

## ATTACHMENT A

### OUTCOME 1: AFFORDABLE ENERGY AND SATISFIED CUSTOMERS

*Energy is increasingly affordable for all consumers, supported by adequate consumer protections and access to dispute resolution*

<i>Draft metric</i>	<i>Appropriateness</i>	<i>Comment</i>
O1.1 Representative domestic retail tariffs in each NEM-region	Appropriate	<p>Trend over time to be used as a metric of change in affordability but need to recognise all components, i.e. retail, network, policy and wholesale price, and how they are contributing to the trend. For example, a trend in increased network costs may be driven by consumer decisions around DER unless there is tariff reform. Affordability trend also needs to consider any changes in how we use energy. For example, increased digitisation changes what consumers see as essential energy.</p> <p>It may also become more difficult to determine who is the “representative customer”. Perhaps need to tier in terms of those with no DER, those with passive DER and those with active DER. This will influence who is driving the overall cost trend if relevant.</p>
O1.2 Energy spend as a % of household disposable income	Appropriate but could be replaced by O1.3	<p>Potentially the ABS can conduct more frequent Household Expenditure Surveys if this is the best metric measurement. The AER measurement probably not an appropriate indication unless it is weighted against usage patterns (such as digitisation of household).</p> <p>Consideration of expenditure on PV etc. would need to be carefully weighted against income and subsidies if used to provide a comment on energy affordability. Proper analysis in this respect would also include savings and changes in consumption due to the installation. Energy affordability would also need to then consider the cross-subsidisation that results across consumers for both incentives and any subsequent network investment required to manage DER installations.</p>
O1.3 Consumer perceived value for money	Appropriate	<p>May be more appropriate than O1.2 given the ability to regularly measure, but noting the level of subjectivity.</p> <p>May be validity in including education programs so consumers understand how prices are structured, and how they use their energy.</p>
O1.4 Number of consumer disputes/complaints to retailers and ombudsman schemes	Appropriate	No comment.
O1.5 Low-income high-cost: Number of households with income below poverty line	Needs work	<p>Could be captured with the others. Otherwise methodology for determining ‘energy needs’ would need to be very thorough and address any distortions due to subjectivity, and behavioural factors. Consumer groups may be able to suggest appropriate metric.</p> <p>Agree that measuring energy stress is important.</p>

O1.6	Representative C&I energy prices. <b>Comparison with international counterparts.</b>	Appropriate if amended	The NEM is a very different energy system to international counterparts and the level of C&I load is very different. This makes the cost of providing energy here not on par with international systems, and thus comparisons are not appropriate.
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*Consumers are empowered to manage their demand and can access distributed energy and energy efficiency solutions*

	<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O1.7	<b>% customers with smart meters</b>  <b>No barriers for consumers in accessing DER if desired.</b>	Inappropriate.  New metric proposed.	Many customers already have a smart meter so not a good indication of accessibility to demand side technology, and not likely to capture all business models and technologies.  Given that the intent of this metric is to measure the accessibility of DER, should be combined with O1.8 and be clearly about accessibility.
O1.8	Ratio of demand response MWs available/annual peak demand	Inappropriate	This metric is inappropriate for a number of reasons: <ul style="list-style-type: none"> <li>• The DSP portal is not designed to register demand response from small customers.</li> <li>• Regardless, this metric violates the principles the ESB has stated by not being technology neutral.</li> <li>• The ratio does not convey the value of demand response from these customers as they are more likely to be most beneficial at times of local peaks which are not coincident to the annual peak.</li> </ul> <p>Suggest absorbing in the re-working of metric O1.7.</p>
O1.9	Economy-wide energy intensity: energy consumption/GDP	Inappropriate	Unclear whether this metric is relevant to the objective it is intended to measure.  Not appropriate given the changing economy, and in particular the service-based economy.

*Consumers are able to easily identify and secure the best deal for their circumstances including being empowered to manage their demand*  
Stanwell suggests that this objective can be incorporated with the above.

	<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O1.10	Consumer confidence in ability to make choices about energy products and services	Appropriate	Metric best reflected if steers away from the use of tools or data as not all consumers will necessarily use tools, but will still access information about products and services. Products and services can include DER as well as energy contracts. Opportunities to consolidate with other metrics.
O1.11	% customers on best three market offers by retailer	Inappropriate	Metric is hard to define as it is very much dependent on the individual consumer. The best offer for one consumer may not be the best for another due to average demand, how they use their energy, etc. This may have the unintended consequence of discouraging retailers from creating new "best" offers or offering a wide range of offers.
O1.12	# unique hits on government	Inappropriate	Not a complete metric. Many consumers utilise these websites as an initial comparison and then will look at

	supported energy comparison websites and number of visitors that complete search plan		individual retailer websites. The number of visits to government websites doesn't imply conversion to new plans. Suggest amending or utilise O1.3 as an indirect measure of this.
O1.13	How easy it is to switch (e.g. customers can switch in 5 clicks of less) TBD	Inappropriate	Metric is difficult to measure and is already implicit in O1.10. The ease of switching again will depend on the individual circumstances and needs of the consumer.

*Vulnerable consumers are on suitable pricing plans, receiving concessions when needed, and can benefit from distributed energy and energy efficiency schemes.*

	<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O1.14	% hardship customers on best market contracts	Appropriate but consider whether it can be a subset of O1.11	Agree it is important to measure vulnerable customers but this can be incorporated in the data from retailers in general.
O1.15	% people who are eligible for concessions on concessions	Inappropriate	As a metric, it is too dynamic and difficult to quantify. Can it be included in measuring consumer sentiment? May be more appropriate to have metric about the ease of access to concessions when eligible, and understanding eligibility.
O1.16	% public housing with access to energy efficiency, solar and or/storage programs.	Inappropriate	Difficult to determine whether this metric captures all vulnerable consumers appropriately. Public housing access to these types of services will be driven by the actions of the owner rather than the actions of the market.  Could be considered as a subset to revised metric O1.7.

## OUTCOME 2: SECURE ELECTRICITY AND GAS SYSTEM

*Markets operate safely, securely and efficiently, under full range of operating conditions, with minimal intervention*

	<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O2.1	Number and nature of electricity supply interruptions due to system security concerns, <b>and compliance with operating standards and maintaining the system in a satisfactory operating state.</b>	Appropriate but suggest amending	This metric should be more specific on the operational requirements and accountabilities on AEMO. For example, supply interruptions are not the only indication that the market is operating safely, securely and efficiently under the range of operating conditions. The metric would more appropriately track the system's performance against the mandated operational obligations such as compliance with the frequency operating standard.
O2.2	Number, duration and reason for electricity system interventions by AEMO in each NEM-region	Inappropriate	This metric is inappropriate as interventions are used as an operational tool to operate the power system efficiently and effectively. That is, to operate securely, interventions can be the least cost solution.  Stanwell appreciates the intent of this metric but suggests these operational metrics can be better incorporated in stronger metrics around market governance and accountability. Alternatively, metrics on the cost of intervention could be developed.
O2.3	Hours of high pressure gas pipeline not operational	Appropriate	Agree, the Gas Bulletin Board should report availability for all pipelines.

*System planning and development is informed by clear and transparent rules*

	<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O2.4	Progress towards developing and maintain a roadmap which identifies emerging system and market issues	Appropriate but should already be captured in O6.1	This is critical to providing clear signals to industry about the changing needs of the power system, and would help alleviate the risk of reactive solutions that arise when there is no transparency.  This roadmap should already be a key deliverable by the market bodies as part of their core remit, but given the lack of transparency to date, Stanwell would support this as a stand-alone metric provided there was ownership and accountability of the actions. Stanwell suggests that the market bodies are required to report every six months on emerging issues.
O2.5	Cyber-security Framework Implementation for high and medium risk participants within established timeframes	Appropriate	No comment
O2.6	Number of adaptation	Appropriate but	As per above, this is already in the mandate of market bodies.

	processes in place to upgrade energy infrastructure to deal with increasingly severe weather events and cyber-security risks.	should already be captured in O6.1 and O6.2	
<b>O2.7</b>	<b>Rules consistently treat new technology and business models equally</b>	New	Rules need to be adaptive and flexible to recognise the changing technology mix, and should not present any barriers to participation.
<b>O2.8</b>	<b>Processes, systems and tools appropriate for managing the system</b>	New	Alongside the above metrics, it is clear that there are significant changes in the operational dynamics of the power system. The cyber-security frameworks are a welcome development, but there also needs to be clear developments in models, tools and processes that are utilised to operate the system and also provide future investment signals.

### OUTCOME 3: RELIABLE AND LOW EMISSIONS ELECTRICITY AND GAS SUPPLY

*Electricity and gas sectors efficiently deliver at least their share of emissions reduction target/s while ensuring reliable supply*

<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O3.1 Electricity and gas sector emissions as a proportion of national emissions. Compare sectoral emissions <b>intensity</b> reduction with economy wide target/s	Appropriate	Could consider emissions intensity to remove any distortions by comparing sectors.  Fuel switching <i>into</i> the electricity market may be a least cost approach to progressive decarbonisation of the economy, but would increase the sectors share of national emissions.
O3.2 Amount of USE (with reference to reliability standard)	Appropriate	No comment.
O3.3 Amount of RERT capacity procured by type (long notice vs medium notice vs short term) and number of times deployed	Inappropriate	The amount and type of RERT that is procured is dependent on the current risk appetite as well as forecasting processes that inherently have inaccuracies. Also, there needs to be consideration of the differences between RERT procured for security and RERT procured for reliability. This metric may also be distorted by the Retailer Reliability Obligation.  Overall, RERT is not a good indication of reliability in the system unless it is consistently activated over multiple years, at which point, it can't be said the market is working efficiently.
O3.4 Total cost of RERT (\$)	Appropriate but suggest amending	Total cost of RERT is an appropriate measure provided the correct identification of the costs of procuring versus activation. Suggest benchmarking cost against VCR and distinguish reliability RERT.

*Investors efficiently manage risk to support investment, operation, retirement and innovation decisions*

<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O3.5 Mean percentage error of AEMO <b>annual</b> operational consumption forecast versus actual <b>over all operational timeframes</b>	Appropriate with amendments	Forecasting underpins the efficient, secure and reliable operation of the power system and this ranges from pre-dispatch to annual consumption. AEMO's forecasting processes support real-time and near-time decisions, as well as short-term operational decisions and investment. Only a subset of AEMO's forecasts feed into longer time planning assessments. Given that the system is changing so much, it is more appropriate that the accuracy of the operational forecasts is measured given operational decisions need to be made on these dynamics.  The ESB will also need to consider expanding this metric to consider whether the models are providing the right investment signals and are fit-for-purpose.
O3.6 % announced closures by	Inappropriate	It is unclear what the objective of this metric is, given that generators will be required to provide closure

	scheduled and semi-scheduled generators made with at least three years' notice		dates to AEMO to be included in their modelling.
O3.7	Committed investment in electricity generation capacity by region and forecast supply adequacy	Inappropriate as is.	This is a very limited metric. The energy system is changing and generation capacity is not the only metric for security and reliability. Committed investment needs to consider more than supply adequacy, which also relies on the modelling by AEMO providing the correct investment signals. Overall, better tools, models and processes need to be developed.
O3.8	Investment in domestic gas resources and forecast gas supply adequacy	Appropriate	Data provided by AEMO in the Gas Statement of Opportunities. This is appropriate for gas as the supply adequacy here refers to sufficient fuel sources for gas-fired generation. Thus, gas supply adequacy is very different to electricity supply adequacy which relies on many other factors.
<b>O3.9</b>	<b>Investors are given the right investment signals with system models evolving to be fit-for-purpose.</b>	New	Industry relies on receiving appropriate investment signals from the market bodies about the system needs. Without the right systems and processes in place, investment will not be efficient as incorrect signals are being provided.

## OUTCOME 4: EFFECTIVE DEVELOPMENT OF OPEN AND COMPETITIVE MARKETS

*Wholesale and retail markets are competitive and deliver efficient outcomes for consumers*

<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O4.1 <del>Average forward swap and cap contract prices for electricity in line with LRMC of new entrant, by region where available</del> Standard products are available with multiple buyers and multiple sellers	Inappropriate  Amendment suggested	<p>This metric is likely to either lead to unintended consequences or be ineffective, and furthermore it is unlikely to be efficient for it to be met in any given year:</p> <ul style="list-style-type: none"> <li>• If supply is adequate average contract prices are likely to be well below new entrant LRMC.</li> <li>• Even if supply is marginal, most contracts may be below new entrant and a small volume above new entrant providing the investment signal.</li> </ul> <p>Notably, the current Market Price Cap is based on the price a new entrant peaking plant would require; however average cap prices have rarely approached this level in most regions.</p> <p>Many future investments are likely to be unsuitable for comparison to the standard financial products of the current market. For example:</p> <ul style="list-style-type: none"> <li>• The determination of LRMC for a new entrant such as intermittent renewables would rely on whether there were any requirements of firming and if so, how much.</li> <li>• Would there be a distinction between synchronous and non-synchronous generation?</li> <li>• What about demand response or embedded generation?</li> </ul> <p>It is also unclear how this metric relates to retail markets being competitive and delivering efficient outcomes.</p>
O4.2 Retail and wholesale contract gas prices reflect netback/export parity plus transport and other relevant costs.	Appropriate	No comment.
O4.3 Extent to which competition in the wholesale electricity and gas markets is identified as an issue by the AER.	Inappropriate	Agree with the intent to the metric but needs to be more specific about what is being measured to remove subjectivity.

*Deep, liquid and transparent financial markets for electricity and gas and related services*

<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O4.4 Ratio of contract volume (both volumes traded and open interest) to demand for electricity and gas	Appropriate	No comment.
O4.5 Gas trading volumes for commodity and transportation	Appropriate	No comment.
O4.6 Liquidity of east coast gas pipeline capacity	Appropriate	No comment.
<b>O4.7 Evolution of new financial products</b>	New	Financial market evolution may be best measured by the number of new products offered and/or their uptake. For example, solar day shape hedges, aggregators, etc.

*Access to efficiently priced fuel and transport*

<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O4.8 Transparency of fuel reserves and prices (coal, gas, hydro) for market participants	Needs amendment	Need to clarify what level of transparency. Also, this is more complicated for some fuels that also rely on transport volume contracts etc.
O4.8 Coal costs competitive with international spot price less shipping	Inappropriate	Stanwell is not convinced this metric is relevant as coal costs won't necessarily be an indicator of the marginal generation for system security and reliability. Many coal-fired power stations are not exposed to, or minimally exposed to, export pricing due to their location and supporting infrastructure.

*Innovation is incentivised and enables value from new technologies*

<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O4.9 Value of system security markets (e.g. FCAS)	Requires amendment if used.	Value of system security markets only relevant if they adequately reflect the operational needs. The value may be transitional or change over time. This metric implies that current frameworks are apt, and that adding new technologies will add value. As the physical stock of generation (and demand response) in the system changes, new services and attributes are likely to require valuing, making the total cost highly variable.
		This is more relevant as an enabler to achieving other objectives.

O4.10	Proportion of energy and system security services provided by DR/DER	Inappropriate	<p>This metric violates the technology neutrality principle that the ESB posited. The market provides the best outcomes for consumers when it is allowed to dispatch energy and system security services efficiently and effectively. Placing a metric around a set of participants distorts the market and will increase costs.</p> <p>To the extent that DR/DER is expected to increase, it may be more appropriate to measure whether these resources are visible, controllable and available within the market frameworks. The ability to access DER/DR is captured in the amended O1.7 while the ability for DER/DR to participate in the market is in O5.9.</p>
O4.11	Number of projects and amount of funding for RD&D by governments	Not a priority	<p>Given the number of metrics, this metric is not as high a priority as others as it is difficult to draw a direct parallel between investment in RD&amp;D and system security and reliability.</p>

## OUTCOME 5: EFFICIENT AND TIMELY INVESTMENT IN NETWORKS

### *Investment solutions are optimal across all resources*

	<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O5.1	<b>Effective management of</b> congestion levels on electricity transmission/distribution networks and gas pipelines <b>including the cost of constraints.</b>	Needs consideration	Congestion levels could also be an indication of not just insufficient network capacity but whether the planning signals have been adequate. Need to ensure that network investment is not reactive.
O5.2	Extent to which congestion is being examined through RiT-T/Ds	Redundant	Should be included in the above
O5.3	Cost of inter- and intra-regional constraints		Suggest these three metrics are combined into one.
O5.4	% customers with retailer exposed to cost reflective network tariff	Needs amendment	The usefulness of this metric and exposure to network tariffs can only be fully realised if tariff reform in general is considered. Consumers are using the network differently yet are charged in the same way. If the intent is to encourage more consumers to change how they interact with the network, then volumetric cost recovery is likely to be no long appropriate.
O5.5	Average generation connection time from project commencement	Inappropriate	This metric doesn't capture the differences in generation connection time that depend on the project specifics such as operational characteristics as well as the network they are connecting to. As the number of connections increase, the average time to connect may also increase as more studies will need to be undertaken to understand the interaction with the network.

### *Efficient regulation of monopoly infrastructure*

	<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O5.6	Regulated rate of return for new network investments relative to other regulated industries and risk free rate of return	Not appropriate as stand-alone	Suggest that this is absorbed into the AER accountability in metric O6.2.
O5.7	Network productivity, utilisation and reliability	Unclear	It is not clear exactly what the objective of this metric is and from what perspective it is trying to measure.
O5.8	Customer engagement of network service providers	Inappropriate	Unclear what is this metric trying to achieve. Stanwell suggests that this metric could be a subset of other metrics such as access to participate in which networks and consumers engage to provide services. Broader customer engagement is already part of the obligation on network service providers.

*Networks incentivised to be efficient platforms for energy services*

	<b>Draft metric</b>	<b>Appropriateness</b>	<b>Comment</b>
O5.9	Extent to which DER is able to participate in relevant markets – wholesale, ancillary services, deferral in network investment	Very supportive	Customers should not be forced to participate if they don't want to do but it is important to facilitate access. This is repetitive with previous metrics so should be condensed.
O5.10	Progress towards implementing a DER coordination framework	Not a metric – an enabler.	This is not a metric but a key enabler of the desired outcomes. This should be included in the roadmap and other work in the governance metrics.
O5.11	Time taken to assess network investment proposals in line with best practice international regulatory processes.	Appropriate	Suggest incorporating in with the governance metric below.

## OUTCOME 6: STRONG BUT AGILE GOVERNANCE

<i>Draft metric</i>	<i>Appropriateness</i>	<i>Comment</i>
O6.1 Energy market institutions have published and co-ordinated priorities, work programs and outcomes, <b>with regular reporting</b>	Appropriate	Greater transparency required in reporting emerging issues so industry is not surprised and can be part of the solution. This provides a much more efficient reform process for all and will benefit consumers.
O6.2 Market bodies' outcomes in line with their statements of expectations.	Appropriate	No comment.
O6.3 Rule change requests processed within standard timeframes	Not necessary/redundant	This is already part of the AEMC outcomes of above.
O6.4 Number of regulatory sandboxes utilised to trial new regulatory approaches	Inappropriate	This metric won't capture all trials of new regulatory approaches as the sandbox approach can only apply if there are no adverse impacts to system or market operations. Regulatory trials can be documented in the roadmap of O6.1.
<b>O6.5 Actions justified by sound engineering, technical or economic analysis.</b>	New	Given the pace of change, important that the industry has transparency of the emerging challenges and new frameworks.