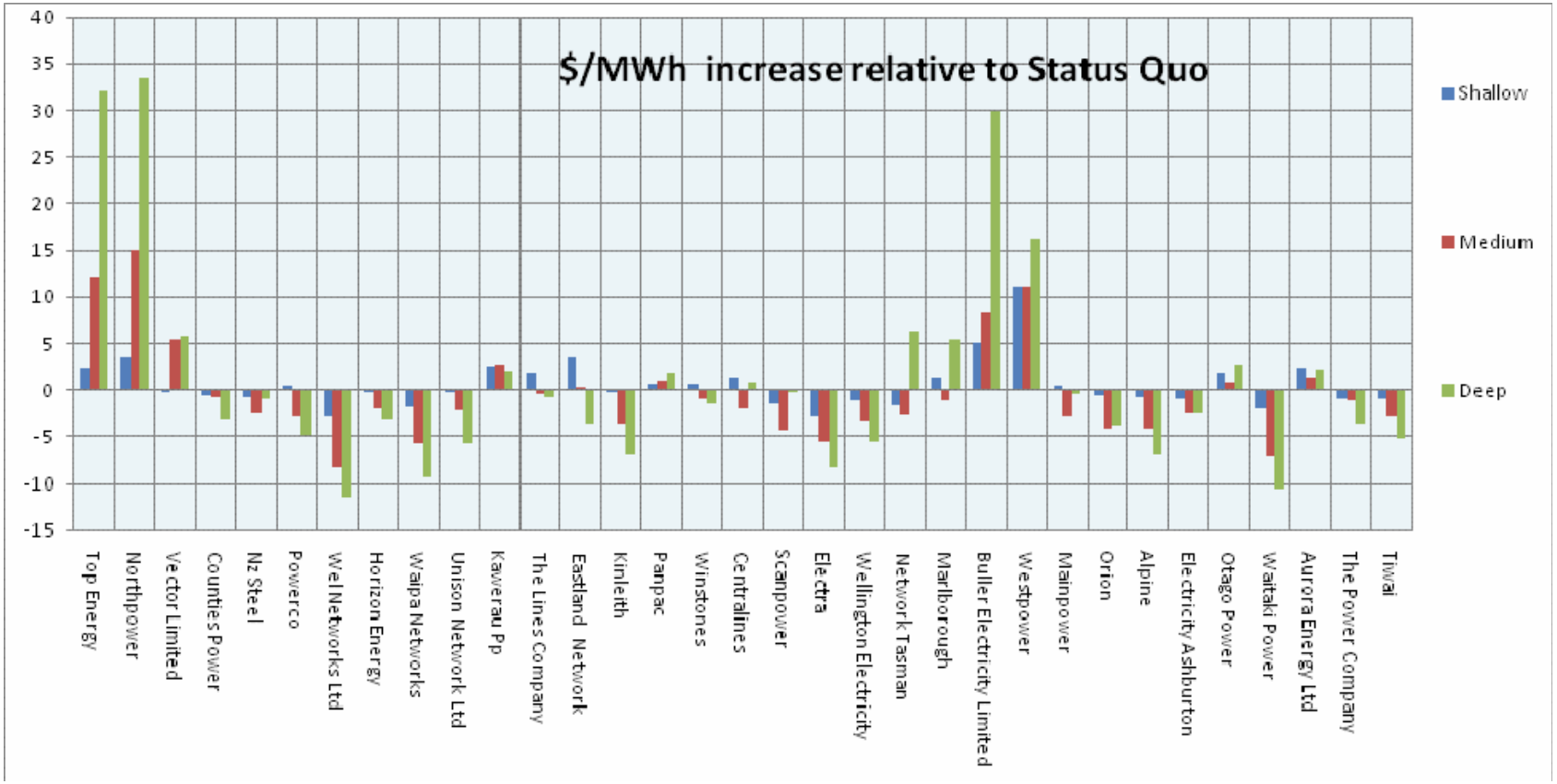
# Implementation and Operating Costs

| Option | Change relative to status quo |
|---|---|
| Shallow | Low or negligible implementation costs, and possible lower operating costs. |
| Flow tracing | Process and software development and testing cost $2-4m and $1m per year (admin, mtce, audit, data processing, disputes etc). Indicative cost $10-$12m NPV. |
| 'But-for' | Cost of identifying beneficiary shares and administering the cost allocations. This could be several millions per annum depending on the number of new investments and disputes that might arise. Indicative cost $5-$15m NPV. |

# Good regulatory practice

| Option | Change relative to status quo |
|---|---|
| Shallow | Minor wealth transfers |
| Flow tracing | Durability issues if prices are unstable - bigger problem if deeper.<br>Flow tracing can be applied relatively consistently.<br>Could be substantial wealth transfers for some customers – bigger problem if deeper. |
| 'But-for' | Will need to be coordinated with the Commerce Commission.<br>Durability issues if there are disputes over beneficiary shares.<br>Consistency issues – different treatment of new versus old.<br>Could be substantial wealth transfers for some customers. |

# Price step changes



# Price Stability