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Dr Phillip Mitchell
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Dear Dr Mitchell

Submission on NMI's Proposed Approval Standards for Electricity Meters Used for Trade

Introduction

1. This is Vector Limited's ("Vector") submission on the National Measurement Institute's ("NMI") consultation paper on *Approval Standards for Electricity Meters Used for Trade*, dated July 2015.
2. Vector is one of New Zealand's largest listed companies and the country's largest electricity distribution network, supplying the Auckland region. Vector also provides gas distribution network services in more than 20 towns and cities in New Zealand's North Island. It further provides gas supply and treatment, electricity and gas metering services, and fibre optic broadband communications network in Auckland and Wellington.
3. We are actively seeking commercial opportunities in Australia's advanced metering market.
4. No part of this submission is confidential and we are happy for it to be made publicly available.

Ongoing reforms in the metering market

5. We are making this submission in the context of the ongoing reforms in Australia's metering market, which seek to expand competition in metering and related services to small-to-medium businesses and residential consumers in the National Electricity Market ("NEM").¹

¹ We note the recent decisions made by regulators that support the expansion of competition in the NEM metering market. These include the: 1) Australian Energy Market Commission's ("AEMC") *Draft Rule Change* expanding competition in metering and related services to small-to-medium businesses and residential

6. We have consistently supported the Australian government's policy objectives of expanding competition in the metering market, and the deployment of advanced meters in the NEM. A competitive and innovative market benefits consumers in the form of lower prices, greater choice, and better services.
7. We support the ongoing alignment of metering standards in Australia with international standards. We believe that in the context of Australia's transition to advanced metering, it is appropriate for regulators to critically assess any deviation from international standards when considering their application in the Australian setting. Our preferred approach is for Australia to adopt international standards without changes that may unnecessarily create barriers to entry that distort prices and incentives in the Australian market.
8. We agree with NMI's approach of adopting in Australia the most widely recognised and relevant international standards pertaining to electricity meters, which we believe are the IEC and OIML standards. As part of this process, should modifications be required to better reflect installation environments, these should be based on existing Australian standards to ensure continued alignment with those standards; otherwise, any new standards should be subject to consultation with industry and relevant stakeholders. This would ensure harmonisation with other markets, which promotes competition and facilitates the entry of products/services to the Australian market.
9. In the transition to advanced metering, we believe the role of regulators should be to promote market competition rather than create barriers to its expansion (e.g. by introducing additional complexities, or imposing unnecessary costs and approval requirements), so the benefits from advanced meters can be realised by consumers in a timely manner.
10. Our view is informed by our experience in the unregulated New Zealand metering market. New Zealand standards are closely aligned with international standards without variations. The New Zealand metering market has adopted a market-led model, which saw the successful deployment of 1.3 million advanced meters across the country (64% market penetration) over the past few years without additional cost to consumers.
11. We encourage NMI to take the ongoing reforms into account in developing options for approval requirements for electricity meters. In particular, we encourage the exercise of restraint in imposing standards that could be too prescriptive and onerous on market participants (or potential participants), or potentially delay the emergence of competition in metering and the deployment of advanced meters.

consumers in the NEM. The *Rule Change* will take effect on 1 December 2017; 2) Australian Energy Regulator's ("AER") *Final Decisions* on NSW and ACT electricity distribution for 2015-2019; and 3) AER's *Preliminary Decisions* on Queensland and South Australian electricity distribution for 2015-2020.

12. Arrangements or standards that conform to international norms and provide technological/technical flexibility are appropriate in the rapidly evolving metering market.

Responses to specific questions

13. We set out below our responses to the specific questions in the consultation paper with the above developments in mind.

Questions on the scope and impulse voltage test

- (1) *What is the appropriate scope or applicability of NMI R 46 (and NMI M 6-1) for different metering types or applications in Australia? Please specify and explain why.*
- (2) *Are there other metering types and applications that are not listed under 'Scope' above? If so, please specify.*
- (3) *Are there any other trusted Australian or international standards that would be appropriate as a pattern approval standard for different metering types or applications in Australia? If so, please specify.*
- (4) *What are the appropriate impulse voltage requirements for different metering types or applications in Australia? Please specify and explain why.*
- (5) *As a manufacturer/importer of electricity meters:*
- (a) *How many electricity meter models do you have approved internationally against a different international standard?*
- (b) *What additional costs would there be to comply with NMI R 46?*

14. We have no significant issues with the possibility of a new 'sub-metering' category being created for the Australian market, should there be adequate justification that meters under this category are only ever exposed to installation environments that are a subset of existing environments. If proven, this could necessitate new requirements relating to impulse voltage, temperature, water and dust, etc.
15. We have no significant issues with the harmonisation of the impulse voltage requirements with international and Australian standards. Where the latter (if existent) should take precedence, we suggest that NMI further undertake consultation with industry and relevant stakeholders, for example, when considering whether there is a need for a new 'sub-metering' category.
16. We encourage NMI to critically review the application of the impulse voltage test in the context of Australia's transition to advanced meters. We believe that lower impulse voltage levels may be appropriate for advanced meters. We also believe a review would encourage a broader industry debate on the appropriate voltage and energy levels for the impulse voltage test for advanced meters.

17. The communications capability of advanced meters and the operational nature of meters that are typically contacted daily (at a minimum) means meters damaged from voltage impulses can be identified quickly. This mitigates any adverse impact on customer billing in a timely manner.

Questions on temperature

- (6) *Do you support the proposed minimum temperature range of -10 °C to +55 °C?*
- (7) *Do you support a reduced minimum upper temperature of +40 °C for indoor meters?*
- (8) *Do you support a reduced minimum upper temperature of +40 °C for meters of accuracy class C and D (corresponding to class 0.5 and class 0.2)?*

18. We support NMI's proposed temperature range set out in (6) above, which better aligns with IEC and Australian Standards for outdoor meters.
19. We **recommend** that NMI increase the upper temperature range for indoor meters to **+45 °C** to maintain alignment with IEC and Australian Standards for indoor meters.
20. We will defer comments on the appropriate temperature ranges for accuracy class C and D meters to meter manufacturers.

Question on storage requirements for interval meters

- (9) *Do you support the proposal of manufacturer-specified storage period capabilities for interval meters in Australia?*

21. We support the proposed storage requirements for interval meters. We note that the Australian Energy Market Operator, which specifies storage requirements for energy data for meter types, supports this approach.
22. We further note that storage allocation may become less relevant with the advent of advanced meters and the subsequent regular collection of data from the meter.

Question on meter markings

- (10) *Do you support all of the proposed mandatory markings? If not, please specify and explain why.*

23. We consider the list of proposed mandatory markings in the consultation paper to be too lengthy. Many of these markings are likely to become unnecessary in the case

of advanced meters, given their capability to dynamically display information on the meters' LCD. The same information can also be included in the user manual.

24. While we are not aware of mandatory meter markings on the reverse side of the meter, numerous additional mandatory markings that could result in having some of those markings placed on that side could defeat the purpose of these markings, which could no longer be seen once the meter is installed.
25. We **recommend** that meter marking requirements be kept to a minimum; they should only include information related to accuracy, installation environment, health and safety, including the safe installation of the meter.
26. Alternatively, meter markings not related to accuracy, installation environment, health and safety could be made optional rather than mandatory.

Questions on authorised access

(11) Are there existing authorisation systems that NMI could utilise to implement authorised access? Please specify.

(12) What other access, besides for battery replacement, should NMI also consider allowing for authorised persons? Please specify.

27. We **recommend** that NMI consider expanding the obligations of verifying authorisations (as detailed in NITP 14) to include processes to confirm the accuracy of the metering equipment after changes are made to the meter's battery, firmware/software or configuration.
28. We believe an 'outcomes based' approach to change management will be more effective in ensuring meters remain accurate after upgrades. The increasing complexity of advanced metering equipment is likely to make compliance with clause 3.6 of R 46 challenging; hence, this obligation is better placed with verifying authorities applying test processes to confirm compliance.
29. Vector's metering business has a deployed fleet in excess of one million advanced meters in New Zealand on which we have completed over 930,000 firmware upgrades since 2007. The process we adopt to manage upgrades is 'outcome focused' and does not attempt to prescriptively assess the impact of the change based on the meters' design. The upgrade process involves testing before the upgrade is deployed to ensure the meters' measurement accuracy is not impacted by the upgrade, with written confirmation obtained from the manufacturer confirming this to be the case. A process similar to clause 4.4 in NITP 14 is then applied to a sample of meters after the upgrade to confirm that the upgrade has been successful and has not impacted metrology.

Other comments

(13) *Do you have any other comments on the proposed requirements of NMI R 46? Please specify.*

30. Electricity meters currently sold in Australia are required to meet various Australian Standards that define installation requirements, such as IEC Indoor, IEC Outdoor and AS Outdoor. We **recommend** that NMI either adopt this terminology or align its proposed standards with the requirements associated with these meters to maintain compliance consistency with both standards. The IEC requirements for indoor meters may better align with the requirements for sub-meters outlined in the consultation paper.
31. We believe that, where appropriate, new products and services could be subject to new and evolving standards, including in safety and metering installation. Regulators could encourage industry initiatives to update or develop standards that take into account new or innovative products and services in the metering market.
32. We encourage NMI to participate in the Standards Australia Advanced Metering Road Map project, intended to highlight the changes required to AS/IEC metering standards to support the competitive advanced metering reforms. It would assist the efficient operation of the industry in Australia if NMI could ensure R 46 aligns with and compliments AS/IEC standards introduced or modified as a result of the Road Map project. Of particular note is the proposed adoption of the new IEC 62052-31: *Electricity metering equipment (AC) - General requirements, tests and test conditions - Part 31: Safety requirements and tests*.
33. We note that the Department of Industry and Science has expressed support for the above project.

Concluding comments

34. As indicated above, we believe that more prescriptive metering standards are likely to limit market competition that benefits and protects consumers. This consultation process is a good opportunity to introduce standards that are appropriate for the emerging competitive advanced metering market.
35. We are happy to share with NMI officials our insights and experience with metering standards in New Zealand's competitive advanced metering market.
36. As part of our process of seeking commercial opportunities in Australia's advanced metering market, we are having discussions with potential meter vendors. We would like to reserve the right to make further comments on NMI's proposals as significant technological/technical developments emerge during this consultation process.

37. Please contact me if have any questions or require further information at +644 803 9051 or Luz.Rose@vector.co.nz.

Yours sincerely

For and on behalf of Vector Limited

A handwritten signature in black ink, appearing to read 'Luz Rose', with a long, sweeping underline.

Luz Rose

Senior Regulatory Specialist