ICT Expenditure Assessment

Response to AER Consultation Paper

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Energy Networks Australia

Contents

Energy Networks Australia www.energynetworks.com.au
Unit 5, Level 12, 385 Bourke Street Melbourne VIC 3000
P: +61 3 9103 0400 E: info@energynetworks.com.au
Energy Networks Association T/A Energy Networks Australia
ABN: 75 106 735 406

Key messages

- ICT projects increasingly underpin and enable critical grid access, reliability and service outcomes for customers in a higher penetration DER environment
- Building customer, regulator and network confidence in assessment processes is key to getting long-term investment and efficient outcomes right for all grid customers
- Broadly, the approach set out by the AER appears workable, provided some key implementation issues and consistency with existing incentive approaches are clarified
- Benchmarking results will need to be applied with caution to ensure that innovation is not stifled
- The expenditure and incentive framework need to be internally consistent and avoid 'double counting' gains

Role of ICT in supporting customer outcomes

Energy Networks Australia is the national industry body representing Australia's electricity transmission and distribution and gas distribution networks. Our members provide more than 16 million electricity and gas connections to almost every home and business across Australia.

Energy Networks Australia (ENA) appreciates the opportunity to comment on the AER's ICT Expenditure Assessment Consultation Paper (the Consultation Paper).

Further detail on our key messages is provided in the following sections.

The Appendix to this submission provides ENA's responses to the questions posed in the Consultation Paper.

To support innovation and for network services to remain relevant for changing customer needs, networks will need to continue to invest in ICT. Along with improving efficiency, the growth of distributed energy resources (DER) and other new technologies is necessitating the transformation of distribution networks to:

- continuously improve operational efficiency and asset utilisation (e.g. automating processes or demand response solutions) to lower costs for customers;
- ensure safety, reliability and compliance obligations continue to be met (e.g. cyber security, visibility of the distribution system); and
- satisfy changing customer expectations around the services that distribution networks should facilitate (e.g. meeting expectations around timely connection of solar PV, facilitating network support payments, enabling peer-to-peer trading).

Key parts of this change require ICT investment to enable the realisation of customer value, which differs from the more 'steady state' technology environment of previous decades.

The AER Consultation Paper notes a range of these factors. As such, the efficient amount of network spending on ICT to maximise existing and new service delivery may be expected to rise in real dollar terms.

It is vital that the AER continues to consider the 'bigger picture' in reviewing networks proposed ICT expenditures. If too much reliance is placed on 'old' expenditure data as providing an appropriate benchmark, there is a real risk that innovation in the sector is inefficiently constrained. This will lead to higher prices for customers as the true value of distribution networks in the energy future will not be realised.

Networks recognise that ensuring sustained consumer confidence in the robustness of future expenditure assessment processes surrounding proposed ICT investments is critical to ongoing regulatory confidence and, as a stakeholder, welcome the opportunity to participate in this review.

Putting ICT expenditure in context

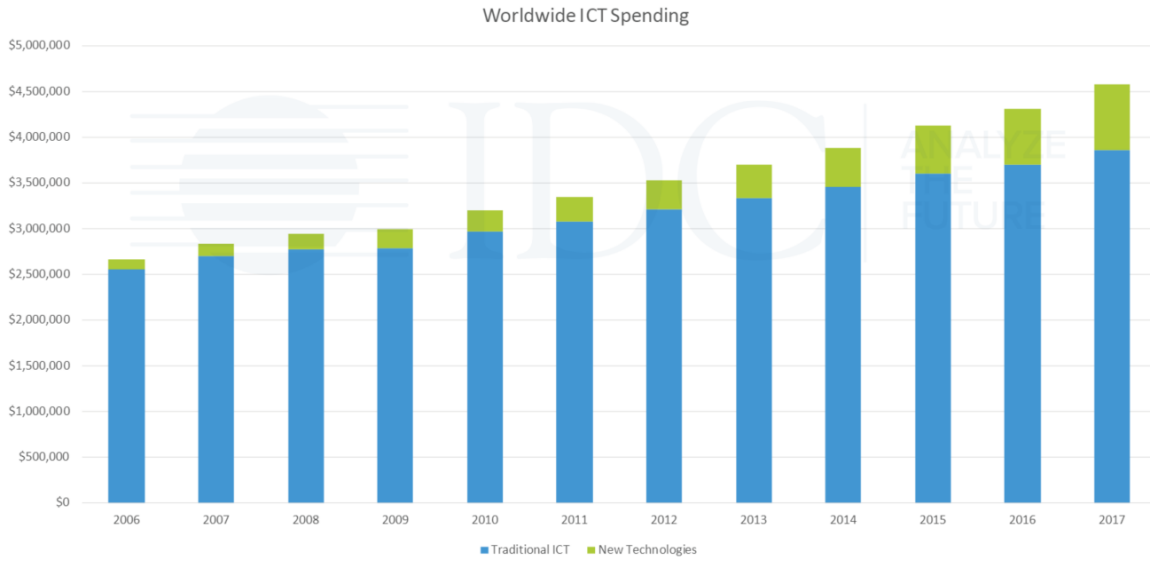
Historical expenditure is consistent with the global trend

The Consultation Paper highlights the growth in ICT expenditure over the 2009 to 2017 period. Before reaching any assessment as to whether this is the result of any inadequacy in regulatory approach or incentives, it is important to understand the broad context of whether this is an unusual or narrow experience confined to energy network operations.

Looking at the broadest level, it appears this increase is closely in line with the global growth in ICT spending over the same period:

- The International data Centre (IDC) reports that in 2009 worldwide ICT expenditure at $3 trillion and in 2017 was just below $4.6 trillion, an increase of around 53% in nominal terms (see figure below).
- The AER's reported increase in ICT spend for DNSPs over the same period is about 27 to 28% (in real terms) or 52% in nominal terms.

Network ICT expenditure increases are in line with global growth in in ICT spending[1]



Note:

- **Traditional ICT**[2] is considered to be hardware, software, services and telecommunications. Predicted further growth in this area is related to four platforms: cloud. mobile, social and big data/analytics
- **New technologies**[3] comprise the internet of things, artificial intelligence, robotics/drones, augmented reality, virtual reality, 3D printing, next gen security and the related hardware, software and services

[1] *Global ICT Spending 2007-17 ($3.8T in 2017)*, International Data Centre https://www.idc.com/promo/global-ict-spending/overview

[2] *Ibid*

[3] *Ibid*

Like the rest of the world, networks are embracing new technologies and becoming more digitised. Just as residential homes now have more devices and subscribe to more monthly internet-based service offerings than in 2009, so to do businesses.

Investment has expanded in portable hardware (iPads, laptops and mobile phones), software is moving from outright purchasing to a subscription-based business model and cloud-based platforms are slowly becoming the norm.

This transition to improve efficiency may increase costs in the short-term as applications are migrated one at a time. This means that the new platform is initially under-utilised while costs are being incurred for those applications that have yet to be migrated.

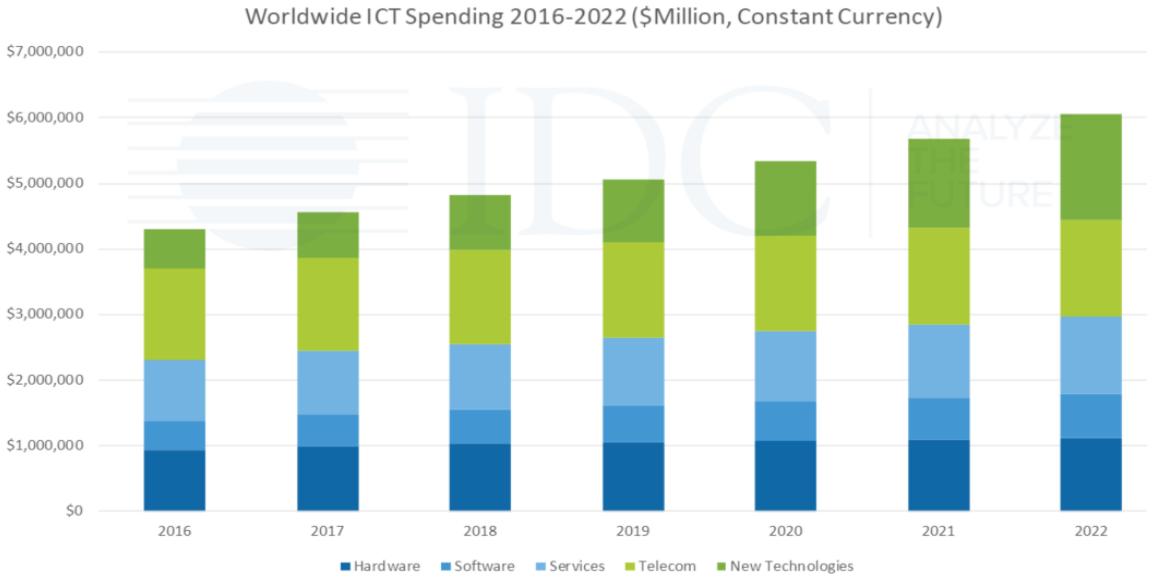
Networks recognise that many software vendors will soon cease to offer on-site solutions and support, making migration to the cloud necessary.

The figure above also highlights that new technologies (like real-time analytics, machine learning, control systems and automation etc.) represent a growing proportion of ICT spend.

ICT expenditure is forecast to continue growing

Unlike traditional ICT spend, which is forecast to broadly track GDP growth over the next decade, the IDC expects the growth in ICT spend related to new technologies to continue (see figure below).

Spend on new ICT technologies is forecast to grow significantly[4]



The IDC expects traditional tech spending to remain a stable share of overall business and consumer spending with:

- Software being the major contributor to improved productivity and the driver of most of the economic benefit of ICT spending
- Cost savings generated by cloud and automation being diverted towards new technologies such as AI, robotics and augmented reality/virtual reality

[4] *ICT Spending Forecast, 2018-22 forecast*, International Data Centre https://www.idc.com/promo/global-ict-spending/forecast

- Next-gen security related to new technologies also continuing to drive significant growth
- The integration of new digital strategies with existing operations and metrics (the digital transformation) also driving significant expenditure.[5]

ICT is key to improving networks utilisation and facilitating the transformation to accommodate growing DER and other new technologies. This new ICT expenditure will bring efficiencies, ensure licence and compliance obligations can be met and ensure the network remains valuable to customers.

The total growing ICT expenditure trendline is important

It is worth highlighting that whilst networks forecast ICT expenditures can be expected to follow the total trend line from the figure above, the AER's proposed categories of 'Recurrent' and 'Non-recurrent' expenditure do not align with the 'Traditional ICT' and 'New technologies' categories referred to in the IDC chart.

'New technologies' inherently entail elements of 'Traditional ICT' (hardware, software, services and telecommunications) and over time, the 'New' of today becomes the 'Traditional' of tomorrow. As such, new or expanded ICT capabilities categorised as 'Non-recurrent' costs in one regulatory period, will likely lead to some level of 'Recurrent' costs in the next regulatory period, through for example annual licence fees or an on-going subscription service.

- For example, consider an ICT investment to improve visibility on a demand constrained section of the network. This entails a 'one-off' capital investment as well as an on-going operating cost related to capturing and monitoring the real-time data.
  - Under the IDC categorisation, this expenditure would sit entirely under 'New technologies'
  - Under the AER categorisation, however, all of the expenditure would be considered 'Non-recurrent' in the regulatory period in which it is first put-forward, but the on-going operating cost would be classified as 'Recurrent' expenditure in subsequent regulatory periods.

As such, networks ICT expenditure as a whole is expected to increase over time including ICT expenditure categorised as 'Recurrent' - see the *Recurrent expenditure is expected to increase* section.

ICT expenditure in context

The ICT expenditure growth trends shown in the Consultation Paper are better comprehended when the growth in ICT expenditure (discussed above) is considered alongside the significant decline in total network expenditure since 2011-12 (see figure below).

Reductions in augmentation and replacement capital expenditure have been the main driver of lower network capex since 2011-12.

[5] ibid

Combined distribution networks operating expenditure and capital expenditure and associated ratio[6]

Source: AER
Note: values in 2017 real dollar terms

It is also important that percentage changes and trends are given full context.

The Consultation Paper states that a near 30% decrease in total network expenditure (totex) over 2009 to 2017 contrasts with a 30% increase in networks ICT totex. However, the scale of the relative expenditures is overlooked in such comparisons - total networks expenditure decreased by almost $600 million over the 2009 to 2017 period, compared to a $150 million increase in ICT totex.

Regulation is a driver of ICT expenditure growth

It is important to understand the drivers of ICT growth – one of which is growing regulatory obligations.

Whether Federal or jurisdictional, these obligations cannot be readily foreseen and cannot be ignored by businesses. Inevitably, there is some level of intra-regulatory period ICT expenditure related to regulatory obligations that was not included in the AER approved allowances.

Some of the recent Rule changes and increased regulatory obligations that have increased ICT costs through increased data collection, system requirements, system capabilities or automation, are:

» Cyber-security requirements – this is an area with ever increasing assurance requirements.

[6] *Economic Regulatory Framework Review, Promoting Efficient Investment in the Grid of the Future*, Australian Energy Market Commission, July 2018, Figure 3.12, p. 50

- Investment in Global Settlements and system requirements for the 5 Minute Settlement rule change.
- Enhanced RIT-D and asset replacement guidelines ICT expenditure has enabled businesses to gather the necessary data to substantiate replacement expenditure and meet reporting obligations.
- Power of Choice metering reforms – ICT expenditure to meet this compliance requirement was costly and is yet to provide a benefit to most networks.
- Data compilation for the Register of Distributed Energy Resources.
- AER Regulatory Information Notices (RINs) were dramatically enhanced from 2013 - most networks have invested in automated data collection (where possible) and facilitating RIN data collation.

Investment incentives must be stable, integrated and coherent

Regulatory changes may undermine the incentive framework

Regulatory credibility requires a stable incentives regime, yet recent Rule and regulatory reviews seem to have specifically focussed on removing a perceived capex bias. The outcomes of these reviews may give rise to unintended consequences that could undermine the incentive framework.

The expenditure and incentive framework must avoid 'double counting' gains

The Consultation Paper did not comment on how the proposed approach will interact with the recently completed review of operating expenditure (opex) productivity growth (which determined an annual 0.5% productivity assumption).

ENA expects that any efficiencies expected to result from a network's proposed ICT expenditures must be counted toward the 0.5% adjustment and not be in addition to that adjustment. Doing otherwise would double count the expected productivity improvement and be inconsistent with the NEL requirement that distributors be provided with a reasonable opportunity to recover at least efficient costs.

As such, the Final Decision should make it clear that the 0.5% rate from the review of opex productivity growth is the minimum expected rate, but this will be reconsidered and adjusted in light of the ICT efficiencies put forward by the business.

For example, consider two proposed ICT programs that give rise to the AER adopted opex productivity growth rates shown in the table below (with the AER guideline rate of 0.5% per annum also shown as a comparison):

Simplified	Regulatory period 1						Next period
	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Year 6
Network 1 - ICT opex productivity growth	-2.0%	0.2%	0.5%	2.0%	3.0%	**3.7%**	n/a
Network 2 - ICT opex productivity growth	-2.0%	0.2%	0.5%	1.0%	2.0%	**1.7%**	5.0%
Opex productivity growth per guideline	0.5%	0.5%	0.5%	0.5%	0.5%	**2.5%**	n/a

- For network 1 - Given the network's total proposed opex benefits across the five years exceeds the total five-year opex productivity growth rate in the AER guideline, ENA assumes that the rates put forward by the network would be accepted by the AER.

  If the AER instead chose to apply 0.5% in both years one and two, they would not be allowing the business a reasonable opportunity to recover at least their efficient costs as no ICT program is costless.

- For network 2 – it takes six years for the full benefits of the ICT related opex to be fully realised. Again, ENA assumes that the AER will take the significant forecast benefits that sit outside the proposed regulatory period into account in assessing the opex productivity growth to apply for regulatory period 1.

Proposed AER approach

More clearly define ICT expenditure categories

It would appear that networks have categorised ICT expenditure in different ways. ENA is aware that:

- Some have interpreted the word 'Recurrent' to mean 'on-going' spend. These networks have, therefore, categorised replacement expenditure for obsolete or unsupported software as 'Non-recurrent'.
- Others have interpreted 'Recurrent' as meaning 'core' spend. As such, they have categorised system replacements for obsolete or software that is no longer supported as 'Recurrent'.
- There are also likely differences in how network control room costs are categorised.

There are likely many more differences in the interpretation and reporting under the existing categories.

ENA's suggests that:

- 'Recurrent' expenditure be defined as 'ICT expenditure related to maintaining existing services and/or market benefits'.

  Given such projects are not altering the level of service or market benefits business cases for these projects should not require benefits to be calculated.

  This categorisation would capture the 'like-for-like' replacement of existing systems or software. Such replacements generally don't have a 'do nothing' scenario and the associated NPV will be neutral or even negative – recognising that a true like-for-like replacement generally comes at a cost and offers no associated efficiency benefit.

  It would also capture the on-going expenditure associated with a new 'Non-recurrent' project in the last regulatory period, that is now a part of business-as-usual operations and so is now categorised as 'Recurrent' – see *Recurrent expenditure is expected to increase* section below.
- 'Non-recurrent' expenditure be defined as 'ICT expenditure that alters existing services and/or market benefits'.

  Business cases for this type of expenditure will require consideration of the proposed benefits.

  As this relates to new or expanded ICT capabilities, this category would be used for those parts of a system replacement that are not 'like-for-like'.

Regardless, the AER will need to work with stakeholders to clearly define the ICT expenditure categories to ensure any data used for benchmarking is reported in a consistent manner.

Recurrent expenditure is expected to increase

'Recurrent' expenditures are expected to rise over time. As such, just as the Base-Step-Trend approach is applied to opex, the AER will need to ensure that the results of any benchmarking of historic expenditure considers legitimate and efficient increases in 'Recurrent' costs including:

- Forecast increases in ICT costs above Consumer Price Index (CPI) – for example, a contract with a software vendor may specify set percentage increases for each year;

- Forecast growth in related drivers that can be expected to increase costs - for example, costs may incrementally increase as more feeders are digitally monitored; and
- Any new 'Recurrent' expenditures. These may arise from the current regulatory period's approved 'Non-recurrent' projects. Equally, they may arise from compliance requirements or projects that were not foreseen at the time of the last regulatory proposal. Either way, they are now a part of 'business-as-usual' expenditure and will be included in the latter year revealed costs of the business.

Total expenditure benchmarking of recurrent spend

Energy Networks Australia supports the use of totex for benchmarking as it more appropriately recognises that networks have different procurement approaches to ICT.

Nevertheless, the benchmarking of 'Recurrent' ICT expenditure will be subject to a range of complexities and issues that need to be considered. The table on the following pages outlines key issues and suggested approaches to minimise the potential for erroneous decision making.

Benchmarking issues and associated suggestions

	Issue	Suggestion
1.	**There is significant variability in the current reported ICT data between networks.** This is not an uncommon issue throughout the RINs. For example, the AER found that even 'Earnings before interest and tax' was reported differently between networks in its Profitability measures review[7].	Underlying data must firstly be cleansed: » Work with stakeholders to define the types of expenditures that fall within each category to ensure a consistent approach to reporting » Correct historical data to be used in benchmarking as required Agree the method (if any) for determining the portion of ICT within intelligent network assets of the future e.g. transformers that include communications capability.
2.	**Networks ICT levels and plans are not identical** Each network is starting from a different ICT base and they are each at different places in the transition to new platforms and adoption of new technologies. Equally, they are not all targeting the exact same ICT model, and nor do their customers want them to. These differences mean that the 'efficient' level of ICT expenditure will naturally vary by network.	Caution must be applied when interpreting benchmark results to account for the differences in network transition paths and risk appetites.
3.	**ICT expenditure must be considered in context** » The proposed benchmarking approach fails to consider the associated productivity outputs (benefits) from ICT expenditure. This may lead those networks who have chosen to invest more in ICT to increase automation and/or improve efficiency being branded "inefficient". Given ICT expenditure is expected to grow over the coming years, placing reliance on historical data to set expenditure targets will stifle innovation in the sector.	Benchmarking should not be applied in a deterministic manner. To determine whether the proposed ICT expenditure is efficient and will deliver benefits that are in the long-term interests of consumers, it should instead be considered in conjunction with: » business expenditure results; » the utilisation of incentive schemes; and » the regulatory proposal itself; » the level of stakeholder support; » any Post Implementation Reports voluntarily provided by the business; » the supporting business cases; » other business ICT forecasts; and » the total forecast efficiencies being proposed.

[7] *Profitability measures for electricity and gas network businesses - Draft position paper*, Australian Energy Regulator, April 2018, p.31

	Issue	Suggestion
4.	**'Recurrent' ICT expenditure may not lend itself to benchmarking** » 'Recurrent' expenditure is expected to increase over time – see *Recurrent expenditure is expected to increase*. » 'Recurrent' spend can be lumpy depending on the timing of procured ICT services and where networks are in their IT lifecycle. Network operating environment factors may not be adequately accounted for.	To minimise benchmarking distortions the AER may need to consider removing: » Converting 'Recurrent' spend to a five-year rolling average for benchmarking. » Removing major irregular 'Recurrent' programs e.g. replacement of the Finance system » Removing any 'Recurrent' ICT expenditure that the AER's benchmarking considered to be inefficient but was allowed through based on stakeholder support.
5.	Given the expected upward trend in ICT expenditure for networks (and across the globe), **the choice of benchmarking period and the application of the results must be appropriate.** The Consultation Paper does not: » Indicate the length of the historical benchmarking period to be relied upon; » state how much weight benchmarking results will carry and whether less weight (or no weight) will be applied in situations where networks ICT expenditure proposals are fully supported by both consumer groups and customers; » contain the necessary detail to fully assess the robustness of the proposed benchmarking approach. It is important that the AER does not apply ICT expenditure benchmarking in a deterministic manner or place too much reliance on historical ICT expenditure data as being a reliable indicator of the efficient level of future spend, otherwise there is a real risk that network innovation will be stifled.	ENA suggests: » Historical data be limited to a five-year rolling average and all relevant available network forecasts should be included in any analysis. As the ACT, Tasmanian and NSW distributors lead the AER regulatory reviews, their ICT expenditure assessments will comprise the smallest pool of benchmark ICT forecasts data. This may require the AER to modify its approach in some manner. » The AER should consult with networks and other stakeholders ahead of the Final Decision to gather data and agree a proposed benchmarking approach, including whether any formally weighting is to be applied to benchmarking. » The AER should consider a lighter-handed approach to assessing ICT expenditure where a network has gained the support of both consumer groups and customers for the proposed level of spend.
6.	**Benchmarking may not adequately account for differences in network characteristics.** As such, the AER should not be limited to benchmarking all networks in the exact same manner.	The Final Decision should maintain flexibility and not limit the AER's ability to adjust its benchmarking scope. For example, radial networks may exhibit different ICT expenditure drivers than that of meshed networks. As such, the AER should have the flexibility to consider networks under different but relevant benchmarks and should not be constrained by a uniform "one size fits all" approach.

	Issue	Suggestion
7.	**Customer numbers and employee numbers are not considered to be appropriate normalisers for the bulk of ICT expenditure.** The value of networks forecast ICT expenditure that is driven by customers or employee numbers is next to nil. Broadly, networks near-term ICT forecasts relate to maintaining capability in the face of increasing amounts of DER; improving ICT and business efficiency; and transitioning to new platforms for managing and using data. Outer year ICT forecasts are more related to establishing grid visibility to facilitate demand management solutions and new technologies.	ENA suggests that more relevant normalisers would be those associated with network attributes, such as the number of feeders by location (CBD, suburban, regional, remote) and the number of customers they serve, to be a more appropriate normaliser of ICT costs. Additional suggested normalisers can be found in the response to Question 2 in the *Appendix – Response to consultation questions*
8.	The Consultation Paper does not make it clear **how often ICT expenditure will be benchmarked**. For example, is it intended to become part of the AER's Annual Benchmarking Report or will it just be undertaken at the time of each network's Regulatory Proposal?	The timing of ICT expenditure benchmarking should be clarified in the Final Decision. ENA suggests that benchmarking be undertaken only at the time of a network's Regulatory Proposal. This will: » minimise the AER's workload » ensure that adequate context is provided around proposed ICT expenditure levels » minimise the length of the Annual Benchmarking Report. Actual ICT spend details should be reported annually in the RIN, with the AER needing only to assess and comment on the appropriateness of expenditure levels at the time of each network's Regulatory Proposal.
9.	**Step changes need to be considered for both proposed 'Recurrent' ICT capex and opex**. The examples of recurrent ICT expenditures in the Consultation Paper encompass both capex and opex items, yet the Consultation Paper states that the AER will consider the prudency and efficiency of proposed 'Recurrent' capex step changes[8]. There is no similar comment for 'Recurrent' opex step changes.	The references to 'ICT capex proposal' under the sections '*A justified recurrent ICT proposal*' and '*A non-justified recurrent ICT proposal*' in the Consultation Paper, should be replaced with 'ICT proposal' in the Final Decision. This will ensure that cyclical opex costs (that are not necessarily annual costs) are appropriately considered as step changes.

[8] *Consultation paper – ICT Expenditure Assessment*, Australian Energy Regulator, May 2019, p. 18-19

Assessment of non-recurrent expenditure

The best option may not have the highest NPV

The Consultation Paper states that an assessment of the prudency and efficiency of a project will generally be based on whether the project benefits exceed the costs[9]. This is further expanded to indicate that the option with the highest NPV should be chosen[10].

This proposed approach overlooks that there may be unquantified risks or benefits associated with an option that are not included in the NPV result as they relate to intangibles (e.g. Improved business reputation) or upstream or downstream elements (e.g. 'Reduction in the risk of tripping the transmission network') of the electricity supply chain.

Such items are often related to the "quality" of service offered and cannot be reasonably estimated in dollar terms. This can be especially difficult given regulatory proposals require ICT forecasts up to seven years ahead of time, when the detailed ICT specifications cannot possibly be known. Instead, these items are separately considered in a benefits and risk analysis.

Where possible, it is helpful that these unquantified risks and benefits are linked to quantifiable costs and benefits, though this does not mean that the full value of the risk or benefit is adequately captured in the NPV.

Examples of potential unquantified benefits and risks

UNQUANTIFIED BENEFIT OR RISK	EXAMPLE OF LINK TO QUANTIFIABLE BENEFIT OR RISK
A proposed vendor may: » have poor references » have a strong track record of delivering on time and on budget » offer an energy network specific solution that is more user-friendly and provides more features than an off-the-shelf product	» The size of the project contingency costs » The timing of the project delivery (costs and benefits) » The size of forecast financial benefits (may be greater for industry specific software or where additional features are included)
» Improved business reputation	» Forecast savings from reduced outage response times (assuming the location of faults can be better identified)
» Reduction in the risk of tripping the transmission network	» Forecast savings in field response costs

The results of the benefits and risk analysis are used in conjunction with the NPV outcomes to select the best option.

[9] Ibid, p.19

[10] Ibid, p.20

The Final Decision should be reworded to make it clear that a robust business case applies a risk-based assessment of all the relevant project criteria, of which the NPV forms just one part. As such, the highest NPV project may not necessarily be the best option.

Consumer support for ICT expenditure should carry weight

Networks spend significant resources undertaking engagement with customers and consumer groups. Where their support for ICT expenditure has been obtained, this should be given due weight and consideration by the AER.

Rather than risk creating additional compliance-based expenditure around some elements of the ICT assessment process, ENA suggests that a productive focus may be ensuring businesses have confidence in a proportionate and 'fit for purpose' assessment approach will be applied where they:

- provide relevant robust ICT business cases up-front;
- have clearly identified how the associated benefits have been included in the regulatory proposal; and
- have obtained customers and consumer group support for the proposed spend.

The current National Electricity Rules explicitly provide for the AER placing due weight on the views of consumers (stakeholder engagement results) alongside other expenditure factors in assessing the appropriateness of ICT expenditure.

ICT expenditure may become increasingly difficult to identify

It is also worth highlighting that some ICT expenditures will become harder to identify as digital technologies are integrated into network assets. Like the modern 'smart' air-conditioner, it is likely that future distribution transformers will also contain digital technology, negating the need for a separate piece of equipment to be "added-on" as in the case today.

It would be worthwhile for the Final Decision to consider this future state and outline how businesses are to allocate a separate value to an intrinsic part of an asset and/or the circumstances under which such ICT expenditure is no longer required to be extracted.

- For example, where the 'smart' aspect of the network asset cannot be accurately valued as a separate asset, it could be treated solely as network capex with any repairs and maintenance to the digital communications components down the track being appropriately categorised as ICT capex or opex.

Scope and timing of post implementation reports

PIRs should not be expected for 'Recurrent' ICT expenditure

ENA agrees with the Consultation Paper that Post implementation reports (PIRs) are only relevant for 'Non-recurrent' ICT expenditure projects.

PIRs should be provided on a voluntary basis as they will not assist the AER in determining the efficiency of a business' ICT expenditure

PIRs should not be compulsorily provided to the AER through a Regulatory Information Notice (RIN). Instead, businesses should be able to voluntarily provide them to the AER to support their regulatory proposals.

ICT PIRs tend to focus on assessing the cost management and project management aspects of a project, rather than whether the specific project benefits were achieved.

This is because ICT projects generally provide benefits across numerous business units and it may take several years for the full benefits of ICT expenditure to eventuate. As such, it is not always possible to separately identify the resulting benefits related to a specific ICT project from the benefits arising from other overlapping business, system and process changes.

- For example, it would be difficult to separately identify the time savings related to an ICT application that improved field staff efficiency by streamlining 'work packs' to reduce time spent travelling to and from the depot from the benefits of an overlapping project that distributed iPads to staff along with a new app that provided targeted safety assessments in place of the previous generic paper based form.

As such, ICT PIRs will only provide evidence of a business' accuracy in forecasting project costs and delivery milestones. Therefore, they should only be voluntarily provided where a business wants to demonstrate to the AER that they have a track record for delivering a similar ICT project (in terms of cost, scale and risk) on time and on budget.

ICT efficiency is best assessed at a high level

ENA considers that reviewing networks PIRs in detail needs to avoid an outcome in which the AER is perceived as effectively assuming the role of managing the business on a day to day basis, rather than being the regulator responsible for setting efficient future allowances.

Given the difficulty of 'unbundling' resulting ICT benefits (outlined above), such a review would also be unlikely to assist the AER in assessing the efficiency of ICT expenditure efficiency.

Other more appropriate ways by which the AER could assess the efficiency of actual ICT expenditure is through the review of:

- The operating and capital expenditure results
- Incentive scheme results
- The capital and operating expenditure summary for the current period contained within the regulatory proposal.

Not every project runs perfectly but if, at a high level, the business has met or exceeded its approved operating and capital expenditure allowances, then the AER has less reason to doubt the efficiency of a network's ICT expenditure. The incentive mechanisms also encourage efficiency.

The timing of Post Implementation Reports to the AER

The Consultation Paper does not make it clear exactly when Post Implementation Reports are expected to potentially be delivered to the AER. Based on the above views, ENA expects that PIRs could be voluntarily provided to the AER as part of the business' Regulatory Proposal.

Given the effort required to complete a PIR and the fact they can really only be used to assess a business' ability to accurately forecast ICT costs and manage ICT projects, ENA sees no value in requiring them to be compulsorily provided or submitted outside of the regulatory determination process.

Appendix – Response to consultation questions

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?

ENA sees value in the disaggregation of ICT expenditure into 'Recurrent' and 'Non-recurrent' categories, though these categories need further clarification with networks to ensure data is consistently reported.

If Ausgrid's "Maintain" category captures all existing ICT expenditure, then the 'Comply', 'Protect' and 'Adapt' categories provide a broad explanation for step changes. However, ENA does not see them being useful outside of a Regulatory Proposal. They would also add unnecessary complexity for annual reporting, particularly if back-casting of data is required.

Given the significant increases in ICT expenditure by DNSPs in recent years (in line with global trends) and the fact that ICT assets are short-lived, older data will add little value to the benchmarking process.

As such, and recognising the time and effort required to retrospectively back-cast ICT expenditure, ENA proposes that no back-casting of data be required. Instead, networks could begin reporting against any new ICT expenditure categories in the 2019-20 financial year or 2020 calendar year. This would provide close to three to four years of historical data for the next round of Regulatory Proposals.

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.

Energy Networks Australia supports the totex approach to benchmarking, so long as the results are used to provide context and are not applied in a deterministic manner. Network operating environment factors (OEFs) may also need to be considered, bearing in mind that the OEFs relevant to ICT expenditure are significantly different to the OEFs considered by the AER in its DNSP benchmarking to date.

A full list of ENA's issues and suggestions in relation to ICT benchmarking can be found in the section *Total expenditure benchmarking of recurrent* spend.

In terms of appropriate normalising factors, the ICT systems required to provide distribution services are largely the same regardless of the number of customers or employees i.e. there are limited economies of scale in relation to ICT expenditure.

Customer numbers would be the least relevant normalising factor for ICT expenditure. Similarly, employee numbers would only have merit as a normalising factor for relevant expenditure categories like the number of devices, the number of software licences or the incremental value of subscription services.

RAB may give a proxy value of network size but, given the significant network transformation already taking place and forecast to continue for at least the next decade, ENA suggests that the network attributes that will drive much of this expenditure be considered as more appropriate normalising factors.

For example, the number of:

- Feeders;
- Distribution transformers;
- Operating envelopes (once they are defined);
- network owned stand-alone power systems;
- DER installations;
- Battery installations; and
- Customers providing demand response

along with their location within the network (CBD, suburban, regional, remote) and (where relevant) the number of customers they serve.

This type of network breakdown will better help explain increases in ICT expenditure.

Question 3: We note the difficulty in assessing the efficiency of implementing a compliance driven step-change ICT project. What information do you consider is required to assess the efficiency of these projects?

A short form (less detailed) business case should provide adequate explanation and justification for compliance driven step-changes.

When it comes to compliance projects, there is no "do nothing" option and they will likely offer minimal or no quantifiable benefit to the business.

- For example, automating the extraction of a year's data for a RIN element might save eight hours of a staff member's time per year (a small benefit), but also reduce the potential for errors and the need to resubmit RIN data down the track (a further but smaller benefit), which also helps build trust and integrity with stakeholders (impossible to quantify).

As such, some sections of a business case may not be required or can be significantly shorter, for example 'the business need' is simply to meet compliance obligations.

Bearing ENA's comments under the section *The best option may not have the highest NPV* in mind, the efficiency of these projects should be determined in exactly the same manner as any other ICT project business case.

Question 4: What do you consider a sufficient business case for an ICT project should include?

The size and detail of a business case will reflect the size (scale and value) and risk of the proposed spend. For example, less detail would be required for a business case to justify a new $20,000 software purchase than that required for a business case to replace the entire Finance system.

Rather than providing business cases for every proposed ICT project, ENA proposes that business cases only be provided for those projects with a proposed cost greater than 1% of the annual revenue requirement (the materiality threshold in the National Electricity

Rules[11]). Short project or program summaries could be provided for other projects. This is pertinent given the exact ICT specifications of many projects will be unknown at the time of the regulatory proposal.

ENA suggests the following components should be included in a Business Case for a material project.

Business case components for a material project

SECTION	ELEMENTS CONSIDERED
Business need	» Summary of the problem being addressed and how the project will address this need
Options analysis	» Options considered » A 'do nothing' option is generally not available for compliance driven changes
Economic costs	» NPV analysis showing the timing of quantifiable costs and benefits
Benefits analysis	» Outline any unquantified benefits for each option » Ideally link unquantified benefits to how they impact quantifiable benefits
Risk analysis	» Outline any unquantified project risks for each option » A risk matrix may be appropriate » Ideally link unquantified risk to how they impact quantifiable costs
Recommendation	» Bring together the results of the NPV analysis and the benefits and risk analysis to determine the preferred option

Question 5: What is your opinion on us requesting DNSPs provide post implementation reports from historical ICT investments?

ENA considers that ICT PIRs should be voluntarily provided by businesses as part of their regulatory proposals.

Given ICT benefits are difficult to separate from other concurrent business, process and system changes taking place, ICT PIRs focus on the cost and project management aspects of the project.

ENA considers there are more appropriate ways in which the AER can determine whether a business is delivering efficiency benefits to customers. More detail is provided in the *Scope and timing of post implementation reports* section.

[11] *National Electricity Rules - Version 122*, 30 May 2019, Chapter 10 p.1352

Question 6: What do you consider is required to demonstrate that DNSPs have incorporated benefits into its overall proposal?

Businesses will necessarily be presenting both the proposed costs and associated benefits of ICT expenditure at a high level as part of their stakeholder consultation for their Regulatory Proposal, but this is unlikely to be at a project level.

ENA suggests that such a breakdown may need to be separately provided to the AER as part of the Regulatory Proposal, bearing in mind that detailed business cases should only be required for material projects (see answer to question 4) and that other smaller ICT projects may be grouped into broader programs of work, with the associated costs and benefits provided at a program level.

Quantifiable project benefits may fall into opex, capex or overheads categories and may be expressed as either percentages or dollars. Whichever means is chosen, the business should make it clear to the AER where the ICT benefits have been incorporated into the forecasts.

Question 7: Which scenario - self funding or productivity improvement - would you prefer and why? Are there other scenarios we should consider?

ENA does not support either of the options proposed in the Consultation Paper and instead suggests an alternative.

Given the AER has deemed the project prudent and efficient and it is only that the project benefits that have been overlooked in the Regulatory Proposal, either disallowing the capex forecast and proposing the business self-fund the project or applying a broad productivity adjustment to the overall proposal is unlikely to satisfy 'Revenue and pricing principle' (2) under schedule 7A of the National Electricity Law (NEL)[12].

ENA considers the likelihood of such a scenario occurring is low and likely to relate only to low-value ICT projects that were not subject to the same business scrutiny as other high-value or high-risk ICT projects. Preparing a Regulatory Proposal is a time consuming and complex process, involving many people and teams. The various iterations of data and documents means it is not impossible for such small oversights to reasonably occur.

Where this situation does occur, ENA suggests that the business be given the opportunity to determine the project proposed benefits and identify those areas of the Regulatory Proposal that should be consequently adjusted. This would take place through Information Requests as part of the AER's review of the Regulatory Proposal.

This approach will ensure project benefits are realistic, both in terms of their scale and categorisation. It will also ensure the requirements of the NEL are upheld and prevent any undermining of related incentive schemes.

[12] This is the principle that a regulated network should be provided with a reasonable opportunity to recover at least their efficient costs

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?

ENA does not support such a productivity adjustment being applied to a network's forecast.

As identified in the Consultation Paper, the task would be incredibly cumbersome, but more importantly, it would:

- undermine the associated business cases, decisions and regulatory proposal;
- be unlikely to satisfy 7A(2) of the 'Revenue and pricing principles' of the NEL;
- potentially result in erroneous double counting by the AER of forecast efficiencies; and
- undermine the operation of related incentive schemes.

Firstly, not all ICT projects will provide a significant quantifiable benefit.

- For example, improving cyber security to meet compliance obligations may reduce the risk of a cyber-attack and thereby reduce potential reputational damage, but the likelihood of the risk eventuating is very low and the quantifiable benefit may be only a small reduction in insurance premiums.

Adjusting a proposal for unquantifiable benefits like "Improved customer access to services provided via the network" or "Improved reputation" could be difficult to implement in practice. Such benefits may not have been quantified for the simple reason that the ICT projects incremental contribution to these broad objectives cannot be reasonably estimated.

As discussed in *The best option may not have the highest NPV* section, ideally, unquantified benefits will be linked to quantifiable benefits, though this does not mean that the full value of the risk or benefit is adequately captured in the NPV.

- For example, the cost benefits arising from increased demand management capacity would be linked to "Improved customer access to services provided via the network".
- Similarly, a cost reduction arising from an expected decline in calls to the customer service centre would be linked to "Improved reputation".

Applying a further broad-brush productivity adjustment would likely overstate the project benefits and risks contradicting the 'Revenue and pricing principles' under the NEL.

It would also result in double-counting by the AER given the business has already included the quantifiable ICT project benefits in its regulatory proposal. This is discussed in more detail in *The expenditure and incentive framework must avoid 'double counting' gains* section of this submission.

Such a scenario also undermines the operation of related incentive schemes by reducing the potential reward for finding further business efficiencies.