

GPO Box 520
Melbourne VIC 3001
Telephone: (03) 9290 1444
Facsimile: (03) 9663 3699
www.aer.gov.au

Our Ref: 49091
Your ref: EPR0028
Contact Officer: Chris Pattas
Contact Phone: 08 9290 1470

17 May 2013

John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

Dear Mr Pierce

Submission to AEMC issues paper on the national framework for transmission reliability

Please find attached the Australian Energy Regulator's (AER) submission regarding the Australian Energy Market Commission's (AEMC) issues paper.

The AER welcomes the opportunity to comment on the substantial potential reforms to the energy market framework.

The AER would be pleased to provide further assistance to the Commission on this important area of work. If you would like to discuss any aspect of this submission please contact Chris Pattas, Network Operations and Development on 03 9290 1470.

Yours sincerely



Andrew Reeves
Chairman
Australian Energy Regulator



AER Submission
Issues paper
**Review of national framework for transmission
reliability**

May 2013

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1 Overview

The AER welcomes the opportunity to respond to the AEMC's issues paper on the transmission reliability framework. The paper raises a number of questions which merit careful consideration.

During the Reliability Panel review of transmission reliability, the AER supported an economic redundancy approach to determining reliability standards. We considered that this approach would capture the benefits associated with economically-derived reliability standards and would also result in clear, unambiguous standards.

However, the model used to determine reliability standards needs to function effectively in the context of the broader regulatory framework. If the AEMC decides to develop a more flexible framework for transmission reliability, then the form of the reliability standard should be designed to work with this framework.

Significant benefits are likely to result from a regime which allows TNSPs to defer the timing of an investment that would otherwise be needed to meet rigid reliability standards, where it can be shown that the economics of the investment have changed since the standards were set. The alternative is to require TNSPs to undertake investments even though it can be shown that the costs outweigh the benefits as assessed when the standard was set.

We support an approach which allows investment decisions to be made on a dynamic basis. There may be benefits associated with adopting different forms of transmission reliability standards for different purposes. For instance, TNSPs could apply:

- an economic redundancy approach for long term planning purposes and
- an economic approach when making investment decisions.

We think there is scope to bring the transmission reliability framework more closely into line with the proposed arrangements in distribution by looking further at the potential for transmission output standards.

The benefits of a dynamic investment decision making process will only be passed through to customers if the regulatory framework enables the costs borne by customers to adjust in line with TNSPs' obligations. We do not support arrangements which oblige customers to pay for a more costly standard of reliability than they actually receive.

It is therefore important to have regard to the interaction between the reliability framework and the revenue determination. We welcome the AEMC's recognition of this issue. This submission suggests some measures to allow the revenue determination to adjust in line with the reliability framework.

The form of reliability standard should be also consistent with the governance framework. For instance, if the AER is both target-setter and revenue-setter, then the information that the AER uses to make a decision on reliability targets would also be available to the AER for the purposes of determining allowed revenues.

If a state elects to delegate, we support an approach which allows us to determine reliability standards in conjunction with the decision on forecast expenditure, using a single integrated process.

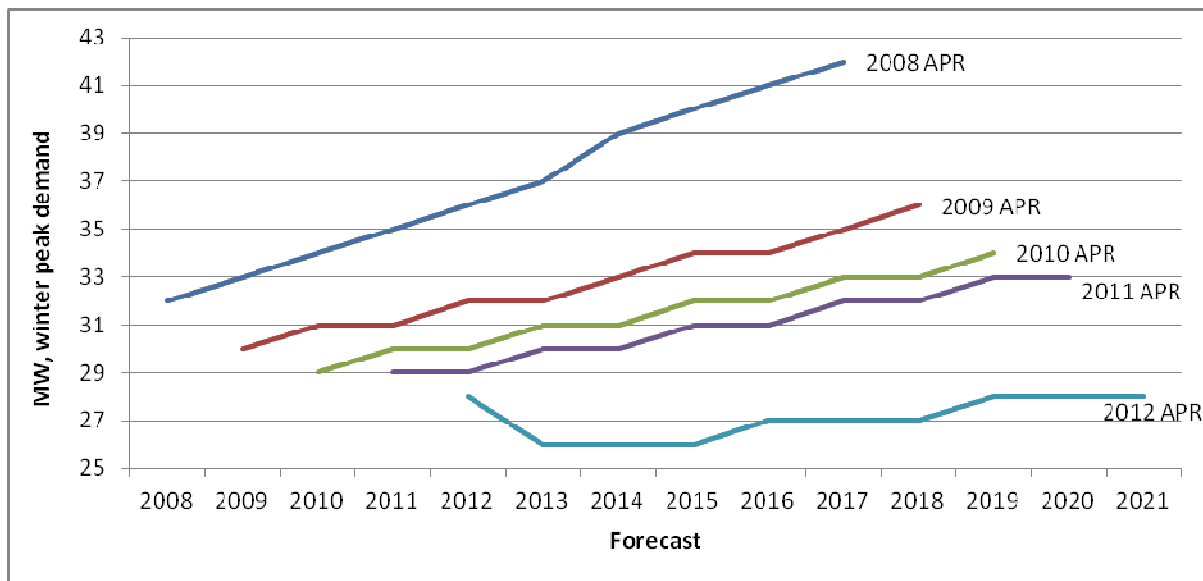
Chapter 2 of this submission considers how to build an appropriate level of flexibility into the reliability framework. Chapter 3 considers what governance arrangements should apply.

2 Building flexibility into the regulatory framework

Historically, the underlying cause of increased demand has been population and economic growth. In recent years, other factors – such as the uptake of solar PV panels and the impact of a high Australian dollar on industrial output – have caused electricity demand to deviate from historic patterns. As a result, the task of producing accurate demand forecasts has become increasingly difficult.

Figure 1 provides an example of how the demand forecasts set out in TransGrid's annual planning reports have declined over the past five years.

Figure 1. Changes to TransGrid's demand forecast for Stroud substation, 2008-2012



Source: TransGrid Annual Planning Reports, 2008-2012

At this point in time it is difficult to predict whether the current demand forecast uncertainty facing the National Electricity Market will be transient or not. If the period of uncertainty is likely to last for an extended period, then action is required to allow the regulatory framework to adapt. We support further consideration of measures to make the regulatory framework more flexible. This submission considers options that could be used to

- build flexibility into reliability standards and
- build flexibility into revenue determinations.

2.1 Building flexibility into the reliability standards

The issues paper seeks views on Grid Australia's proposal for a waiver mechanism to apply to reliability standards. We think there are better ways to build flexibility into the reliability framework. This section discusses Grid Australia's proposal, and then explores some alternative options.

2.1.1 Grid Australia proposal for a waiver mechanism

Grid Australia has proposed a process which would allow transmission reliability standards to be waived where certain criteria are met. This proposal should be considered in the context of changing patterns of demand which make it difficult to predict future network requirements.

There are potential benefits arising from a regime which allows TNSPs to defer the timing of an investment that would otherwise be needed to meet rigid reliability standards, where it can be shown that the economics of the investment have changed since the standards were set. The alternative is to require TNSPs to undertake investments even though it can be shown that the costs outweigh the benefits as assessed when the standard was set.

We support processes which allow investment decisions to be made on a dynamic basis. However, the benefits of a dynamic decision making process will only be passed through to customers if the regulatory framework enables the costs borne by customers to adjust in accordance with TNSPs' obligations. We do not support arrangements which oblige customers to pay for a more costly standard of reliability than they actually receive.

Accordingly, it is important to have regard to the interaction between the reliability framework and the revenue determination. We welcome the AEMC's recognition of this issue. Grid Australia's proposal is silent on how the revenue determination would adjust in order to allow the cost savings arising from a lower reliability standard to flow through to customers.

So long as it includes a revenue adjustment mechanism, Grid Australia's model is preferable to a model which applies redundancy standards in an inflexible manner. However, there are better ways to create a flexible reliability framework.

Grid Australia's proposal for a waiver regime assumes the use of redundancy standards. Rather than developing rigid reliability standards which may be waived, an alternative approach is to design a reliability framework that is inherently flexible.

2.1.2 Different forms of reliability standards for different purposes

There may be benefits associated with adopting different forms of transmission reliability standards for different purposes. We note that the AEMC's Transmission Frameworks Review final report recommends the use of different reliability standards for load and for generator access rights. This concept could be extended so that TNSPs apply:

- an economic redundancy approach for long term planning purposes and
- an economic approach when making investment decisions.

It is impractical for TNSPs to undertake a full cost benefit analysis for all future network requirements, particularly those that are unlikely to be required for many years (for instance, more than five years). For long term planning and forecasting, it is appropriate to use more mechanistic planning criteria, such as those associated with an economic redundancy approach to reliability.

In contrast, the decision to proceed with an investment should be based on an in-depth economic assessment using up to date information. An economic approach to setting reliability standards could establish a dynamic framework which gives TNSPs flexibility to undertake only those investments which provide net benefits to customers.

A TNSP's obligation to invest could be expressed in terms of an obligation to provide a level of reliability that is consistent with the value that customers place on reliability. While the AER faces a more challenging task to monitor and enforce compliance under an economic framework, we consider than on balance this model is preferable because it avoids systematic over-building of the network.

Role of output standards

In the absence of technical redundancy standards, there is a risk that TNSPs could maximise profits at the expense of service quality. To mitigate this risk, the AEMC could consider further whether output measures can be used to support the transmission reliability framework. The issues paper states that:

it is difficult to measure performance outputs for transmission networks, as they are designed to provide a high level of reliability. As a result, input standards are used as a proxy for output performance measures.¹

We recognise that TNSPs are required to operate at higher levels of reliability than distribution networks. As a result, conventional measures of distribution reliability, such as SAIDI and SAIFI², are less informative in the context of transmission. However, there is scope to develop leading indicators to monitor and assess TNSPs' reliability performance over the longer term.

Both the AER and Ofgem³ have recently carried out work to develop leading indicators of transmission reliability. As part of our review of the transmission Service Target Performance Incentive Scheme (STPIS),⁴ we updated the performance measures in the service component of the STPIS in order to improve incentives for TNSPs to reduce the occurrence of unplanned outages and return the network to service promptly after unplanned outages, whether or not the outage leads to an interruption to supply.

Two of the parameters included in the amended service component — the average circuit outage parameter and the proper operation of equipment parameter — can be seen as leading indicators of potential reliability issues since they apply even where there has been no loss of supply to customers.

Other leading indicators of network health and condition are also available. Examples of these include the level of replacement and maintenance backlog, the average condition of the assets and the proportion of poor condition assets. We are exploring the potential collection and use of these indicators in the current Better Regulation program.⁵

At present, the financial incentive attached to the service component of the STPIS is small at +/- 1 per cent of maximum allowed revenue (MAR). Going forward, these types of measures could be further developed to play an important role in supporting an economic approach to transmission reliability.

An economic approach that includes reliability output measures would help to align the transmission reliability framework with the proposed arrangements in distribution. It would also shift the regulatory framework towards a regime that rewards TNSPs for delivering services valued by consumers rather than a regime that rewards TNSPs for building assets.

2.1.3 Express redundancy standards in a more flexible way

Another option available to the AEMC would be to change the way in which redundancy standards are expressed. For instance, a TNSP could be required to provide an N-1 standard of reliability within half an hour, 99.95% of the time, based on a 10 per cent probability of exceedance (POE) demand forecast.

¹ AEMC, *Issues paper, Review of the national framework for transmission reliability*, 28 March 2013, pg 30.

² System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI).

³ Ofgem, *RIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas Outputs, incentives and innovation Supporting Document, Ref: 169/12*, 17 December 2012

⁴ AER *Final Decision - Electricity TNSP Service Target Performance Incentive Scheme (STPIS) version 4*, 19 December 2012

⁵ AER, *Issues paper - Expenditure forecast assessment guidelines for electricity distribution and transmission*, 20 December 2012.

The caveat “within half an hour” ensures that the reliability standard does not discriminate against non-network solutions, such as fast start generators. The caveat “99.95% of the time” gives TNSPs scope to defer an investment if the reliability standard is only likely to be breached in extreme peak demand conditions. In this example, 99.95% equates to approximately 5 hours per year that the TNSP may be in breach of the N-1 standard.

This approach would be more dynamic than traditional redundancy standards, but it is less precise than an economic approach in terms of ensuring that only efficient projects proceed. Our first preference is to adopt different forms of reliability standard for different purposes.

2.2 Building flexibility into the revenue determination

As set out in section 2.1.1, the benefits of a dynamic decision making process will only be passed through to customers if the regulatory framework enables the costs borne by customers to adjust in accordance with TNSPs’ obligations. We do not support arrangements which oblige customers to pay for a more costly standard of reliability than they actually receive.

If the AEMC decides to adopt flexible reliability standards (such as the Grid Australia waiver mechanism, or economic reliability standards for investment) then it would be beneficial to incorporate a corresponding level of flexibility into the revenue determination. Indeed, there may be benefits associated with increasing the revenue determinations’ ability to adjust in response to actual events regardless of the outcome of the AEMC’s reliability review.

There are a variety of mechanisms that could make the revenue determination framework more flexible. It would be necessary to carefully consider the merits of any potential mechanism before making a decision to change the economic regulation framework. While the AER is yet to decide which approach is best, we set out some ideas below for the purpose of stimulating discussion.

2.2.1 Increased use of contingent projects

There may be a case in favour of increasing the number of contingent projects included in TNSPs’ revenue determinations. This would be consistent with the unusually high levels of demand forecast uncertainty facing the energy sector and could be given effect using the existing National Electricity Rules framework.

If the contingent projects regime is given a greater role, then it will be important to ensure that the criteria for contingent projects are clearly defined in order to ensure that TNSPs do not use the mechanism to shift controllable risk onto customers.

The AEMC’s issues paper puts forward a preliminary suggestion for a contingent project-like mechanism to build flexibility into the revenue determination.⁶ A decision to allow a TNSP to depart from a reliability standard for a given project could be a trigger for the AER to re-open the TNSP’s revenue determination and deduct associated revenues.

We do not think this model would be effective because TNSPs are unlikely to be willing to seek a departure from a reliability standard if it means that they will lose revenue. TNSPs would have an incentive to continue with the project, even if it is known to be inefficient. This proposal could also create a need for the AER to specify the projects which might be affected at the time of the revenue determination.

⁶ AEMC, *Issues paper, Review of the national framework for transmission reliability*, 28 March 2013, section 4.3.1.

2.2.2 Automatic adjustment mechanisms

Another potential option could be to build an automatic adjustment mechanism into TNSPs' ex ante allowances. For instance, the AER's final determination could include demand forecasts for each of 90% POE, 50% POE and 10% POE. In the event that outturn demand met a predetermined threshold (e.g. 10% POE) then additional funds could be added to the TNSP's allowed revenues. In order to retain the incentive properties of an ex ante framework, the amount of the additional funds would be specified at the time of the revenue determination.

A similar technique for building flexibility into TNSPs' allowed revenues could involve UK-style volume drivers. Allowed revenues would adjust automatically to reflect the extent to which certain specified parameters deviate from an annual baseline profile. Ofgem's most recent price control of National Grid Electricity Transmission adopted a range of volume drivers, including a volume driver for reinforcement works.⁷

2.2.3 Determine forecast capex on a risk-adjusted basis

The AER could set allowed revenues in a manner that reflects the probability that a given augmentation investment will be required. For instance, we could include allowed revenues of \$40 million for a \$50 million project that has an 80% probability of proceeding. Theoretically, if this approach is applied across the TNSPs' network, then on balance the TNSP should receive an ex ante allowance that reflects efficient costs.

However, this technique would be less effective when applied to a lumpy capex program. If we were to determine forecast capex on a risk-adjusted basis, it would be important to have regard to the nature and scale of the TNSPs' portfolio of potential projects. If the TNSP expects to carry out a small number of very large projects, a risk-adjusted approach would carry the risk that the TNSPs' allowed revenues do not align with its costs.

2.2.4 Interaction with other parts of the revenue determination

Finally, it is important to consider how the reliability framework interacts with other parts of the revenue determination, particularly any incentive schemes. For instance, if the AEMC proposes a framework which enables TNSPs to waive reliability standards in certain circumstances, it will be necessary to consider whether consequential amendments are required for any capital expenditure sharing scheme.

⁷ Ofgem, *RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas Final decision – Overview document*, 17 December 2012, pg 31.

3 Governance

Under its terms of reference, the AEMC must develop a framework that reflects economically efficient outcomes and takes into account local conditions and the value placed on reliability by customers. Any framework that meets these criteria will represent a major improvement on the arrangements that currently apply in some states.

The issues paper does not address how the proposed governance framework would ensure the robustness of the cost estimates submitted by TNSPs for the purposes of setting reliability standards. We would find it useful to have more detail about this aspect of the AEMC’s proposals.

In this chapter we discuss:

- the benefits of co-ordination between the reliability framework and other parts of the regulatory framework
- the AER’s role if a state elects to delegate the standard-setting role, and
- the arrangements for determining the VCR.

3.1 Co-ordination with other parts of the regulatory framework

Consistent with our submission to the distribution reliability review⁸, we support arrangements that ensure a high level of co-ordination between the reliability standard setting process and the revenue determination process. Table 1 describes the benefits of a co-ordinated process.

Table 1 Benefits of co-ordinated process for setting standards relative to stand-alone process

Criteria	Considerations
Consistency	The potential for inconsistency between the revenue determination and the reliability standards would be reduced. Both reliability standards and forecast expenditure could potentially be derived using the value of customer reliability (VCR). A co-ordinated process would improve consistency in the capture, analysis and reporting of reliability information.
Integrity	TNSPs could submit a single set of forecasts to be used as part of the reliability standards setting process and the revenue determination process. This would reduce any opportunity for businesses to exploit gaps between multiple processes.
Better quality information	TNSPs have an incentive to underestimate costs for the purposes of the reliability standards setting process and overestimate costs for the purposes of the revenue determination. If TNSPs prepare a single set of forecasts for both processes, these two incentives will offset each other (to an extent). TNSP forecasts would also undergo rigorous independent scrutiny during the revenue determination process.
Efficiency	A co-ordinated process promotes efficiency in both reliability standards and forecast expenditure, for instance, due to better quality information. Under a fully integrated process it would be possible to undertake a holistic assessment of all relevant parameters, and make adjustments where appropriate, in order to find the most efficient outcome.

⁸ <http://www.aemc.gov.au/Media/docs/Australian-Energy-Regulator-5f1b0d12-446e-42c9-b961-adbfe866ee16-0.PDF>

In transmission, it is also important to co-ordinate with the national planning regime.

We see benefits from co-ordination regardless of whether reliability standards are set by an independent standard setter, AEMO or the AER.

3.1.1 Co-ordination with planning regime

As part of the transmission planning framework, TNSPs assess whether a proposed investment:

- generates net benefits for customers, and
- provides maximum net benefits compared to alternative options.

TNSP's annual planning reports (APRs) and regulatory investment tests (RIT-Ts) will therefore form a key input to any economically-derived reliability standards. Given this role, it is important to ensure that TNSPs' planning documents are robust.

The AER monitors APRs and RIT-Ts to assess compliance with the requirements of the National Electricity Rules. We also have regard to TNSPs' planning documents during the course of our revenue determination. For instance, we check whether TNSP cost forecasts are consistent with previously published information. In the event that transmission reliability standards are set by an independent standard setter, the independent standard setter should confer with the AER to check whether the AER has any concerns with the TNSPs' planning processes.

The independent standard setter is also likely to gain additional insights from discussions with AEMO in its role as national transmission planner.

AEMO could make an important contribution to setting reliability standards, or could even have responsibility for determining reliability standards. AEMO carries out a number of functions which make them well placed to advise on reliability issues, for instance:

- their National Transmission Planner role,
- their demand forecasting role and
- their role in reviewing TNSP planning and RIT-T reports (as recommended in the Transmission Frameworks Review).

This model would be particularly effective if the AEMC adopted the AER's suggestion of using an economic redundancy approach for long term planning purposes and an economic approach for investment decisions. In this case, AEMO could set economic redundancy standards for long term planning purposes.

In the event that the model described in the issues paper is adopted, we support the AEMC's suggestion that AEMO could be responsible for developing the national reference standard template.

3.1.2 Co-ordination with revenue determination

Any decision on transmission reliability standards will have important consequences for the level of funding required by TNSPs. The AEMC's draft report should consider mechanisms that help to strengthen the links between the reliability target-setting process and the revenue determination process. These could include:

- measures to ensure consistency between the information used to set standards and allowed revenues. TNSPs should be required to reconcile the cost forecasts in their regulatory proposals to the cost forecasts submitted for the purposes of the reliability standard setting process. If the TNSP wishes to update their forecasts to reflect new information at the time of the revenue determination, any differences should be fully explained and justified in the TNSPs' revenue proposal
- engagement between the standard-setter, the AER and AEMO during the standard setting process
- giving the standard-setter the option to revise their decision on reliability standards once the associated costs are known with more certainty. For instance, the AER could share its preliminary findings with the standard-setter prior to the release of the AER's draft determination, and the standard-setter could revise the reliability standards if it appears that the original standards were based on inaccurate information.

A co-ordinated process would allow for more efficient trade-offs of the costs and benefits associated with a proposed investment program than if the decisions are made in isolation from each other.

3.2 AER's role if state elects to delegate standard-setting function

The issues paper seeks views on the AER's role in the event that a state government elects to transfer responsibility for setting reliability standards. We agree that it is important to consider how the reliability framework could be given effect if a state elects to delegate the standard-setting function. We note that certain approaches to setting reliability standards would result in an unnecessarily convoluted process if costs and reliability standards are set by the same body.

Consider, for instance, how the arrangements proposed in the issues paper might apply if the AER were to replace the independent standard setter. In this case, we would undertake a relatively high level economic assessment to set redundancy standards, which we would then use as an exogenous input to our revenue determination. This approach would artificially constrain our decision on forecast expenditure and potentially delink reliability outcomes from costs.

If the AER is both standard-setter and revenue-setter, then the information that we use to make a decision on reliability standards should also be available to us for the purposes of determining allowed revenues, and vice versa. This objective could be achieved using a range of approaches to reliability.

If a state elects to delegate, our preference is for an approach which allows us to determine reliability standards in conjunction with the decision on forecast expenditure, using a single integrated process.

TNSPs could be required to submit forecasts of reliability expenditure that balance the costs of building, operating and maintaining their network with the reliability benefits to customers (as measured by the value of customer reliability or VCR). One technique that can be used to carry out this type of assessment is to estimate expected unserved energy and multiply it by the VCR. Other things being equal, proposed investment should only proceed if the cost of an investment to ensure

energy is served is less than the value to customers of that energy. Victorian DNSPs use this type of economic assessment in planning some of their augmentation capex.

We would also have regard to TNSPs' APRs and RIT-Ts, and any advice from AEMO (consistent with the AEMC's recommendations in the Transmission Frameworks Review final report).

The AER would undertake an economic assessment of the risks, costs and benefits associated with the TNSP's regulatory proposals. The reliability standards would be calculated as part of the revenue determination process, in conjunction with the decision on costs.

3.3 Arrangements for determining the VCR

We agree that VCR studies should perform a key role in the national reliability framework. These studies are also a valuable source of information for the AER's revenue determinations. Robust VCR data has the potential to make the revenue determination process simpler and less subject to manipulation, since it enables the AER to directly assess the financial value that customers attach to a proposed investment.

The issues paper notes that the responsible body for conducting VCR studies needs to be considered further. We acknowledge and support AEMO's work to develop a national methodology for determining VCRs. There are potential synergies between the function of calculating VCRs and AEMO's new functions in preparing detailed demand forecasts.

We note that the task of setting the VCR on an ongoing basis could also be considered to be compatible with the AER's economic regulation role. We are open to further consideration of this option. However we consider the conduct of VCR studies to be a significant extension of our functions, both in terms of required expertise and resources.

Further, the VCR is a concept which cannot be readily tested by reference to objective evidence. The level of the VCR could have significant financial implications for NSPs and consumers. Accordingly, it is important that the arrangements for determining the level of VCR are robust and inspire confidence in both NSPs and consumers, whilst limiting the potential for opportunistic challenge.

As a relatively new measure, the VCR may develop over time to incorporate factors such as geography, demographics, outage duration, etc. The methodology for determining VCR values may also undergo further refinement in future assessments. We support a methodology that promotes a cycle of continuous improvement.

Given the complexity and subjectivity of the matters under consideration, there is a risk that the results of VCR studies may be unreliable during the learning period. If unreliable VCR results are applied in a mechanistic fashion, consumer charges and NSP investment programs could be subject to instability associated with flawed survey results rather than changes in underlying consumer preferences. There may be scope for further checks and balances to ensure that unreliable results are not applied in a mechanistic way.