Attachment G.20

SAPN_PUBLIC IT SAP Foundation Business Case Step Change

03 July 2015

SAPN G.20_IT SAP Foundations Opex Step Change

Rule Requirement

The Australian Energy Regulator (**AER**) Expenditure Assessment Forecast Guideline - Distribution, November 2013 details the assessment process for determining whether a proposed opex step change is warranted, prudent and efficient. This approach is further explained in the AER's Preliminary Determination.[1] A step change needs to meet a number of criteria including:

1. not being part of the base year opex allocation; and
2. not being covered by the Rate of Change allocation.

Beyond this, step changes:

- should 'generally relate to a new [external] obligation or some changes in the service provider's operating environment beyond its control'[2];
- should not be related to implementing efficiency improvements; and
- could be related to capex/opex offset for selection of an operating solution to replace a capital one.

The process for reaching the conclusion that an opex step change is required needs to have considered:

- other options to respond to the change in circumstances;
- whether the selected option is the most efficient one;
- appropriately quantified costs and benefits; and
- the timing of the change event and whether it can be completed over the regulatory period[3].

Original Proposal

Our core enterprise system, SAP, serves as a backbone for all SA Power Networks business systems. The SAP Foundation business case[4] detailed the case for replacing the existing SAP infrastructure, upgrading SAP and laying the basis for a scalable and robust strategic core system which ensures SA Power Networks continues to meet our regulatory and market obligations for the future.

The primary drivers for the business case are:

- Reduce risk - There is a significant and immediate risk associated with capacity of our SAP system. The current enterprise risk register rates the likelihood of a SAP failure as 'likely' as SAP is expected to reach maximum capacity in 2015.[5]

- Maintain currency - the existing hardware and associated technologies providing the SAP and associated Oracle database systems are rapidly coming to the end of their service life and need to be replaced. They will reach the end of their technical life in 2016.

- Position for the future - Support the expected future market and service delivery models by providing a long-term foundation for the organisation's core system.

SAP is SA Power Networks' enterprise resource planning (**ERP**) system that supports core business functionality including: Resource Planning and Scheduling, Finance, Payroll, Procurement, Assets

[1] AER, *Preliminary Decision: SA Power Networks determination 2015-16 to 2019-20, Attachment 7 – Operating Expenditure*, p 7-68.
[2] AER, *Preliminary Decision: SA Power Networks determination 2015-16 to 2019-20, Attachment 7 – Operating Expenditure*, p 7-72.
[3] AER, *Preliminary Decision: SA Power Networks determination 2015-16 to 2019-20. Attachment 7 – Operating Expenditure*, p 7-72.
[4] SA Power Networks, *Regulatory Proposal 2015-20, Attachment 20.102: BC09 - SAP Foundations Business Case*.
[5] SA Power Networks, Corporate Risk Register, Risk no. R-000753.

Management and Reporting. SAP is fundamental to the delivery of customer and network services and meeting regulatory reporting requirements. All customer requests and work are managed through SAP as well as all maintenance and project related asset activities.

SAP was originally implemented at SA Power Networks in 1997 and, apart from incremental upgrades every five years, the foundation technology platform for the SAP systems has remained largely untouched in that time.

The primary NER expenditure objectives associated with this business case are:

- **Maintain the quality, reliability and security of supply of services provided by SA Power Networks**. SAP is a core component of the enterprise IT architecture that enables the provision of a high quality and reliable supply of services provided by SA Power Networks. SAP is currently at risk of failure and places at risk the ability of SA Power Networks to maintain the reliability of supply of its services; and
- **Comply with all applicable regulatory obligations or requirements associated with the provision of services provided by SA Power Networks.** Ensure IT hardware and software capability to 2020 and the capacity to provide essential IT services that enable the delivery of electricity distribution services within regulatory compliance and customer service obligations.

Central to continuing to meet our regulatory obligations is providing a reasonable and scalable technology foundat*i*on to adapt to the changes being implemented as part of the market and regulatory driven initiatives. The existing aging technologies will not be supported by the vendor as the hardware is at the end of its life. Nor does it have the capability, or the scalability to be able to adjust to the sheer magnitude of the changes that are now starting to become a reality. These changes are coming from two key sources:

1. Market changes (eg Power of Choice) will result in more market participants, new and revised business processes and increasing volumes of all data (assets, work orders, projects, inspections). As the incumbent Distribution Network Service Provider (**DNSP**), SA Power Networks is required to manage these changes irrespective of any other role SA Power Networks may play in the marketplace. This includes managing, analysing and reporting on the large volumes of interval meter data coming from an increasing number of smart meters. The experience of our sister companies in Victoria (Powercor and CitiPower) show that significantly improved hardware and database environments were needed to handle the interval data; and
2. Regulatory reporting requirements (eg Regulatory Information Notice (**RIN**) reporting) are markedly increasing the requirement for comprehensive and accurate actual data. The SAP environment will be core to the collection, storage, management and reporting of this data. Reporting on actuals for RIN purposes requires a significant uplift in the volumes of asset and work related data and more complex data processing and reporting, which will require associated database capability uplift.

SA Power Networks therefore looked at options for refreshing our core SAP system and underlying hardware that would provide a long term foundation for our customer and business processes and allow us to meet the capacity of market changes and the volumes of data increases.

With the rapid business changes expected over the next few years, consideration was also given to the robustness of our technology environment and the ability of the system to undergo large-scale changes when required. In order to align with vendor-recommended good practice, the business case included the implementation of an additional SAP technology environment to more effectively manage change and to reduce the chances of a system outage or failure during IT system changes.

After reviewing a number of options, the recommended and lowest risk long term option was to upgrade SAP and associated databases, and move to a hosted facility rather than the existing onsite environment. The implementation

was estimated to cost $5.8m of capex over the 2015-20 RCP and would result in a net opex increase of $2.3 million over the 2015-20 RCP (Table 1 and

Table 2). Of the four options explored in this business case, the selected option had the lowest opex increase. The other options presented opex increases ranging from $3.4 million to over $12 million for the period.

Table 1: Initial Business Case Estimates (Dec 2013, $ million)

Cost Type	2015/16	2016/17	2017/18	2018/19	2019/20	Total 2015/16 - 2019/20
Total Capex	3.279	-	0.294	0.604	1.651	**5.828**
Total Opex Uplift	0.320	0.490	0.499	0.512	0.512	**2.334**
TOTAL COST	**3.599**	**0.490**	**0.793**	**1.116**	**2.163**	**8.162**

Table 2: Initial Business Case Net Opex Cost Breakdown (Dec 2013, $ million)

Opex Category	2015/16	2016/17	2017/18	2018/19	2019/20	Total 2015/16 - 2019/20	
Support	0.194	0.194	0.194	0.194	0.194	**0.967**	**1**
Software Maintenance	0.121	0.291	0.300	0.312	0.312	**1.338**	**2**
Other Services	0.005	0.005	0.005	0.005	0.005	**0.025**	**3**
TOTAL COST	**0.320**	**0.490**	**0.499**	**0.512**	**0.512**	**2.334**	

The final per annum opex uplift was $512K predominantly associated with:

1. additional software maintenance costs for SAP and associated databases to support the upgraded system functionality to handle increased data volumes and more complex reporting and business processes;
2. increases in support costs associated with having a more robust technical environment; and
3. small increases in other service costs associated with hardware maintenance.

The SAP Foundation business case provides the foundational capability for a number of other programs of work including:

- RIN Reporting. The RIN Reporting business case[6] responds to additional regulatory RIN reporting requirements and assumes that SAP has been upgraded and the new capacity and capabilities are available;
- Enterprise Asset Management.[7] Managing increased volumes of asset related data and more complex reporting requirements as the organisation undertakes the move to a more proactive approach to asset management to support RIN requirements; and

[6] SA Power Networks, *Regulatory Proposal 2015-20, Attachment 20.39: SA Power Networks: RIN Reporting Business Case*, October 2014.
[7] SA Power Networks, *Regulatory Proposal 2015-20, Attachment 20.49b: SA Power Networks: IT Enterprise Asset Management Business Case*, October 2014.

- Tariffs and Metering. The Tariff and Metering business case[8] responds to Power of Choice requirements. SAP Foundations provides the updated underlying SAP and database functionality which is used and expanded upon by the Tariffs and Metering program as the metering market changes and the meter data volumes increase.

Importantly, support for these programs was **contingent** on the replacement of the 'end-of-life' hardware and databases recommended by this business case.

AER Preliminary Determination

In the Preliminary Determination the AER did not include any step changes in its alternative opex forecast related to IT.

On page 7-91 and 7-92 (AER- Preliminary decision SAPN Distribution Determination – Attachment 7 – Operating Expenditure – April 2015) the AER laid out its reasons for this:

'Several proposals were related to replacement systems and/or software. We are not satisfied that these proposals would require an increase in total opex.

We recognise that periodically a service provider will need to replace systems and/or its software. However, we do not consider a step change in total opex is needed where this is the case.

As with many IT initiatives, upgrades in software and/or systems are only undertaken if the benefits of doing so would lower the costs that a service provider would otherwise face. In many cases, we would expect upgrades to lower the costs of doing business. As outlined above, total opex should not increase for efficiency improvements.

From time to time, replacement of some systems and/or software may lead to higher opex. However, our role is to provide sufficient funding in total to achieve regulatory obligations. Where there is no new regulatory obligation total opex must:

> *to the relevant extent:*
>
> *(3)(iii) maintain the quality, reliability and security of supply of standard control services; and*
>
> *(3)(iv) maintain the reliability and security of the distribution system through the supply of standard control services; and*
>
> *(4) maintain the safety of the distribution system through the supply of standard control services.*

Therefore, when considering the cost of replacement of software and systems, we would expect that incremental increase in the cost of particular systems would reflect the cost to achieve the same level of quality, reliability and security of service. In isolation, there may be programs or projects that cost more from one year to the next. However, when forecasting opex, we do not aggregate the forecast cost associated with individual projects and projects. We forecast total opex. We are not convinced that the total opex of an efficient business in providing the same quality, reliability and security of service would be much different in the 2015–20 regulatory control period to the base year, 2013-14.'[9]

While the AER did not specifically mention the SAP Foundations business case, it has to be assumed that these are the reasons for the exclusion of the SAP Foundations opex step change.

[8] SA Power Networks, *Regulatory Proposal 2015-20, Attachment 14.3: SA Power Networks: Tariff and Metering Business Case*, October 2014.
[9] AER, *Preliminary decision SAPN Distribution Determination: Attachment 7 – Operating Expenditure*, April 2015, pp. 7-91 and 7-92.

Our Response to the AER's Preliminary Determination

We do not accept the AER's Preliminary Determination and resubmit our Original Proposal for the opex step change for the SAP Foundations.

SA Power Networks needs to refresh and upgrade our core SAP hardware and software environment including its foundational database technology, Oracle, which supports the core SAP ERP system.

An upgrade to the SA Power Networks SAP foundational database technology is required in order to support the various initiatives to comply with RIN reporting and Power of Choice related regulations. This upgrade is undertaken once every regulatory period or longer. The current database technology is at the end of its technical life and represents an extreme risk to the business in light of expected increases in data requirements to support new RIN reporting requirements and the impact of the Power of Choice Tule changes. The life has been extended as far as possible with the present implementation being in place for seven years.

Strong external regulatory, technology and market factors beyond our control are dictating that the most prudent long term approach is to re-align with the vendor recommended technology roadmap. This includes changing to the vendor-recommended database, SAP HANA, to ensure we can continue to leverage our ERP into the future. This is in line with accepted industry practices which have been adopted by other organisations which have a corporate SAP ERP. This requires a step change in our operating expenditure due to higher software maintenance costs as well as marginal increases in labour and services required to support this technology.

In responding to the AER's Preliminary Determination, SA Power Networks has considered the criteria under which opex uplifts are assessed.

The primary consideration is a material change to the operating environment, which will impact our ability to meet our obligations as described below.

- **External Drivers: Changes in the Technology Roadmap**

  Changes in our database technology are being driven by changes in the roadmaps for those technologies. SAP is standardising its database technology with SAP HANA being positioned as the strategic database of choice rather than Oracle. These roadmaps are driving a step change in technology rather than an incremental change and require an opex uplift due to the additional cost of the new technology. A major upgrade like this one is an opportunity to prudently ensure we are strongly aligned with the long-term technology roadmaps for our core systems. This will enable us to continue to maintain the reliability and security of the system in a most cost effective way over the coming five to seven years. Future SAP changes may work on Oracle but they are guaranteed to work on HANA. 'Like for like' replacement is not the most prudent long term option considering the changes that are occurring in the industry.

  In line with vendor recommended good practice, we need to extend the current three SAP Environments (Development, Quality, and Production) to four (Development, Quality, Pre-Production and Production). This will improve the development, testing and transfer of SAP maintenance, upgrades and new modules into use in the live SAP Production environment. As SAP becomes more important to our business, the change and release management processes play a greater role in maintaining day-to-day operations.

- **External Drivers: A Step Change in Required Capability**

  SA Power Networks agrees with the AER that in a situation of 'like for like' upgrade there should be little reason to increase opex. However, in this instance SA Power Networks

contends that there are a number of significant external regulatory and market forces, over which we have no control, that are driving a 'step-change' upgrade rather an incremental one. These requirements are going to increasingly impact on business functionality (including finance, asset management, HR and reporting) and drive complexity in our SAP environment over the next few years. The regulatory requirements have become clearer since our Original Proposal was submitted in October 2014. In particular, the AEMC's Distribution Network Pricing Arrangements Rule change has been finalised and its draft decision on the Expanding Competition in Metering and Related Services Rule change has been published. The key regulatory requirements include:

- **RIN Reporting.** Regulatory information required for RIN reporting is primarily collected, stored, managed, analysed and reported through SAP. Considerable work is expected to be done in SAP to enable the 'actuals' reporting required by Economic Benchmarking and Category Analysis RINs for assets and work. Large volumes of additional network asset related data will be collected over the next few years to enable accurate RIN reporting. As the core asset management system, SAP will be used to store and manage this data. The additional RIN reports will also be implemented in SAP and leverage a new General Ledger which must be replaced to enable compliance to the RIN requirements.

- **The Power of Choice: Metering Competition**. The Metering Competition draft Rule changes, due to come into effect in July 2015, propose a number of significant changes to our existing business processes or the introduction of new business processes, which will need to be in place by July 2017. A number of these new processes, in particular, the customer service management, work requests and outage management, directly impact on the SAP environment. More complex business processes involving multiple parties related to meter installation, disconnection and reconnection require improved work and outage management capabilities. For example, a number of new roles, including Metering Coordinator (**MC**), will need to be introduced and will require new business processes to be implemented for meter data management and for communication to enable SA Power Networks to interact with the MC. This has significant safety and network implications and hence will need to be effectively managed, monitored and reported on.

Taken individually, or as a group, these changes mean that our SAP environment needs a significant uplift, to provide the technology basis to enable our future operating environment. 'Like for like' is not the most prudent long term option.

- **A Prudent, Regular Upgrade Cycle**

The AER's response implies that upgrades are undertaken only when they prove financially viable to do so. However, many upgrades are undertaken in order to manage the risk associated with system failure and ensure the continuity of customer service obligations. This is particularly the case with core systems like SAP, which has a prudent five to seven year refresh cycle.

Planning for a five to seven year cycle requires that we do look ahead to consider what changes are expected to impact SA Power Networks in that time period and implement our system changes accordingly. Due to the significant capacity constraints and risk, our systems need refreshing now. Hence our approach is to refresh our core technologies with the minimum step change required to create a stable, secure and supported technology environment, which can be expanded and extended as new requirements arise. This approach necessitates opex uplift at the start of the period to support these capabilities. Since this business case was written 12 months ago, a much clearer understanding has

emerged of the market changes and the regulatory requirements. RIN and Power of Choice requirements are now more clearly understood. This knowledge has served to reinforce that the original approach was accurate and prudent.

Base Operating Expenditure

The base efficient operating expenditure (2013/14) for SA Power Networks includes operating expenditure for a standard like for like upgrade and does not cover the increase in licence costs for new technology. The additional expenditure is for database software and support which is not focused on efficiency but on sustainability – being able to meet the obligations in a timely and cost effective manner as the changes occur over the next few years. More importantly it aims to avoid additional upgrades and changes during the 2015-20 RCP.

Rate of Change Allowances

The Rate of Change allowance was considered in calculating the costs of this opex uplift. However, the costs are beyond the forecast network growth, price increases for current materials or labour escalations. The cost equivalent of the 0.57% Rate of Change allowance provided by the AER in its Preliminary Determination has been removed from the proposed step change.

Examination of the Options

The SAP Foundations Business Case[10] analysed a number of options including 'Do Nothing'. These options considered risks, costs and benefits. We selected the option that most effectively met all of our objectives including risk mitigation, cost effectiveness and positioning for the future.

Our costing of these options considered the results of a competitive tender process conducted by Powercor and CitiPower for a long term solution to their database requirements. This provided an excellent basis on which to cost our options and our recurrent costs with a market tested degree of accuracy.

To enable us to mitigate our risks, we have commenced planning for the replacement of the SAP database. As part of this process we have obtained written quotes. These have been reviewed against the options and costs within the original business case and there has been no change to the estimated opex uplift costs.

Revised Proposal

SA Power Networks is resubmitting our Original Proposal for the opex step change for the SAP Foundations.

This step change is for the net increases in opex costs for software maintenance and marginal increases in labour costs and vendor support services.

The opex uplift requested for the 2015-20 RCP is $2.334 (Dec 2013, $ million)[11] and comprises:

- Software Maintenance Costs $1.338 million
- Labour Support Costs $0.967 million
- Other Services $0.025 million

These costs are detailed by year in Table 3. As a significant part of meeting our regulatory obligations now and into the future the impacts of these changes needs to be reflected in the total opex allocations.

[10] SA Power Networks 2015-2020 Submission Attachment 20.102: SAPN IT BC SAP Foundations.
[11] Exclusive of benefit offsets. The step change is $2.3 (June 2015, $ million) net of benefits.

Table 3: Final OPEX Resubmission SAP Foundation (Dec 2013, $ million)

Opex Category	2015/16	2016/17	2017/18	2018/19	2019/20	Total 2015/16 - 2019/20	
Support	0.194	0.194	0.194	0.194	0.194	**0.967**	**1**
Software Maintenance	0.121	0.291	0.300	0.312	0.312	**1.338**	**2**
Other Services	0.005	0.005	0.005	0.005	0.005	**0.025**	**3**
TOTAL COST	**0.320**	**0.490**	**0.499**	**0.512**	**0.512**	**2.334**	

1. Support

The support costs are required to support and manage a more robust technical environment and ensure standard processes are in place for managing changes to what will become an even more critical system. The estimated resources are:

- 0.4 FTE for SAP environment management
- 0.2 FTE for infrastructure management
- 0.2 FTE for Technical Change management

2. Software Maintenance

The annual software maintenance costs are the net additional costs of implementing the newer versions of the database software. A 'like for like' approach is not prudent for the long term reliability of this system. The business case costed a number of different database software options and based the final costs on a competitive tendering process that had recently been run by Powercor and CitiPower for their database requirements. These costs were confirmed via written quotes obtained as part of our project planning.

There are no additional costs associated with the SAP application as these are covered by existing support arrangements.

3. Other Services

There is a minor uplift in the costs associated with vendor support for the new hardware.

References

Ref Document Name	Date	Author
Corporate Risk Register	May 2015	SA Power Networks
Expenditure Assessment Forecast Guideline - Distribution	November 2013	Australian Energy Regulator

Ref Document Name	Date	Author
Preliminary Decision: SA Power Networks determination 2015-16 to 2019-20. Attachment 7 – Operating Expenditure	April 2015	Australian Energy Regulator
SA Power Networks 2015-2020 Submission Attachment 14.3: SAPN Tariffs and Metering Business Case	Oct 2014	SA Power Networks
SA Power Networks 2015-2020 Submission Attachment 20.39: SAPN IT BC RIN Reporting	Oct 2014	SA Power Networks
SA Power Networks 2015-2020 Submission Attachment 20.102: SAPN IT BC SAP Foundations	Oct 2014	SA Power Networks