meridian

28 October 2014

Submissions
Electricity Authority
By email: submissions@ea.govt.nz

Transmission Pricing Methodology Review: Problem definition

Meridian welcomes the opportunity to provide feedback on the Electricity Authority's "Problem definition relating to interconnection and HVDC assets" working paper dated 16 September 2014. Responses to specific questions are appended to this letter.

Meridian supports the Authority's elaboration of the problem definition in this working paper. The core problems identified in the 2012 Issues paper remain. In particular, we agree that three principal problems are:

(a) The HVDC and interconnection charges fail to promote efficient investment in transmission, generation and distribution, and load.
(b) The current TPM is not durable, creating uncertainty for investors and therefore inefficient investment.
(c) The HVDC and interconnection charges fail to promote efficient operation of the electricity industry.

The discriminatory treatment of the HVDC assets is one of the key contributions to these problems and must finally be addressed.

Meridian has paid around $500 million in HVDC charges over the last 10 years alone. The disconnection between this cost and the benefit Meridian receives has underpinned Meridian's constant challenge of the TPM.

Transmission costs are material and require a robust allocation approach

The TPM has been under constant review for nearly 20 years. The current review by the Authority is perhaps the most detailed examination of the way the costs of shared transmission assets – currently around $800m per annum – are allocated since the electricity market was established in 1996. As discussed in Meridian's answer to Question 11, the methodology, and in particular the treatment of the HVDC assets, has been highly contentious though out this period (see Appendix 1 for a timeline).

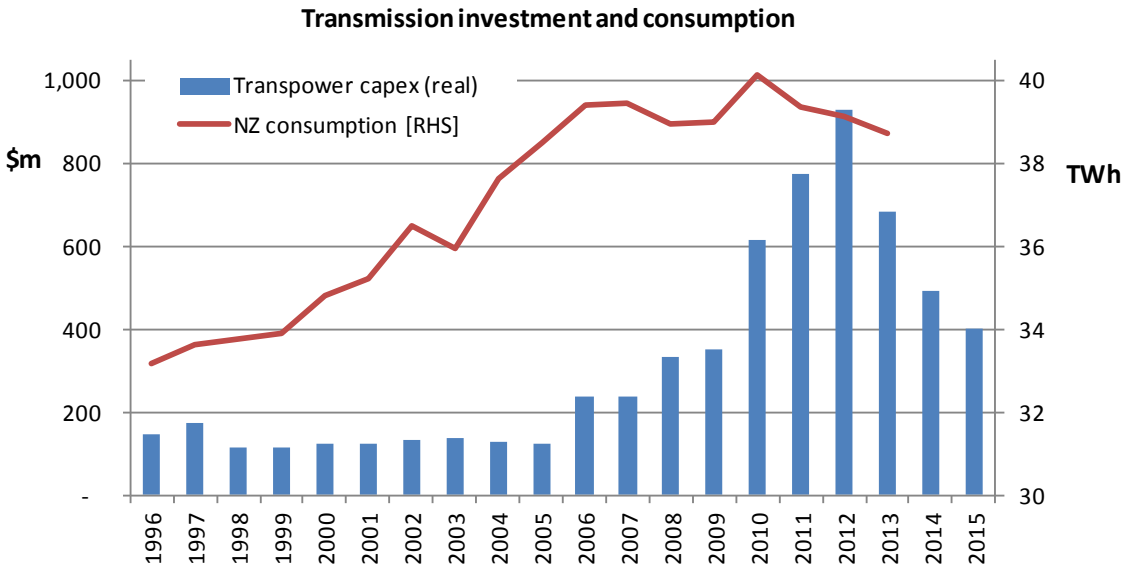
HVDC charging arrangements are of specific concern to Meridian because they:

- Have detrimental effects on incentives for generation investment and operation, and subsequent HVDC investment to meet changes in demand and supply (both up and down).

- Lack durability due to the arbitrary distinction between HVDC and HVAC assets and the full allocation of HVDC costs to South Island generators being materially out of line with benefits.

Meridian Energy Limited
Level 1, 33 Customhouse Quay
PO Box 10-840
Wellington 6143
New Zealand
Phone +64-4 381 1200
Fax +64-4 381 1272
www.meridianenergy.co.nz

The Authority has shown the allocation of interconnection charges also has problems, and we agree. Whereas these may have been relatively low for some time, due to recent investments by Transpower, the costs for many parties have increased materially, as illustrated by the figure below.



Demand has flattened yet transmission investment costs have increased materially from historic levels[1]. A similar level of demand is paying considerably more for transmission. Setting aside the merits of those investments, the fact is that transmission costs have increased. When these costs are, or become material, the calculation methodology comes under scrutiny. And when it does not hold up, the durability is challenged. Making tweaks to the existing TPM will not address these valid concerns about durability.

The case for change is compelling

Meridian supports a change from the current TPM to address the material efficiency and durability problems raised by the Authority. In simple terms, the methodology is not sustainable because costs to some participants are out of line with any reasonable estimate of the associated benefit (current or potential). For example:

- The Authority's modelling work on beneficiaries of Poles 2 and 3 of the HVDC link shows this clearly. South Island generators are being charged the full cost of the link, yet these costs are completely out of line with the benefits received. The Authority has shown that around 75% of the benefit of Pole 3 goes to consumers[2]; yet this is equivalent to the cost Meridian pays as a generator. This is not a sustainable outcome, and nor would be an approach where the total costs of the HVDC link were arbitrarily allocated to North Island generators (since they benefit from it, as the Authority's analysis has shown) because those costs would be materially out of line with their private benefits. Either option is not durable.

- While few expect any new large scale generation will be commissioned over the next few years, the revised TPM needs to work for far longer than that and be adaptable to changes in demand and supply. Large and sudden changes in supply

[1] Transpower capex data estimated from Transpower material (includes $672m Pole 3 costs). Consumption data from MBIE.
[2] Table 4 in Appendix E of the Authority's 2012 Issues paper.

and demand can occur with relatively little notice. The System Operator's annual security assessment provides the evidence for this, with new supply being required before the end of the decade[3]. Given the multi-year timeframes required for investigating, consenting, and constructing plant, the TPM will be impacting on those considerations right now.

- The Authority is developing national markets in frequency keeping and instantaneous reserves. The HVDC will facilitate those markets by operating in a different mode enabled by the recent investment in Pole 3 and the associated control systems[4]. That investment will allow competition between participants in both islands with the resulting multi-million dollar efficiency gains[5] to benefit consumers. Yet the HVDC costs are fully allocated to South Island generators.

Fairness is a core attribute of durability

If you get a group of people in a room to discuss how an unavoidable and large cost should be allocated between them, one of the first concepts discussed will be "fairness". Meridian considers that the TPM must be perceived to be fair and reasonable to be durable. While any participant will naturally prefer to pay less rather than more, a methodology that is fair and reasonable is much more likely to be durable. A simple thought experiment is to ask whether the separate treatment of HVDC would be considered reasonable if participants in the industry did not know in advance which subset of participants the charges would be levied on (i.e., applying a "veil of ignorance"). In our view, it is clear that the current treatment of HVDC charges would not be seen as fair or reasonable on this approach. It is equally clear that load in the South Island does not presently or proportionally benefit from reliability investments in the North Island.

There are options which can address these problems, and we look forward to considering those in more detail in the EA's next paper in 2015.

Please contact me if you have any questions regarding this submission.

Yours sincerely,

Dr Andrew Kerr
Regulatory Affairs Manager

DDI **04 382 7411**
Mobile **021 443 059**
Email **andrew.kerr@meridianenergy.co.nz**

[3] Page 7 in the System Operator's 2014 Annual Security Assessment.

[4] The System Operator's technical report (https://www.systemoperator.co.nz/sites/default/files/bulk-upload/documents/FKC%20Trial%20Report.pdf) notes there are benefits to the market from the new technology and that it "clearly benefits the quality and stability of grid frequency".

[5] See for example the estimated $101m benefit from the national frequency keeping market discussed here: https://www.ea.govt.nz/dmsdocument/18216

	Submitter questions	Meridian response
1.	Do you agree that, in relation to decisions around transmission pricing, the Authority should focus on overall efficiency of the electricity industry for the long-term benefit of electricity consumers? Why or why not?	Yes. Meridian agrees that the three limbs of the Authority's statutory objective (to promote competition in, reliable supply by and the efficient operation of, the electricity industry) are all ultimately about the promotion of efficiency for the long-term benefit of consumers and can be summarised by the umbrella term "overall efficiency".[6] This approach is consistent with the Authority's past reasoning in interpreting its statutory objective,[7] and in applying it to the TPM review.[8] Meridian also agrees with the Authority's proposal that the candidate TPM methodologies are reviewed directly against the statutory objective in the forthcoming second issues paper.[9]
2.	Do you agree with the Authority's view on what constitutes an efficient charge? What role do you consider durability plays in determining efficient charges? Please explain your answers.	Meridian agrees with the Authority that an efficient charge is one that will: • facilitate efficient investment, and promote dynamic efficiency ; • is durable, and promote efficiency generally; and • facilitates efficient operation, and thus promotes allocative and productive efficiency. Meridian considers that the description of an efficient charge would benefit from a closer consideration of the context of that charge, including: - Transpower's entitlement to recover the costs of existing assets (regardless of forward-looking costs); - The nature of the transmission grid as a platform connecting users and generators of electricity; - Load's different preferences for reliable supply and competition between suppliers, compared to generation; - The existence of nodal pricing as a signalling mechanism. Meridian also considers that the description should expressly prioritise dynamic efficiency over productive and allocative efficiency. This will ensure efficiency gains with the biggest impact on welfare over the long-term are targeted. The working paper reflects this view at paragraph 5.12: the Authority's overarching statutory objective "requires it to focus on the longer term, and thus provides for a preference for efficient investment, and dynamic efficiency." Meridian believes that clarification is desirable, as currently paragraph 5.17 appears to give equal weight to allocative and productive efficiency. Meridian supports the express reference to durability as a necessary requirement for an efficient charge.[10] Durability is important to dynamic efficiency in an industry where investments are (to a material degree) sunk and recovered over a long timeframe. Overall, Meridian's main concerns around transmission pricing are to: (i) Have a durable methodology to facilitate dynamic efficiency, in terms of efficient investment within the electricity industry and attract business investment in New Zealand (especially for sectors using large quantities of electricity)[11]; and (ii) Remove the arbitrary distinction between the HVDC and other interconnection assets.

[6] Meridian's submissions on DME Framework for TPM Review, 24 February 2012 (Meridian's subs DME) at para 47: Here, Meridian agrees with the Authority's statement that "ultimately, each limb of the statutory objective is about the promotion of efficiency to achieve the long-term benefit of consumers" (DME, para 3.4).
[7] Interpretation of the Authority's statutory objective – final version, 14 February 2012 (Interpretation paper).
[8] Decision-making economic framework for TPM review, 26 January 2012 (DME paper).
[9] TPM: Problem definition relating to the interconnection and HVDC assets, 16 September 2014 (PD paper), para 4.5.
[10] Meridian's subs DME, para 49.
[11] Meridian's subs Issues paper, para 102.2(b); see also Meridian's subs DME, para 51: Meridian believes that there is a close relationship between efficiency and fairness in the regulatory context. Meridian's submissions on Proposed TPM 2 February 2007.

	Submitter questions	Meridian response
3.	Do you agree with the Authority's revised position on the problem definition, described above? Please explain your answers.	Meridian understands that the Authority's revised position, outlined at paragraph 7.6, responds to specific submitter concerns with the October 2012 issues paper that: • problems were not clearly identified with the current TPM (or that the scale of identified problems did not warrant change); • a clear link was not shown between problems and solutions; and • the problem definition needed to be robust and should represent a material change in circumstances to justify change. In restating the objective of efficiency and identifying characteristics of a transmission charge that promotes efficiency, the Authority has identified three principal problems with the current TPM:[12] (a) The HVDC and interconnection charges fail to promote efficient investment in transmission, generation, distribution and by load; (b) The current TPM is not durable, creating uncertainty for investors and therefore inefficient investment; and (c) The HVDC and interconnection charges fail to promote efficient operation of the electricity industry. Meridian agrees with this summary – and believes that it helps to clarify the problems with the TPM. Meridian would also add that efficiency and durability issues in relation to the HVDC charge is the chief contributor to these problems.
4.	To supplement information already provided by Transpower, do you have any comments on the steps taken by Transpower or by other parties after approval of the NAaN, NIGU, and other investments such as the LSI Reliability Upgrade investments, to review whether it might have been efficient to postpone elements of them?	The LSI upgrade has had a deferral process which is linked to the nature of the assumptions which drive it. The upgrade consists of multiple upgrades, and some of those upgrades would increase the transfer capability out of the lower South Island. However, additional surplus energy from the current state would only arise if there is a material reduction in lower South Island load at Tiwai or increase in generation. Given the nature of this uncertainty, Transpower has delayed several of the upgrades[13]. Meridian supports the process Transpower has followed. While deferral may not be in Meridian's private interests, from a national cost benefit perspective, the investment should only proceed when there is a case to do so.
5.	To what extent do current interconnection charges promote efficient timing of investments? Please explain response.	Meridian considers that the current TPM may tend to result in transmission investments being made earlier than would be optimal. Meridian notes that once an investment is approved, Transpower does not benefit from delay even if circumstances or information changes. A consumer's incentive to propose a deferral will depend on their private costs and benefits.
6.	To what extent do you consider participant support for transmission investments takes into account the cost implications for them and other parties? To what extent do you consider the efforts made by participants to provide relevant information on transmission investments take into account the cost implications for them and other parties?	Meridian considers that parties generally take into account their private costs and benefits in supporting or opposing transmission investments (and in deciding whether or not to take part in investment decision-making processes). This is clear from the tables in Appendix C. In addition to the narrow private costs and benefits of the investment, participants will also consider: - transaction costs of making a submission; - the extent to which they expect to be able to influence the decision; - implications for their customers; and - the risk that suboptimal outcomes will challenge the durability of the regime. In other words, there may be somewhat more alignment with social costs/benefits than a narrow focus on private costs/benefits might suggest.
7.	Do you agree that the Kawerau investment proposal described is an example of an inefficient investment resulting from the TPM? Please explain your answer.	Based on the evidence, yes. Even if the facts are disputed, it is a useful example of the commercial actions that cost avoidance can drive.

[12] Problem definition Working paper, para 1.12

[13] See the timeline of events here https://www.transpower.co.nz/projects/clutha-upper-waitaki-lines-project

	Submitter questions	Meridian response
8.	Do you consider that current TPM can incentivise parties to prefer interconnection assets over connection assets or building and owning their own assets (by which they will be required to pay a higher portion of transmission costs)? Please explain your answer and provide any examples you may have.	Meridian agrees with this statement: if participants can externalise/share costs with other participants, we would expect them to. Conversely, however, HVDC and interconnection charges can promote embedding generation when it would otherwise not be pursued. Meridian's White Hill wind farm is embedded. Meridian's 60-70MW Hurunui wind farm was consented in 2013 and would be embedded, avoiding HVDC charges under the current TPM. However, the size (MW) of that wind farm has been limited by the decision to embed it i.e., the design may not make the best use of the wind resource, but does optimise the economics of the site given the transmission cost signals in place.
9.	Do you agree that the TPM can materially impact investment efficiency? Please explain why or why not.	Meridian notes that the incentive for participants to support or oppose transmission investments is not determinative, because the proposed investments must still pass the grid investment test. Thus, it is a question of degree whether "better" transmission investments might occur (in an ex ante sense) with a revised TPM.
10.	Do you agree that cross-subsidisation of TPM costs between consumers is an important consideration when considering the durability of TPM charges?	Meridian has consistently held the view that in order for the TPM to be durable, transmission pricing charges should be allocated based upon who actually benefits from transmission to the greatest extent practicable. The Authority correctly notes that cross-subsidisation "is likely to result in ongoing debate and lobbying".[14] While this is most visible in relation to the HVDC charge, it is also apparent with concerns from large industrial loads that the allocation mechanism is out of line with the benefit they receive. As the level of the charge has become material, the mechanism for calculating those charges needs to be robust and pass the "reasonable" test. We take consumers to mean load only, and note that cross subsidisation can occur with or without differential prices. A perception of unreasonableness, whether due to a lack of definable relative cost or benefit rationale, will raise durability issues. The EA is correct to raise this as an issue in respect of the HVDC. Because the grid is a platform, as the EA notes, load and North Island generators also benefit from the HVDC at times. It also occurs with interconnection costs.
11.	Do you consider that the current TPM is durable? Why or why not?	In Meridian's view, the current TPM is not durable; particularly in relation to the HVDC change. In relation to the Working Paper's three "attributes" of a durable TPM charge,[15] Meridian comments that: (a) It can be applied objectively: In order for a charge to be applied objectively, it must be grounded in robust factual analysis. The methodology to allocate HVDC costs has never been grounded in fact: the Electricity Commission asserted that SI generators were the main users of the link and therefore should pay.[16] The Authority now acknowledges that this assertion was based on little rigorous analysis and has accepted that the HVDC and the HVAC perform essentially the same functions.[17] Moreover, the benefits of the HVDC link are not limited to SI generators. Consumers in both the North and the South Island also receive private benefits,[18] and, importantly, these benefits are in excess to those received by SI generators.[19] (b) Adaptable to changing patterns of grid use: the Working Paper specifically acknowledges that the current HVDC change is not durable in this respect because it fails to take into account changing patterns of grid use.[20] Meridian agrees. In particular, there has been an increase in North to South electricity flows, and these have been significant during periods of low hydrology.[21] (c) Avoidance of perverse outcomes: the Authority defines a perverse outcome in terms of cross-subsidisation. The Working Paper makes it clear that the authority is of the opinion that it is unfair for transmission customers to "free-ride" on the benefits of transmission assets, without

[14] Working Paper, at 10.11.
[15] TPM problem definition paper, para 10.2.
[16] Meridian's Submission on Proposed TPM2 February 2007, page 3.
[17] Meridian's subs Issues paper, para 102.1. A thorough analysis of the similarities and asserted differences between the HVDC and HVAC charges can be found at para 70-87 of this submission.
[18] Problem definition paper, para 10.8.
[19] The Authority analysed the private benefit from the HVDC pole 3 for the period 1 July 2010 – 30 June 2012 using the SPD Method. They found that the spread of benefits for this period was $75.2% to load and 24.8% to generation: Electricity Authority *TPM Presentation for Issues Paper Release* (10 October 2012).
[20] Working Paper, para 10.2(b).
[21] Meridian's subs Issues paper, para 81.

	Submitter questions	Meridian response
		full payment for their costs. For those parties that bear a disproportionate amount of the cost for a transmission assets, in relation to the benefit they receive, the incentive to lobby shall remain. Meridian reiterates that in relation to cross subsidisation, the detriment to SI generators has been greater than any known detriment to interconnection customers, as a result of the current interconnection charge. A TPM that avoids "perverse outcomes" will result in substantial gains from avoided disputation costs.[22] In relation to durability, Meridian also considers that the TPM must be fair and perceived to be reasonable. While any participant will naturally prefer to pay less rather than more, a methodology that is fair and reasonable is much more likely to be durable. A simple thought experiment is to ask whether the separate treatment of HVDC would be considered fair if participants in the industry did not know in advance who the charges would be levied on (that is, applying the Rawlsian "veil of ignorance"). In our view, it is clear that the current treatment of HVDC charges would not be seen as fair or reasonable on this approach. The arbitrary distinction between charging for HVDC assets and all other interconnection charges is a fundamental problem with regard to the durability of the HVDC,[23] and means that there has been a considerable push for change over a considerable period of time.[24] Meridian outlined a chronology of the HVDC charge dispute in its submissions to the 2005 Issues paper. The following summarises this chronology, and updates it to the present day: • 1996: The electricity market was established and Transpower attempted to impose new pricing methods on generators and other customers (including a separate charge allocating 100% of HVDC costs to SI generators). • Negotiations resulted in contractually agreed transmission charges between Contact and Transpower; and ECNZ and Transpower (with no separate HVDC element). • 1998: The ECNZ split into 3 companies re-sparked the HVDC dispute, because the Electricity Reform Transmission Unit (responsible for facilitating the split) refused to accept separate HVDC charges. A HoA to reach agreement by 1999 was signed. • 1999: No agreement reached. Transpower introduced three distinct charges: connection, interconnection and the HVDC. • Transpower attempted to impose "posted terms" on Meridian, including imposing the separate HVDC charge on all SI generators. • Meridian contested liability under the posted terms: Transpower issued proceedings, and was unsuccessful. • 2001: Government implemented a transitional regime by legislating the posted terms. This was a transitional arrangement, to continue for 2 years, with a 6 month extension, or until a new TPM was reached by the new EC. • Importantly, in imposing the transitional obligation to pay, the Government did not endorse Transpower's TPM. • August 2001: The Electricity Amendment Act enabled Transpower to enforce payment obligations under its posted terms. This scheme was expressly transitional. • July 2003: The transitional period was extended due to the expiry of the 2 year period prior to any decision re TPM. • April 2004: Further extension under the Electricity (Transpower's Pricing Methodology) Regulations 2004/05. • 2005: The Commissions Statement of Reasons outlined the framework underpinning its TPM. The Commission decided that there are exceptions to its conclusion that existing investments should be treated in the same way as new investments, and that "regulatory certainty concerns" justified the differential treatment of HVDC assets from other interconnection assets. [25] • 2005: Judicial review addressing the Commission's "regulatory certainty exception". In *Contact Energy Limited and Meridian Energy Limited v Electricity Commission and Transpower New Zealand Limited*, CIV-2005-485-62, MacKenzie J noted that the "regulatory exception concern" was not based on fact. Mackenzie J set aside the 2005 Guidelines and directed the Commission to reconsider the HVDC charge, taking into account the history of the matter; the circumstances in which the current legislation fixing

[22] Above, para 112.
[23] Meridian's subs Issues paper, para 102.2.
[24] Meridian's subs DME, para 50.
[25] Meridian's subs 2005 Issues Paper, para 37.

	Submitter questions	Meridian response
		methodology came to be enacted (including its transitional nature); and whether there has been investment decisions made in circumstances where investors might reasonably have expected that the current HVDC method would remain in place.[26] • 11 November 2005: The Commission published a second issues paper, setting out its reconsideration of the HVDC guidelines, and calling for submissions. • 12 December 2005: Meridian submission on the 2005 Issues Paper notes that the disputed history shows there has been no status quo positon whereby the HVDC charge could reasonably have been understood as "settled":[27] – SI generator's always disputed the validity of a separate HVDC charge; – SI generators have only paid a separate change since 2001; and – The transitional arrangements were only meant to operate on an interim basis. • Early March 2006: The Commission completed its consideration of submissions. • 24 March 2006: Following the reconsideration of the Guidelines relating the HVDC link and publishing new guidelines, the Commission wrote to Transpower conforming that the process for approving TPM continued to be appropriate. • 22 June 2006: Transpower submitted the Proposed TPM and supplementary material to the Commission. • August 2006: The Commission revisited the issue of consultation on and implementation dates for the Proposed TPM and for its related Benchmark Agreement and Interconnection Rules Proposals. Consultation closed on 10 August 2012. • November 2006: the Commission published the Proposed TPM and its Consultation paper (calling for submissions). • 2 February 2007: Meridian submitted a paper responding to the Proposed TPM: – The submission notes that the proposal will not ameliorate the inconsistent treatment of HVDC assets. – Meridian outlines the similarities between the HVDC and interconnection assets. – Meridian discusses the inconsistent reasoning of the Commission in relation to the HVDC charge: The Commission stated that the HVDC is an interconnection asset; and that any new investment in the HVDC should be determined by an economic benefit assessment approach. Despite these finding – the status quo persisted: p 3. – The approach is inconsistent with government policy on renewable energy security of supply: pages 7 and 9. • 11 April 2007: The Commission completes its "Summary of submissions and provisional response paper" on the proposed TPM. This paper provided the Authority's provisional response to key issues identified in the consultation paper, including the proposed amendments to the TPM. Interested parties had the opportunity to comment on this paper. • 26 April 2007: Public conference on the TPM review. • June-September 2007: the Commission approved for publication the final Decision Paper, including the Draft TPM. The paper records the Commission's final decision on the TPM, following its consideration of submissions, cross-submissions and presentations at the public conference held on 26 April 2007. • 1 September 2007: TPM rules came into force as a schedule to the Electricity Governance Rules, with the new TPM being effective from 1 April 2008. • 9 October 2009: The Commission commenced the current review of the TPM. The initial review process included an analysis of the inefficiencies created by the HVDC charge.[28] • 16 February 2011: Code Amendment Proposal: Regulatory framework for TPM. • January 2011: The Commission established an ad-hoc advisory group – TPAG, to recommend a preferred transmission pricing option. • 7 June 2011: TPGA published a Transmission pricing discussion paper for consultation. This paper focuses on providing alternative options for the allocation of the HVDC change, in light of TPAG's finding that the current allocation of this change, solely to South Island generators, is an issue central

[26] Above, para 43.
[27] Above, para 53.
[28] Transmission Pricing Review Stage 2 Options: Consultation Paper, Appendix 4: HVDC charge analysis to support Transmission Pricing Review, July 2010.

	Submitter questions	Meridian response
		to the durability of the transmission pricing regime. • 29 June 2011: TPAG public briefing on their analysis, in advance to participants finalising their submissions to the discussion paper. • 26 January 2012: Decision-making and economic framework for transmission pricing methodology review consultation paper. • 10 October 2012: Issues and proposal paper. • 2013-2014: Following the October 2012 issues paper, the Authority has published a number of working papers, seeking submissions: - 3 September 2013: CBA working paper; - 8 October 2013: Sunk costs working paper; - 5 March 2014: Use of loss and constrains excess (LCE) to offset transmission charges working paper; - 17 March 2014: Beneficiary-pays working paper; - 13 May 2014: Connection charges working paper; - 29 July 2014: LRMC charges working paper; and - 16 September 2014: TPM Problem definition relating to HVDC assets.
12.	Do you agree that the examples provided above are examples of a durability problem? Please explain your response.	Yes. Changes in costs are not aligned with changes in benefit. This is not a reasonable or sustainable approach to the allocation of Transpower's costs.
13.	If you consider there to be a durability problem, do you know of any further examples of durability problems with the TPM? If so, please describe. Please also estimate the costs that you have incurred in relation to submissions on the TPM for as far in the past as you are able to provide (ie in relation to current and previous TPMs).	In terms of a cost estimate, one approach would be to estimate the number of person-hours spent by the industry on TPM matters over the last decade. Reaching a ballpark estimate could be done by: • Calculating the total number of pages of "key documents" (consultation drafts, regulatory decisions, Court decisions, etc) (say 5,000); • Estimating the number people involved in the industry who will have read and engaged with the material in the industry (say 200); • Estimating the rate (pages/hour) for reading and digesting this material (say 20 pages per hour); and • Using a multiplier to capture the time spent researching, responding, reading other parties' responses etc (say 10x). This would produce a ballpark figure of 5,000 x 200 / 20 x 10 = 500,000 hours over the decade, or 50,000 hours/pa. Turning this into a dollar figure one could multiply be a blended rate of say $100/hour. This produces an estimate of $5m pa in industry costs for dealing with an unsustainable TPM. This does not include the costs to the regulator or legal challenge.
14.	Do you agree that durability is a particularly difficult problem to measure? Please explain why or why not. Are you aware of an appropriate methodology for measuring durability? If so, please provide details of that methodology.	We do not consider that the durability problem is hard to measure or to estimate in relation to the current TPM and the treatment of the HVDC asset. We consider that it would be helpful for the Authority to consider different charging regimes that have proven durable over time (in terms of structure, even if the level of charges have varied and/or been controversial) for infrastructure assets (and particularly platforms between different customers). Examples may include postal charges, telecommunications, state highway funding, airport landing fees, taxes etc. The common features seem to be: - relatively simple and transparent structures; - common prices for access, but with some differentiation according to costs and benefits (eg standard versus fast post, MCTOW at airports); and - no arbitrary treatment of particular customers / assets within the infrastructure.
15.	Do you consider that the RCPD allocation provides an efficient signal of the need for load shedding at coincident peak times? Do you agree with the Authority's estimate of the possible efficiency effects?	It depends on capacity of cable in question and elasticity of demand (reflecting competing responses to investment in interconnection), consistent with the EA's own analysis. So if capacity is constrained, then the RCPD methodology may be efficient. But if capacity is not constrained (at peak), then it is inefficient to signal load reductions at peak.

	Submitter questions	Meridian response
16.	Do you agree that the interconnection charge may over-signal the need for overall reductions in consumption? Do you agree with the Authority's estimates of inefficiency? Which of the four scenarios, if any, do you consider the most plausible? Please explain your answer.	
17.	Do you agree that the interconnection charge may over-signal the cost of increasing Tiwai smelter production in summer? Do you agree with the Authority's inefficiency assessments? Please explain why or why not.	
18.	Do you agree that the interconnection charge and ACOT payments may over-signal the value of embedded generation? Please explain your answer.	Meridian considers that the current ACOT payments regime may not correctly signal the benefits of embedded generation since ACOT payments do not directly relate to the avoided future transmission or distribution costs and because the location of distributed generation is primarily influenced by the availability of an appropriate site and resource. As per our submission in relation to the ACOT working paper, Meridian considers that the ACOT pricing principles should be reviewed. Such review should be conducted separately from the TPM review because the distributed generation pricing principles are located in a separate part of the Code
19.	Do you agree with the Authority's assessment that, although the interconnection charge may over-signal the value of generation to direct-connect consumers, any resulting efficiency loss is likely to be relatively small? Please explain your answer.	We do not think the issue raised here is solely a function of the TPM. It is also a a consequence of Transpower being entitled to recover its sunk costs. As a result, some inefficiency should be expected.
20.	Do you agree that the HAMI allocation may incentivise SI generators to withhold existing capacity? Do you agree with the Authority's estimate of inefficiency? Please explain your answer	Yes. The Authority requested information from Meridian in relation to the HVDC charge, and Meridian's response[29] is included at paragraph 11.109(e) to (g) of the Working paper. To reiterate, Meridian's current HVDC charge is approximately \$50,000 MW/p.a. This cost is substantial, and consequently Meridian's operations are constantly concerned with controlling the HAMI limit at each generation connection location. Specifically, Meridian has a standing policy to withhold capacity when a generation plant may set a new HAMI limit. Meridian is careful in observing this policy, as new a HAMI limit at any generation plant will incur a corresponding increase in HVDC liability, which will take 4 years to clear based on current HAMI calculations. Meridian has reviewed the Authority's quantification of this productive inefficiency, and agrees with the estimate of \$12M PV. While this inefficiency is of concern to Meridian, more so is the dynamic inefficiency caused by the HVDC charge (discussed below under question 22). The methodology used for adjusting offers in 11.122 is sound as it only uses the additional capacity at those times when it has the potential to be valuable. Given the methodology is applied using perfect hindsight, any material change in stored energy at the end of the simulations also needs to be included in the efficiency calculations. It is unclear if the Authority has done this.
21.	Do you agree that the HAMI allocation may discourage upgrades to SI generation capacity? Do you think this is a material problem? Please explain your answer.	Meridian's response to the Authority's request for information in relation to the HVDC charge also included information about the impact of HAMI allocation on capacity additions to existing generation plans. This information is included at paragraphs 11.133 to 11.136 of the Working paper. While the HAMI charge promotes avoidance of generation upgrades in the South Island, any resulting inefficiency is minimal in comparison to the dynamic inefficiency arising from HVDC's disincentive to invest in *new generation* in the South Island (discussed below under question 22). Meridian does, however, note that because decisions to upgrade generators are made infrequently, that the inefficiencies resulting from upgrade decisions are long lasting. Meridian refers to the Benmore example at paragraph 11.135, where a \$1 million capacity upgrade was rejected due to HAMI charges – the impact of that decision will last for decades. Meridian is currently in the process of determining whether to increase the output of Waitaki Station, and supports the Authority's statement that "it may still be possible (and economic) for SI generators to increase peaking capacity of other hydro-plants". This would, of course, be dependent upon a change from the status quo.

[29] Letter from Meridian to the Electricity Authority, RE: request for information in relation to HVDC charges, 24 July 2004.

	Submitter questions	Meridian response
22.	Do you agree that the HVDC charge may discourage investment in SI grid-connected generation? Do you agree with the Authority's inefficiency estimate? Please explain your answer.	Yes. The mismatch between private benefits from the HVDC link and the current HVDC charge results in less generation investment in the South Island, due to concerns about future HVDC costs.[30] The size of this inefficiency was estimated by TPAG to be between $24 M ± 9m PV – Meridian agreed with this analysis in its submission to the October 2012 Issues paper, and noted that it was in line with its own analysis and the Authority's assessment of a $30 M PV efficiency loss.[31] Meridian is aware that following these inefficiency assessments, which took into account the delay of planned hydro-power projects by Meridian and Contact, that the system operator's Annual Security Assessment found that New Zealand currently has an excess of generator capacity. Based on this report, the Authority stated that no new generation will be required for the next few years, and thus that the HVDC charge "can no longer be 'blamed' for inefficiency delaying" hydro-power projects. [32] Meridian accepts that this change in circumstances may alter past inefficiency estimates – however disagrees with the Authority's statement that the "true inefficiency may well lie at or below the bottom of TPAG's range $24 M ± 9m PV".[33] The Authority's statutory objective requires them to look to the long-term – and the fact remains that new generation, to meet increased demand or the retirement of other generation plants, will be required in the foreseeable future. Decisions to build/progress business cases for new generation will be made over the next few years (as they are several years ahead of actually needing the generation). The HVDC charge (as it stands) will continue to incentivise investment in the North Island over the South Island, even where North Island projects may be more expensive in terms of generation capital costs, and when there are locational signals for generation in the upper South Island. Thus, in Meridian's opinion and in order to comply with the statutory objective, any assessment of inefficiency must be forward looking. A forward looking assessment will not materially alter past estimates of inefficiency, and Meridian submits that that, in line with its own analysis, that the capital cost saving from removing the HVDC charge is approximately $30m PV.[34] Now is the opportunity to get transmission pricing right for the long term and the outcome should not depend on short terms supply/demand conditions.
23.	Do you agree that the HVDC charge may bring forward the need for upper SI transmission investment? Do you agree with the Authority's estimate of inefficiency? Please explain your answer	Meridian brought this inefficiency to the attention of the Authority in 2007,[35] and agrees with the Authority that the HVDC charge may bring forward the need for upper SI transmission. Meridian believes that the HVDC is an unwarranted barrier to new generation in the Upper South Island, which would be more efficient than the transmission line upgrade proposed by Transpower. Meridian's 60-70MW Hurunui wind farm was consented in 2013 and would be embedded, avoiding HVDC charges under the current TPM. However, the size (MW) of that wind farm has been limited by the decision to embed it i.e., the design may not make the best use of the wind resource but does optimise the economics of the site give the cost signals in place. Meridian has reviewed the Authority's quantification of this inefficiency (based on scenarios where the HVDC prevents the construction of new generation), and agrees with the Authority's estimates of forgone "deferral benefit" at paragraph 11.172.
24.	Do you agree with the Authority's view on prudent discount policy? Do you agree with Transpower's view that a PDP for notional generation is not practically achievable because of the difficulties in valuing notional disconnection? Please explain your answer.	Meridian agrees with the Authority's view that a prudent discount policy is desirable. Meridian is primarily concerned with ensuring that the PDP process for assessing whether alternative transmission is viable, is robust,[36] and noted in its submission to the October 2012 paper that it was satisfied with Transpower's current review process. In this submission Meridian also agreed with the Authorities proposed amendment for the discount policy to: apply for the life of an asset; and to apply to disconnection of load as a result of investment generation.[37]

[30] Issues paper, para 4.3.10.
[31] Meridian's subs Issues paper, paras 115-115.
[32] PD paper, paras 11.1512 and 11.153.
[33] PD paper, para 11.156.
[34] Meridian's subs Issues paper, para 114; see also Issues paper, para 4.3.12: "the estimated cost of inefficient generation investment is $30 million NPV".
[35] Letter dated 2007 to the Electricity commission from Meridian: ea.govt.nz/dmsdocument/17293.
[36] Meridian's subs Issues paper, para 202.
[37] Meridian's subs Issues paper, para 203: "Meridian does not see any downside to apply disconnection of load as a result of nvestment generation"; and 204: Meridian agrees with the proposal to extent the application of the prudent discount policy to the life of assets to which the prudent discount applies".

	Submitter questions	Meridian response
25.	Do you consider that there are any other material problems with the TPM (in particular, the HVDC charge, interconnection charge, and the prudent discount policy) that the Authority has not considered in this paper? If so, please provide details.	Meridian is not aware of any other issues at this stage. We think it is critical that this review proceeds in a timely manner, particularly in relation to the treatment of the HVDC charge.

Appendix 1: Chronology of TPM dispute 1996-2014