Locked Bag 14051
Melbourne City Mail Centre
Victoria 8001 Australia
T: 1300 360 795
www.ausnetservices.com.au

19 June 2019

Chris Pattas
General Manager, Distribution
Australian Energy Regulator

Sent by email: AERinquiry@aer.gov.au

Dear Chris

ICT Expenditure Assessment Consultation Paper

AusNet Electricity Services Pty Ltd (**AusNet Services**) welcomes the opportunity to make a submission on the Australian Energy Regulator's (**AER**) consultation paper on ICT expenditure assessment. This is an important issue, given Information and Communication Technology (ICT) is becoming an integral component of delivering energy services.

While we address all of the questions raised by the AER in its consultation in **Attachment 1**, outlined below are issues we considered in developing our response:

- short asset lives and speed of depreciation;
- platforms support multiple services and business processes;
- indirect relationship to business benefits;
- integration of lifecycle replacement and new capabilities;
- total expenditure (totex) not remaining constant with migration to the cloud;
- innovation lags technology expenditure; and
- ensuring innovation continues.

Short asset lives and speed of depreciation

As is recognised in the consultation, technology asset lives are short. Given the speed at which technology improves, the price-performance of technologies changes rapidly too, meaning that the usefulness of historical cost data can deteriorate quickly. As the AER will be considering ICT expenditure proposals that may have been prepared a number of years earlier, those costs will have to be considered in that context. Similarly, comparing historical costs incurred by DNSPs for the roll-out of similar, albeit differently timed, projects will also need careful consideration. While the timing of expenditure may not be material for longer-lived network assets, given the speed at which technology changes and how quickly they depreciate, this is a critical feature and an important distinction for ICT assets.

Platforms support multiple services and business processes

Rather than deploying ICT "point solutions" to support specific business processes, technology assets and services increasingly involve generic platforms for information services. This means that rather than using a standalone IT system to support a specific business process, Distribution Network Service Providers (DNSPs) can use technology platforms to meet different and evolving business needs.

The diagram below shows how individual elements of both the IT infrastructure and application layers in a 3-tier ICT architecture like the one we have adopted supports many business

processes. As each DNSP's architecture will be different, like-for-like cost comparison of individual elements is therefore difficult.

Source: Layered Logical Enterprise Architecture (available at: https://www.dragon1.com/resources/enterprise-architecture – accessed 18 June 2019).

In an increasingly challenging environment, where we are looking to address customers' changing needs, it is important to note that a platform can be built over time (often through stages to minimise risk) and can provide increasing levels of flexibility. It also means that when a new business process is required, this can be done relatively more effectively relative to a standalone ICT solution.

However, the use of platforms brings challenges for expenditure assessment, including how to compare the cost of platforms to the costs incurred for legacy point solutions, be it within or across DNSPs. Differences in the timing of the roll-out and use of platforms by different DNSPs will also cause challenges in any assessment. Unless these differences are recognised and appropriately considered, there is scope for efficient expenditure proposals to be rejected incorrectly.

In addition, the multi-staged aspect of platforms (and other ICT programs) can pose challenges, especially where each stage involves recurrent and non-recurrent expenditure. When each stage builds on and complements the previous stage, identifying the incremental benefit of any non-recurrent expenditure at each stage (rather than considering the overall business/customer benefit of the complete program) will be challenging and resource intensive.

Benchmarking may be more appropriate for elements of the technology infrastructure layer – servers, storage, digital communications and the management systems that control ICT – that are shared across multiple business systems and the business processes that they support. These assets are sufficiently 'commoditised' that benchmarking may be possible. However, the

appropriateness of any benchmarking approach is usually in the details, which we have yet to see.

Indirect relationship to business benefits

Changes in the way ICT assets are used can generate direct benefits – for example, datacentre optimisation, moving to the cloud, implementation of an IT Service Management framework – and indirect benefits including, lower like-for-like costs, lower levels of risk, higher levels of availability, improved system performance and better customer experience.

Changes to applications and operational technologies do not, of themselves, result in any direct benefits as these depend on how the technologies are deployed in the business. Technology is, of course, a key enabler of business improvement and innovation, but benefits are rightly attributed to the business activities which they support.

In terms of assessing the costs and benefits of ICT expenditure, there are costs and benefits that can be relatively easily quantified as they relate to the cost and performance of technology itself. However, where there are indirect benefits, including better business and/or customer outcomes, those benefits can be difficult to quantify. Where this is the case, a more qualitative approach to assessing the benefits of the proposed expenditure may have merit. For example, we can specify the cost of a Customer Information Management system that will enable us to better track and understand evolving interactions with our customers as our network is increasingly used for two-way flows. However, valuing the benefit of providing more personalised and tailored customer service – an outcome our customers have told us they value – is much more challenging.

Integration of lifecycle replacement and new capabilities

As the AER recognised in its consultation, lifecycle software replacements do not replace like-for-like capability. Typically, replacement software fixes bugs, ensures interoperability with new versions of hardware and operating system, and usually offers new features/tools that could, if utilised, improve business/customer outcomes.

The additional functionality that accompanies software replacement is not something that a DNSP can remove. However, a DNSP will only look to deploy new functionality if it is justified (for example, customers preferences indicate that this new functionality will be of use), as there are implementation costs (e.g. configuration, testing, data migration and user training).

The blurring of new and existing functionality in lifecycle replacement means that benchmarking of revealed historical software costs, even within the same DNSP, will be challenging. That challenge will increase if comparing ICT expenditure across DNSPs, where there are different starting points, ICT strategies and business/customer needs.

Total expenditure (totex) not remaining constant with migration to the cloud

Over the past 5 years, many technology vendors have started to offer “cloud services” (an operating expense) as an alternative to selling on-premise assets (primarily a capital expense). Cloud services often offer businesses options for capacity, scalability or agility at lower costs, higher levels of service or lower risk than equivalent on-premise solutions. We note, however, our expectation that vendors will increasingly only offer cloud-based solutions.

Given the above, DNSPs are increasingly transitioning their technology services from on-premise solutions to the cloud. During this transition, which may take several years, ICT spend may remain at higher than expected levels until <u>all</u> legacy on-premise (software and hardware) assets are replaced by cloud services – a consequence of most technology services sharing common enabling on-premise infrastructure.

Cloud technology may not, however, represent the least cost option for a DNSP. Cloud-based approaches may be preferred, not on a cost basis but because, for example, they ensure a risk profile more appropriate for infrastructure that is of national importance.

Innovation lags behind ICT expenditure

As outlined in Figure 2 of the AER's consultation paper, ICT totex has been instrumental in improving efficiency and reducing totex. However, there can be a time-lag between ICT expenditure and any business/customer benefit that it enables. For example, it takes time to implement and deploy the technology, change business processes to take advantage of its new functionality and run those processes in a way that reveals lower costs/brings customer benefits.

Ensuring innovation can continue

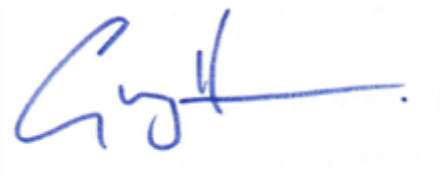
We consider that the bulk of technology-enabled business transformation undertaken by DNSPs in the last 15 years has generated benefits including improving current business practices, improving data quality for decision-making, removing manual errors from business processes and automating processes where possible. We have also been able to harness ICT to try new approaches and innovate through the Demand Management Incentive Scheme and the Demand Management Innovation Allowance.

However, history does not always represent the future, particularly due to the speed of change in the ICT sector – for example, as technology develops there may be increasing scope for information led, automated decision making to support better decisions about resource use within the wider business. The efficiencies that this could generate could be material, yet could be missed if the approach to assessing technology spend is set too narrowly.

To successfully navigate an evolving business environment and changing customer needs, we need to be able to continue to invest in ICT, innovate and find efficiencies for the ultimate benefit of customers. We do not want a regulatory framework that stops us from meeting our customers' preferences and that creates disincentives for us to invest in ICT.

If you would like to discuss any aspect of our submission, please contact Ian McNicol (03 9695 6604 or at ian.mcnicol@ausnetservices.com.au) in the first instance.

Yours sincerely



Greg Hannan
Manager Economic Regulation
AusNet Services

ATTACHMENT 1: AUSNET SERVICES' RESPONSE TO THE ICT EXPENDITURE CONSULTATION

Question 1

Do you agree with the RIN categories of ICT expenditure? Are there others we should request DNSPs to report? Does it make more sense to disaggregate ICT into its 'recurrent' and 'non-recurrent' components?

Ausgrid presented their ICT capex forecast into the categories 'Comply', 'Protect (cyber)', 'Maintain' and 'Adapt' that are based on purpose. Would stakeholders find these categories more useful than our suggested recurrent and non-recurrent categories?

Disaggregating ICT expenditure into 'recurrent' and 'non-recurrent' categories may have some value when considered at a high level. However, ICT expenditure increasingly contains both these categories and separating them (and their associated benefits) out can be difficult as:

- software replacement programs will typically include a like-for-like component as well as new functionality/additional capacity;
- being a prudent and efficient DNSP, we often look to minimise costs by undertaking complementary programs at the same time where efficient.

Uncertainty around how to appropriately disaggregate ICT could be addressed, in part, if the AER better defined and delineated some terms – for example 'material', 'frequency' 'significant' and 'non-periodic'. While these terms are regulatory parlance, where these terms are used together, as they are on page 16 of the consultation, this lacks transparency and has the potential to create uncertainty. The examples below demonstrate this:

- If an asset is periodically refreshed every 8/10 years (rather than within the usual 5 year period), and that refresh is material, does that time-frame suggest that the expenditure is frequent or non-periodic and therefore recurrent or non-recurrent?
- Given the speed at which technology changes, a refresh could include significant new capabilities. As a business is unable to remove that new capability from a software replacement program:
    - Would all the expenditure be recurrent if the new capability was not utilised (and would the answer be different it that new capability was used)?
    - How will the AER reconcile the recurrent nature of any spend with any significant increase in capability – will it provide more transparency on how it will ensure its approach to this trade-off is consistently applied within and across DNSPs?
    - What is a material cost – is this based on the relative size of the DNSP, other DNSPs and/or historical spend? Does the AER intend to clarify what factors it will consider in determining this?

We also have questions regarding how the AER may want to classify network assets that include embedded technology. This is an area where we may see significant growth, so having a clear understanding of the AER's proposed approach to this type of asset would be beneficial.

The breaking down of costs into the 'Comply', 'Protect', 'Maintain' and 'Adapt' categories could apply, but similar definitional issues are likely to arise. In addition, the additional layer of categorisation may add unnecessary complexity, particularly if back-casting of data is required for benchmarking purposes. There is therefore little merit in breaking ICT costs into any narrower categories.

Question 2

What other methodologies can we use to benchmark ICT capex? What are the benefits and disadvantages of each approach? What other benchmarking normalising factors do you consider appropriate? For example, Regulatory Asset Base (RAB) could be used as a proxy for asset size.

Assuming that the AER applies its proposed benchmarking approach, given the size and type of geography our distribution business covers, and the challenges that brings, using network attributes for benchmarking could be an appropriate approach. Customer numbers or employee numbers are unlikely to reflect the complexity of our network and therefore our costs. However, the appropriateness of a benchmarking approach is usually in the details – the approach, including how data is collected, cleaned and used – which we are yet to see.

One element of ICT expenditure that may be suitable to benchmarking is technology infrastructure that is shared across multiple business systems and the business processes that they support. However, again, the appropriateness of this would depend on the details of exactly how it was carried out.

One particularly challenging aspect of benchmarking that will arise is how to effectively consider relatively high ICT expenditure that customers are willing to pay to facilitate the delivery of specific customer outcomes, which have been agreed through robust customer engagement. Benchmarking could suggest inefficiency, but if those outcomes reflect customers' preferences, a DNSP should not be disadvantaged for 'doing the right thing' by its customers.

If the AER determines that benchmarking is appropriate, it should exercise caution when interrogating historical ICT data, given:

- The scope for DNSPs to classify ICT expenditure differently.
- The different starting positions of the DNSPs being benchmarked.
- The scope for large upgrades, such as SAP, to significantly distort historical recurrent expenditure.
- Expenditure within a regulatory period often reflecting the relative priority given to projects, which can change within a period, often with a significant impact on the cost to both the specific program in question but also to the programs impacted by the re-prioritisation.
- History does not always represent the future, particularly due to the speed of change in the ICT sector – for example, as technology develops there may be increasing scope for information led, automated decision making to support better decisions about resource use within the wider business. The efficiencies that this could generate could be material, yet could be missed if the approach to assessing technology spend is narrow and backward looking.

If a deterministic benchmarking approach is adopted by the AER, there is scope for many innovative and/or efficient, customer-focussed programs to be unreasonably rejected. It should be remembered that benchmarking is just one tool in a regulator's tool kit, and any assessment of an ICT proposal should involve a broad set of considerations.

Whatever benchmarking methodology the AER adopts, it needs to avoid creating any disincentives for DNSPs to invest in ICT.

Question 3

We note the difficulty in assessing the efficiency of implementing a compliance driven step-change ICT projects. What information do you consider is required to assess the efficiency of these projects?

Given the compliance nature of these proposals, a proportionate approach to assessing the efficiency of a compliance driven step change is appropriate. Information required to assess the efficiency of these programs includes:

- clear identification of the compliance issue needing to be addressed, including its timing; and
- appropriately focused option analysis, with costs, benefits and risks identified.

Third-party review of any expenditure incurred could also attest to the efficiency of a compliance driven proposal. However, this should not be a requirement – it should be a DNSP's decision as to whether it considers that such a report would be beneficial.

Question 4

What do you consider a sufficient business case for an ICT project should include?

The business case for recurrent ICT expenditure is the result of applying asset management policy to maintaining current technology services. Project specific business cases would support the National Electricity Objective for non-recurrent initiatives. However, the information contained within each business case for a non-recurrent program should be proportionate to the size of the proposed program, the risks involved and its cost. This means business cases should vary on a case-by-case basis. Nonetheless, the following information should, in general, be present:

- the drivers for the program, including risks and, if appropriate, evidence that customers want an outcome that the proposed spend will allow;
- option analysis;
- the expected costs and benefits of those options, including with respect to reliability and customer preferences. Importantly, this should be qualitative and/or quantitative – as noted earlier, quantifying costs/benefits of ICT programs can be challenging;
- the preferred option; and
- information on any other relevant factor.

Net Present Value (NPV) analysis may also be beneficial. However, if quantifying the benefits of options is challenging (which, as mentioned, is the case for ICT programs), the benefit and usefulness of undertaking an NPV analysis may be limited. Requiring NPV analysis would therefore be disproportionate and would represent an inefficient use of time and resources. The AER should also be mindful that, given the speed at which technology changes, information included in a business case (developed three to five years ahead of any implementation) may differ to the costs and approach ultimately adopted to meet the identified business/customer need. Such an outcome should not, however, reflect badly on a DNSP. Rather, it reflects a DNSP's ability to effectively adapt to new and unforeseen circumstances.

Question 5

What is your opinion on us requesting DNSPs provide post implementation reports from historical ICT investments?

It would be disproportionate for all ICT programs to be required to provide post implementation reports. However, going forward, the adoption of a risk-based approach to post implementation reports may have merit. For example, post implementation reports may be particularly useful if a program has numerous steps, involves significant expenditure or has faced particular challenges (including cost over-runs).

Importantly, if there is a requirement for post implementation reports, it should be recognised that the focus of each report may differ and the appropriate timing could differ. For example, a report that focuses on costs and/or risks may be produced relatively quickly after the completion of a program. However, a report on outcomes may only be possible several years after a program has been implemented.

Should post implementation reports be mandated, a flexible, risk-based approach that is set by a DNSP is therefore the most appropriate approach going forward.

Question 6

What do you consider is required to demonstrate that DNSPs have incorporated benefits into its overall proposal?

ICT expenditure is necessary to drive efficiency within a DNSP, and the (0.5%) productivity growth adjustment currently applied by the AER is enabled by ICT and reflects the efficiency of our proposed ICT expenditure. However, ICT investment can also generate other benefits, including:

- changes to service levels;
- meeting customer evolving expectations, including with respect to being better informed;
- keeping things in balance in an increasingly complex environment; and
- risk minimisation.

Demonstrating potential benefits is important and one approach by which a DNSP could do this would be by linking specific ICT programs to outcomes that customers have identified through broader customer engagement. However, quantifying those (and other benefits) can be challenging and a more qualitative assessments may provide the necessary transparency required by the AER (and wanted by customers).

Importantly, many of the expected benefits of an ICT program may take time to be revealed as:

- it takes time to implement and deploy technology;
- any potential benefit may need to be offset by additional opex to maintain new systems and/or for the training associated with the proposed expenditure; and
- there may be transitional periods due to some overlap of new and old technologies. As noted earlier ('Total expenditure (totex) not remaining constant in migration to the cloud'), expenditure may need to increase until such time as all legacy on-premise assets are replaced by cloud services.

Question 7

Which scenario - self funding or productivity improvement - would you prefer and why? Are there other scenarios we should consider?

DNSPs should be provided with the opportunity to address any perceived shortcomings with their proposal prior to the AER disallowing the capex forecast and proposing the business self-fund the program or applying a broad productivity adjustment.

If a program is not self-funding, but the AER considers that a DNSP has not sufficiently justified its proposal (despite it being given an opportunity for that information shortfall to be addressed), we recognise that the AER could apply some sort of adjustment. However, as outlined in our response to Question 8 (below), we have concerns with how any such adjustment may work.

Whatever approach the AER adopts, it is important that it does not undermine investment in ICT and incentive-based regulation, including the various incentive schemes currently in place, because overall efficiency improvements and innovation depend on technology.

Question 8

We welcome stakeholder comments on the practical application of a productivity adjustment. If we were to include a productivity adjustment on the basis of ICT expenditure, how should it be incorporated? If so, how should we determine how large should this adjustment be? What aspects of a DNSP's forecast should it be applied to?

The AER already applies a top-down productivity growth adjustment to capture efficiency improvements. We do not consider that an additional, complex-to-determine efficiency adjustment is reasonable, particularly where an ICT proposal reflects customers' preferences (which a DNSP may have identified through extensive customer engagement). We also do not consider that it would be reasonable to have an efficiency adjustment for programs that are compliance driven.

If the AER considers a specific ICT adjustment is required, to avoid double counting potential efficiency gains, the productivity growth adjustment currently applied to DNSPs should cease. If the AER were to apply a double efficiency adjustment – which we do not support – at a minimum, the following program types should be excluded from any second efficiency adjustment:

- recurrent expenditure that maintains existing ICT services;
- compliance programs; and
- programs that reflect customers' known preferences – for example, high-cost ICT programs that facilitate the delivery of specific, potentially higher-than-standard, customer outcomes that have been identified through robust customer engagement.

While these exclusions would still result in an inefficient outcome, failure to take these factors into account would severely undermine the significant effort expended by customers, us and the AER to the new and more customer-focussed New Reg Process.