# SA Power Networks

## CIS & CRM Business Case

**31 March 2014**

**V.32 FINAL**

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Sue Filby
Chief Information Officer
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26 February 2014

Dear Sue

**Re: CIS & CRM Business Case**

I have enclosed the final copy of the CIS and CRM business case. The CIS and CRM Business Case comprises one volume as set out in the contents. The CIS and CRM Business Case is subject to the restrictions set out in the engagement letter dated 23 August 2013.

We draw your attention to the Introduction section of the report in which we refer to the scope of our work, Appendix E where we refer to sources of information, and the limitations of the work undertaken (section 12).

I would like to thank your team for their assistance in the completion of this complex engagement. Their detailed knowledge of your business, your customers and future industry trends proved invaluable.

Yours sincerely

**Andrew Culley**
Partner
Deloitte Touche Tohmatsu

cc: Michael Rath

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# 1 Executive summary

SA Power Networks' Customer Service Strategy is aimed at providing customer and stakeholder relationships through "*the provision of proactive, responsive, and reliable service to meet our customers' needs, now and in the future*". The organisation has identified that the provision of timely and accurate information underpins the success of this strategy and has invested significant time in understanding customer expectations and their desire for sustained engagement, expectations which are now mirrored by regulatory reform.

At the heart of both these evolving customer expectations and the associated regulatory changes is the need for SA Power Networks to be flexible, accurate and timely in its dealings with customers through both daily service interactions and ultimately billing practices.

This business case analyses the case for investment in technology systems to manage this information, drive increased customer service experience, customer satisfaction and to enable SA Power Networks to respond to the rapidly evolving expectations of customers.

The current technology solutions in place to provide customer information and billing capabilities are ageing, disparate and do not provide the flexibility required to support these capabilities into the future and must be replaced.

Accordingly this analysis makes the case for an investment in technology that replaces these systems and:

- provides this flexibility
- provides contemporary technology solutions to deliver capabilities in information management and customer relationship management (CRM) as defined in the Customer Technology Plan
- offers improved billing[1] capability
- mitigates the current risks associated with the multiple legacy systems that provide these capabilities
- leverages current SA Power Networks technology plans and systems where possible

It analyses business requirements, identifies future-state billing and CRM capabilities, and assesses options and transition approaches to achieve the future-state. This business case also estimates the IT expenditure associated with implementing improved systems capabilities, and identifies the operating cost implications as well as benefit areas.

## 1.1 Background

### 1.1.1 Strategic Context

SA Power Networks is the sole distributor in South Australia and as such has an entrenched relationship with all electricity consumers in this market. As the distributor, SA Power Networks' operations include functions to bill retailers, customer and other entities for energy and related charges. These functions are complemented by corresponding market transactions, as well as customer management activities which vary to some extent depending on the type of customer (e.g. mass market residential, commercial and industrial). Its monopoly position also requires it to maintain relationships and manage the expectations of a broad range of stakeholder and political organisations.

[1] CIS or billing relates to the functionality required to operate in the NEM (National Energy Market) not solely a billing function.

At the heart of this relationship is the consumer's need for reliable power, responsive service and accurate and timely information.

The organisation has understood the strategic imperative of managing these relationships for many years and has developed Customer Service Strategies to embed a customer service ethos. Continual customer engagement processes have been developed to ensure that evolving consumer expectations are understood and supported and recent engagement has confirmed that consumer's desire for information, immediacy and personalisation is being heavily influenced by their experiences with unrelated industries such as telecommunications and banking.

Accordingly SA Power Networks has recently updated its Customer Service Strategy and developed a detailed Customer Technology Plan. The insights provided by this work and other anticipated societal, industry and regulatory change are expected to have significant implications for billing and customer management functions. The change is expected to manifest in:

- Increased complexity of tariffs and pricing plans.
- Increased demand-side participation.
- A need to improve demand management capabilities.
- Greater contestability of services, including meter contestability.
- A need for improved customer management and service to respond to increasing customer expectations of service provision and access to information.

Key objectives of this change are to better manage network costs, and therefore price implications for consumers. Industry and regulatory change is also characterised by changing consumer expectations and regulatory frameworks regarding transparency, choice, access to information, and improved customer service. The importance of improved customer management capabilities cannot be underestimated in this complex environment.

### 1.1.2 Customer information and billing systems

SA Power Networks currently utilises various systems to support its billing and customer management activities. Key systems include CIS/OV and ITRON Enterprise Edition (IEE). In summary, CIS/OV provides billing capability for consumption-based charges, as well as a number of other capabilities. It is considered a legacy application due to its age (15+ years) and purely from a technology perspective is at end of life. IEE provides meter data management capability for interval meters and limited for basic meters. Over time nine satellite and legacy systems have been developed to provide reporting, analytics and tracking of customer interactions that are not managed by CIS/OV. These satellite systems complete the landscape of customer information systems and must be considered as part of any replacement program. The most utilised of these satellite systems is NESS which tracks meter and customer data for large clients.

The risks associated with the use of aging and disparate systems to provide such critical business functionality were identified many years ago and have been prudently managed by SA Power Networks over the last 6 years. By taking a cautious approach to the timing of what would be a significant technology project to replace these systems, SA Power Networks is now in a position to consider the replacement of the capability provided by CIS/OV and the legacy customer systems as a co-ordinated program of work that addresses the risk of current systems, emerging technologies and heightened customer and regulatory expectations.

A summary of the recent approach to balancing the risks associated with this situation and the need to evolve customer information systems to support service expectations is provided below.

| Timeframe | Decision | Consideration |
|---|---|---|
| 2005-2010 | Plan and seek funding to replace CIS/OV | • Age of systems and risks of vendor support |
| 2011 | Extend Support agreement with system vendor [redacted] | • Confirm support arrangements to enable any replacement project to be undertaken |
| 2012 | CIS/OV retain/replace business case | • Review current business needs and customer requirements<br>• Assessed current technology risk |
| 2012 | Single view of customer requirements | • Identified need for single repository of customer information to improve efficiency and accuracy or service<br>• Recognised that customer information capability was not covered by a CIS system and customer expectations were changing rapidly<br>• Identified the emerging need for new billing capability |
| 2013 | Customer technology plan for customer systems investment through to 2022 | • Prudent adoption of new customer technology replacement<br>• Relationship between customer information systems and billing replacement |
| 2013 | Update of Business Case to consider complete strategic position (this document) | • Recognised that single view of customer project would commence to manage customer information and service<br>• A standalone customer information system allows a pragmatic approach to replacing the balance of CIS/OV capability that leverages technology currently in place |

*Table 1: Management of CIS and CRM technical risks*

# 1.2 Strategic drivers

It is clear that compelling customer, regulatory and technology drivers exist to replace the legacy CIS/OV system and related legacy, satellite customer information systems. Each driver has a specific impact on SA Power Networks and its relationship with its customers and stakeholders. The focus of our analysis has been to understand these impacts and determine appropriate responses to these challenges. These impacts have been considered in totality to ensure that any investment covers all drivers for change and that a flexible yet co-ordinated and cohesive approach to new systems is presented. In the sectors below we summarise these drivers, their likely impact on SA Power Networks and its customers and the proposed responses captured in the business case.

## 1.2.1 Customer expectation

Electricity consumers are becoming increasingly informed and interested in the electricity industry and wish to have a voice in future directions. Their experience with other industries such as banking, retailing and telecommunications is raising their expectations for service, information and

participation and SA Power Networks must respond to this changing environment to ensure expectations are met and that electricity consumers are not dissatisfied with their service.

This requires systems to track and record customer interactions by providing efficient and timely information for service staff and also personalised self-service capabilities for consumers. Aligned to these expectations Regulatory reform is appropriately asking distributors to monitor consumer sentiment and ensure their issues and concerns are heard and addressed, further increasing the requirement for customer based information systems.

Current customer relationship management systems do not allow SA Power Networks to meet these expectations.

| Business challenge | Impact on SAPN and its customers | Business response |
|---|---|---|
| 1. Through extensive consultation SAPN customers have identified the following key customer service attributes:<br>• Knowledgeable employees<br>• Time taken to fix a request or enquiry<br>• Ability to address a request or enquiry<br>• Employee's ability to investigate a request or enquiry<br>• Time taken to address a request or enquiry<br>• Relevance of response<br>• The way the query was handled<br>• Personalised service | • Customer service expectations across multiple channels continue to evolve and will not be accommodated as current systems do not enable an efficient response to these attributes. Dissatisfaction with service will grow as a result.<br>• Disparate data sources mean that information is not:<br>• Readily and easily accessible to employee<br>• Of high quality in terms of its accuracy, currency and completeness<br>• Contextually relevant in terms of customer information, customer interactions and customer related information. | • CRM as a system of record and portal for customer interactions<br>• Data quality program<br>• CRM portal to provide a view of interactions covering property and asset location information<br>• CRM as an external portal for customers to view their own interactions to support service attributes:<br>○ Timeliness<br>○ Knowledge through accurate and relevant data<br>○ Personalised and accountable service |
| 2. Consultation has also confirmed that customers wish to participate in extended industry discussions and have their views, issues and concerns heard. | • Engagement will not be possible without accurate information which is tailored by customer segment and provided in a personalised format. Current systems do not enable this<br>• Customer specific issues will need to be recorded and managed<br>• Customers will lose trust if sustained customer engagement is not managed as a business | • CRM as a system of record and portal for customer interactions<br>• Case management is established as a process<br>• Data quality program |

| Business challenge | Impact on SAPN and its customers | Business response |
|---|---|---|
| | process | |
| 3. Enhanced accessibility and interaction to improve customer service, specifically that information needs to be:<br>• Readily and easily accessible to employees<br>• Of high quality in terms of its accuracy, currency and completeness<br>• Contextually relevant in terms of customer information, customer interactions and customer related information. | • Customers will not receive timely support as current systems do not enable provision of this information in an efficient manner as data is held in multiple systems and data quality is inconsistent across these systems. This impacts both staff in customer service roles and those in field crews who deliver services using customer information. | • CRM as a system of record and portal for customer interactions<br>• Data quality program<br>• CRM portal to provide a view of interactions covering property and asset location information for field and customer service use. |
| 4. Increased information visibility to improve the efficiency of service and consistency of experience is being driven by evolving service standards in other industries | • Customers will increasingly be dissatisfied if they do not have the ability to access SAPN systems to view information of value to them<br>• Provision of consistent information through multiple channels is not possible using current systems (CIS/OV and customer systems) | • CRM as a system of record and an external portal for customers to view their own interactions<br>• Case management functionality within a CRM solution will enable efficient service<br>• Consolidation of systems to support single view of customer information |
| 5. SAPN customer research confirms that supporting and addressing evolving technology trends are critical to customer satisfaction | • Customers' expectation for a transparent, personalised and tailored (by customer segment) access to information will not be met by the current technology environment<br>• The introduction of smart meters will rapidly bring expectations of this information being available | • Accurate and integrated information surrounding consumption and billing by customer is enabled<br>• Customer portals provide access to information and guidance<br>• Billing complexity requires contemporary billing solution |

*Table 2: Summary of customer related drives for changes to current customer information ability systems*

### 1.2.2 Regulatory change

Anticipated industry and regulatory changes, including those that are designed to encourage greater demand-side participation and support more effective demand management, will introduce more complex tariffs and pricing plans.

All of these changes require the use of more data and information, an increased ability to personalise information provision to consumers and flexibility in billing arrangements to consumers and other industry participants. High quality, timely and accurate data is required to develop and maintain customer trust in these initiatives as they are rolled out.

Current billing systems do not offer the ability to manage this amount of change.

| Business challenge | Impact on SAPN and its customers | Business response |
|---|---|---|
| 6. Meter Contestability | • Ability to receive meter data from the market or third parties – interfaces to facilitate this data flow.<br>• The introduction of new roles into the National Market will require changes to market transactions and CIS systems require new meter provision contracts to be managed and recorded | • Billing complexity requires contemporary billing solution |
| 7. Time of Use Pricing / Capacity Based Pricing | • Ability to manage more complex time of use pricing and corresponding billing implications.<br>• Ability to provide rebates in addition to dynamic pricing.<br>• Ability to change and manage tariffs based on other variables such as geographic location and customer segment.<br>• Ability to efficiently and effectively manage a potential increase in customer and retailer enquiries associated with more complex tariffs and plans. | • Billing complexity requires contemporary billing solution<br>• CRM as a system of record and portal for customer interactions |
| 8. Power Of Choice | • More sophisticated billing capabilities that can manage more complex and dynamic tariffs, including an ability to manage a more complex interdependency with meter and consumption data.<br>• More sophisticated customer relationship management capability to manage contracts | • Billing complexity requires contemporary billing solution<br>• CRM as a system of record and portal for customer interactions<br>• Data quality program<br>• CRM portal to provide a view of interactions covering property and asset location |

| Business challenge | Impact on SAPN and its customers | Business response |
|---|---|---|
| | and plans, and handle a potentially higher number of customer or retailer enquiries that may result from more complex tariffs and contracts.<br>• Self-service capabilities (e.g. mobile, internet), enabled by better customer relationship management capabilities, to facilitate improved access to electricity consumption data. | information |
| 9. National Energy Customer Framework (NECF) | • Ability to support efficient handling of service orders, and resolution of complaints and disputes – particularly in an environment characterised by more complex tariffs and plans.<br>• Ability to capture complete and accurate end-to-end customer interaction, customer management and service activities information to support service provision and auditing, and to minimise the risk of payments resulting from not meeting service standards.<br>• Ability to exchange demand-side participation data and payments to aggregators, and potentially identify and understand the associated end-customer. | • CRM as a system of record and portal for customer interactions<br>• Data quality program<br>• CRM portal to provide a view of interactions covering property and asset location information<br>• CRM as a system of record and an external portal for customers to view their own interactions<br>• CIS/OV replacement through most prudent approach<br>• Customer functionality in a CRM system and asset management functions covered by existing EAM applications |

*Table 3: Summary of regulatory related drives for changes to current customer information ability systems*

### 1.2.3 Technology Risk

SA Power Networks' core systems that manage billing, national market interactions customer information and customer interactions are primarily legacy systems that are out of support, dated and limited in their functionality and capacity to support future change.

These inherent technology risks further compound the need to address change to support customer requirements and regulatory change.

| Business challenge | Impact on SAPN and its customers | Business response |
|---|---|---|
| 10. CIS/OV and related interfaces have evolved as point solutions over | • Unable to provide customer service staff a single view of customer interactions that | • CRM as a system of record and portal for customer |

| Business challenge | Impact on SAPN and its customers | Business response |
|---|---|---|
| time. | would support efficient service. | interactions |
| 11. From a technology perspective CIS/OV is at end of life. | • SAPN may be unable to manage the change at the pace expected<br>• Investment in the existing solution and technology perpetuates a complex environment and increases the risk of operational failure of billing systems<br>• Access to appropriate skills and support agreements is limited | • CIS/OV replacement through most prudent approach<br>• Customer functionality in a CRM system and asset management functions covered by existing EAM applications |
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |

*Table 4: Summary of technology related drives for changed to current customer information ability systems*

# 1.3 CIS/OV Replacement Considerations

CIS/OV is supported by a software company called [redacted] and the implementation is a shared implementation for SA Power Networks and related entities in Victoria. Although a service agreement with [redacted] was reached in Q4 2011 for support of CIS/OV, it indicated that the software will no longer be upgraded or developed as there is only one additional global user of CIS/OV. This is consistent with the product roadmap from 2006[2]. Therefore to implement modifications SA Power Networks would need to either:

- Procure services from a third party – it is highly unlikely that this is achievable given the very limited use of the software within other organisations today.

[2] Source: CIS Assessment – Business Case Summary, CHED Services

- Implement modifications with in-house resources – this requires the recruitment of scarce and specialised skills, which would be time consuming and expensive.

These alternatives represent very tactical and short term views of improving CIS systems capability. They do not provide the flexible billing system capability which SA Power Networks requires to accommodate future regulatory and market change. In addition neither alternative addresses the ongoing issue of vendor support beyond the current support agreement, and the operational risk of CIS/OV would remain. These alternatives also put the current support agreement with [redacted] at risk, since it is based on a known software release rather than software that has been modified by a third party. Finally the CIS/OV system does not provide the capability to support the information required to meet customer service expectations which has led to the development of the many satellite systems over time (such as NESS).

In considering a replacement approach for CIS/OV it is therefore important to not only consider the business capabilities supported by CIS/OV but also these related customer information systems.

Given the risk profile of these current systems and the mitigation strategy put in place for the current Regulatory period, SA Power Networks prepared a business case in 2012 which recommended that whist replacing CIS/OV with a like for like system would be required in the future it was prudent to initially consider the requirements for a system to provide customer relationship capabilities. This decision was made as customer expectations were evolving quickly and current systems were unable to keep pace. Whilst expectations for customer service were evolving they are able to be defined with some surety and customer relationship management solutions are also quite mature.

In contrast the business requirements at that time for regulatory and billing needs were unable to be clearly defined.

Options for the replacement of CIS/OV considered in this business case therefore recognise that this work is underway and have considered the impact implementing a CRM system would have on the options to replace CIS/OV.

Specifically once a CRM system is implemented to manage customer information and customer service records, a replacement strategy for the CIS/OV system need only consider the capability to manage billing and national market transactions (eg consumer service requests presented through retailers). Whilst this does not eliminate the option of replacing CIS/OV with a like for like system it does present other opportunities.

This report analyses a number of options to migrate off CIS/OV including a 'do-nothing' option. At its most basic level, this option is defined as technical hardware and software upgrades of CIS/OV, however given [redacted] product roadmap, this is not achievable since no new software will be released by [redacted]. Hardware upgrades alone would introduce a degree of uncertainty and risk in operating CIS/OV due to lack of vendor certification for hardware and software interoperability.

A more pragmatic definition of the do-nothing option would include ongoing compliance with market requirements using the current CIS/OV system, through the implementation of functional requirements. However, we do not consider retention of CIS/OV past the next regulatory period is a viable option to achieve ongoing market compliance given:

- the constraints of the aged CIS/OV system architecture and technology
- limited access to skills and resources that know this system
- potential impacts on support agreements,
- the volume and degree of uncertainty on future requirements.

# 1.4 Future-state CIS and CRM capabilities

Our analysis has been driven by the need to manage the strategic drivers that are summarised in *Table 2*, *Table 3* & *Table 4* and explained in detail in this document. Each driver brings a specific challenge to SA Power Networks that requires a functional capability to be provided by replacement CIS/OV system(s).

In addressing this question of how to replace CIS/OV a set of CIS and CRM business requirements and a corresponding functional model were developed to support the identification of the right systems capabilities (nine future-state capabilities (*Figure 1*). The capabilities are also influenced by evolving billing and customer management technologies.

Note: for simplicity purpose CIS or billing relates to the functionality required to operate in the NEM (National Energy Market) not just the billing function. CRM requirements also includes the ability to undertake customer reporting and analytic covering all data captured by the capabilities shown below.

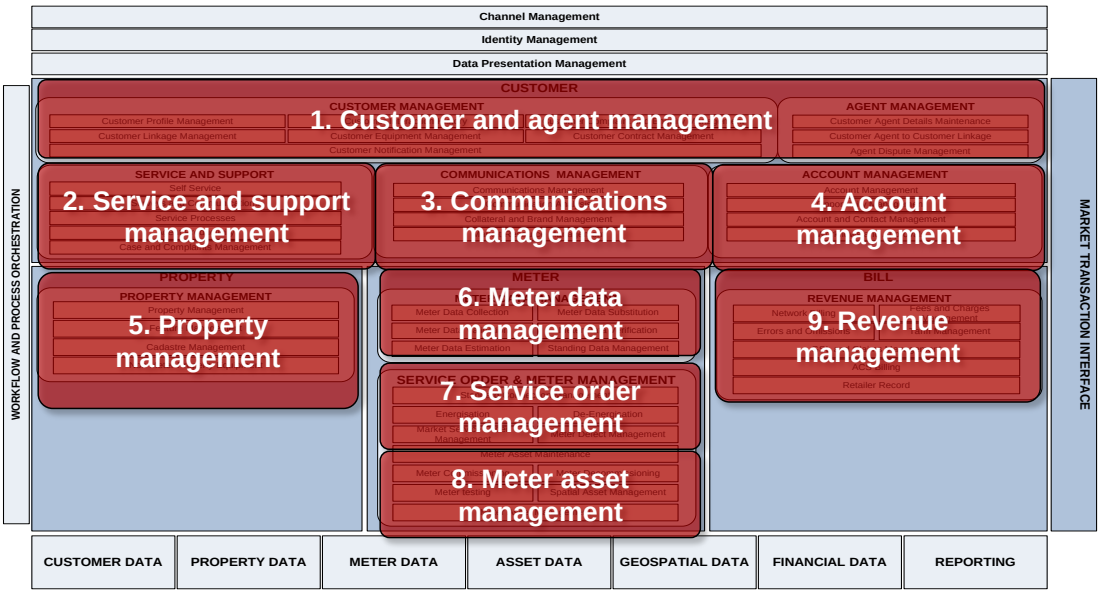



*Figure 1: Future-state CIS and CRM capabilities*

Since billing and customer management technology solutions are evolving, there is a need for a considered approach to investing in the right systems capabilities at the right time. Given this and the strategic context, current state systems, and business requirements, the following options were identified to achieve the future-state capabilities (*Table 5*). These options represent distinct conceptual application architectures, and can be considered as architectures at extreme ends of a spectrum of options. In practice organisations tend to implement approximately 80% of architecture, since downstream detailed planning and the evolving technology market can uncover constraints that require refinement of options[3]. In addition, the options below represent the most pragmatic options given what is known about the current technology market *(refer section 7.1)* and what is required by the business from a functional perspective. They recognise activity that will be conducted through 2014 and throughout the next reset period ending in 2020.

[3] Refer to section 7.2 for a description of each capability.

| Option | Description | Estimated capex | Estimated annual opex |
|---|---|---|---|
| Option 1: Integrated CIS supplemented with CRM | This option is most similar to today's architecture with respect to CIS/OV. It involves the implementation of an integrated software product (CIS) to provide comprehensive functionality (e.g. customer management, billing, service order management, and meter data management). It also involves the implementation of an integrated software product to provide CRM capability. | Implementation (non-recurrent) $60.8M<br>Ongoing[4] (recurrent) $39.4M | $3.4M (recurrent) |
| Option 2a: Modular billing and markets supplemented with on-premise CRM and use of SAP | This option adopts a more modular 'good practice' approach to implementing future-state capability for revenue management, meter data management, service order management and meter asset management. Similar to option 1, it involves the implementation of an integrated software product to provide CRM capability. | Implementation (non-recurrent) $59.0M<br>Ongoing (recurrent) $31.8M | $3.4M (recurrent) |
| Option 2b: Modular billing and markets supplemented with cloud CRM and use of SAP | This option is the same as option 2a however the CRM systems capability is provided by software as a service (SaaS) offering rather than an on-premise CRM software product. | Implementation (non-recurrent) $55.6M<br>Ongoing (recurrent) $25.9M | $3.8M (recurrent) |

*Table 5: Options to achieve future-state*[5]

*Note: the full cost implication of hosting the CRM capabilities in the cloud in option 2b might not be fully costed in this estimate. Factors impacting the costs of provisioning from the cloud will include cloud communication, IT service management, vendor management and the ability of SA Power Networks in managing outsourced supply of IT services.*

Assessment criteria were developed to identify the preferred option. Assessment criteria considered strategic and regulatory change, the ability to absorb change, risk, technology maturity, and investment costs and benefits. As we identified in sections 1.1 and 1.3 SA Power Networks has already recognised that investment was required in a CRM system to manage customer information and customer service interactions. The assessment approach took this plan into consideration to ensure that the preferred option leveraged this capability which would be implemented throughout 2014 and 2015.

Assessment of the options against the criteria identified Option 2a as the preferred option[6].

This option best supports SA Power Networks in accommodating business requirements, and enabling it to respond to industry, strategic and regulatory change with the greatest amount of flexibility. The preferred option (Figure 2) also mitigates the risk of investing in an emerging technology environment through the use of the organisation's investment in SAP, utilising its asset management and works management capabilities to improve integration across customer based transactions that emerge from

[4] Ongoing capex costs are costs to upgrade related hardware and software when it is at end of life. These upgrades are referred to as technical upgrades and help to ensure that SAPN has access to appropriate vendor support and therefore manages operational risk. Ongoing capex estimates are based on SAPN defined upgrade cycles, which are every three years.

[5] Each option is discussed in detailed in section 8.

[6] Detailed assessment is discussed in section 8.4.

national markets. Further it leverages the planned investment in a CRM system to manage customer information and service interactions.

Simply put this option provides a CRM system to manage customer information and interactions, a dynamic and flexible billing engine to cope with emerging regulatory and consumer demands and leverages the current Enterprise Asset management system (SAP) to manage meter asset information and customer generated service orders. Current meter data systems are retained.

Given this preferred option which is based on a "modular approach" to implementing systems and capability as opposed to the big bang approach required to implement Option 1 a range of transition approaches could be considered.

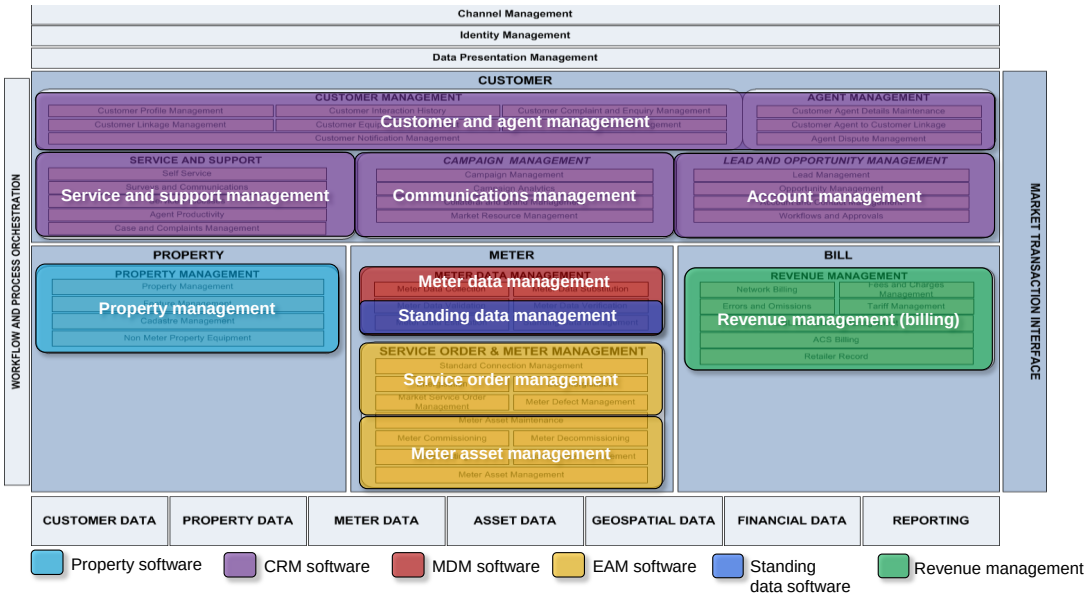



*Figure 2: Option 2a – Modular billing and markets supplemented with CRM*

To transition to Option 2a, three approaches were identified (*Table 6*).

| Transition approach | Description |
|---|---|
| Transition approach 1 | Implements CRM functionality upfront, with property management capability implemented in parallel. This is followed by phased and overlapping implementation of service order management, meter asset management capabilities, with the implementation of billing engine capability occurring in parallel. |
| Transition approach 2 | Represents a more staggered approach to implementing the required future-state capabilities. Capabilities are implemented in the same sequence as transition approach 1 with less overlap between projects. The implementation of billing engine capability does not occur in parallel with the implementation of service order and meter asset management capabilities. Instead implementation commences once these capabilities are established. |
| Transition approach 3 | Represents a staggered approach to implementing future-state capabilities in a similar manner to option 2 except billing is brought forward, and meter asset management and service order management is delayed as the last transition item. |

*Table 6: Transition approaches for the preferred option (Option 2)*

Through stakeholder consultation transition approach 2 was identified as the preferred approach. It addresses the most significant gap in SA Power Networks' ability to meet requirements today (CRM), and also defers investment in improved billing capability – where there is greater uncertainty from a technology and regulatory perspective. The preferred approach incrementally creates a foundation for future systems capability and minimises implementation risk as well as disruption to the business. The preferred approach also leverages existing and planned investment in SA Power Networks' broader IT environment (e.g. SAP's asset management and works management modules).

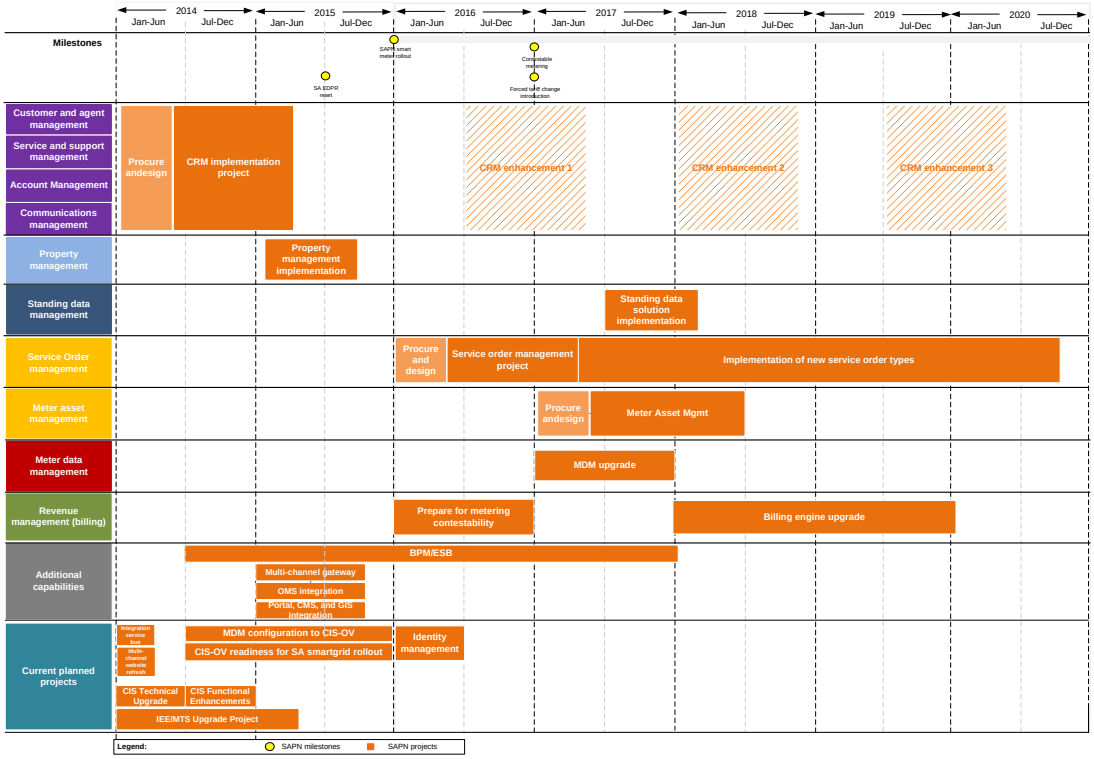



*Figure 3: Transition approach 2 for Option 2 (preferred option)*

## 1.5 Conclusion

Customer, societal, regulatory and industry expectations are changing rapidly and the next 5 years will see new requirements for the provision of customer information and heightened service levels, new electricity market roles, complex and flexible billing requirements and the increasing use of information and technology to support customer interactions.

SA Power Network's current Customer Information Systems will not be able to support these emerging needs. Changes are required to billing systems capability within the next regulatory period, and these cannot be implemented in the current CIS/OV system. The wide range of satellite information systems surrounding CIS/OV will not be able to support the demands for timely customer information.

Failure to improve systems capability will impact SA Power Networks' ability to implement pricing and demand management mechanisms designed to reduce the anticipated (rate of) increase of network costs, in a cost effective and efficient manner. Failure to improve systems capability will also limit SA Power Networks' ability to provide customers with choice in how they use and what they pay for electricity, as well as maintain and improve customer service in an increasingly complex environment that demands more responsive service based on timely and highly accurate data.

Investment in CIS systems is therefore required to provide this capability and also to mitigate the technology risks associated with current systems. In addition, given the time required to transition to new systems, SA Power Networks must commence building its future-state capability within the next regulatory period.

This business case outlines a preferred option to replace current systems that offers the most flexibility, least risk and leverages current technology plans and systems. Its modular approach offers the most flexibility in dealing with unknown requirements and solutions by allowing capability to be progressively "turned on" as clarity is gained. It is consistent with the historical approach taken in considering a CIS/OV replacement program of work.

The CIS/OV systems are currently hosted by PAL/CP with associated business services provided through a shared services model. Parallel business case documents have been prepared which confirm the case for change in both organisations. Given the shared environment it is essential that the program of work to replace CIS/OV is planned jointly across both organisations as all CIS/OV migration will need to occur concurrently.

# 2 Introduction

## 2.1 Background

### 2.1.1 Billing and customer management functions

As a distributor in the South Australian electricity industry, SA Power Networks' operations include functions to bill retailers for customer consumption and other services such as alternate control services (ACS). These functions are complemented by corresponding market transactions, as well as customer management activities which vary to some extent depending on the type of customer (e.g. mass market, commercial and industrial).

Successful operation of the billing function is critical to the responsibilities SA Power Networks must fulfil from a regulatory and market perspective. The billing[7] function is also critical to SA Power Networks from a financial perspective to ensure that it collects revenue in order to cover the costs of managing the distribution network and providing ACS, and provides a return to shareholders.

Customer management activities help to ensure that customers, retailers, and agents[8] are serviced within appropriate timeframes with an acceptable level of quality. Activities support the management of customer impacts from events such as planned and unplanned outages, and service orders (e.g. connection requests). Customer management activities also help to ensure that customer satisfaction levels are maintained according to SA Power Networks' customer service standards, and provide an opportunity to identify areas for improvement.

Increasingly, customer interaction and customer management functions are also extending to include improved customer engagement capabilities. These include: capturing more information about customers, maintain full and accurate records of all customer interactions, providing improved and extended channels for communication and interaction, improved information provision (in terms of accuracy, frequency and timeliness) and an increased ability for customers to "self-serve" their information needs.

There is a close relationship between the billing (including market transactions) and customer management functions given that the majority if not all services provided by SA Power Networks to customers have a billing implication, or a financial implication at the very least.

### 2.1.2 Billing and Customer Management Systems

SA Power Networks currently utilises various systems to support its billing and customer management activities. Key systems include CIS/OV and IEE . These systems and the other systems which work in conjunction with them are described more fully in section 6.2 In summary, CIS/OV provides billing systems capability for consumption and demand-based charges, as well as a number of other capabilities. It is considered a legacy application due to its age (15+ years).

Given anticipated regulatory, industry and strategic business change, as well as the age of CIS/OV, SA Power Networks must reassess the imperative to improve its billing systems capability. Anticipated regulatory, industry and strategic business change is also increasing the need for improved customer management capabilities. These capabilities are not adequately supported by SA Power Networks' current systems.

[7] Refer to NEM capability not just billing function.

[8] Agents refer to electricians and other third parties which may undertake work on behalf of the customer. It is not a reference to customer service agents in the contact centre.

### 2.1.3 Focus of this report

This business case analyses the case for investment in improved billing and customer relationship management (CRM) capabilities. It analyses business requirements, identifies future-state billing and CRM capabilities, and assesses options and transition approaches to achieve the future-state. This business case also estimates the IT expenditure associated with implementing improved systems capabilities, and identifies the ongoing cost implications as well as benefit areas. This business case was developed between 21 August and 30th November 2013.

## 2.2 Purpose

The purpose of this business case is to analyse the case for investment in improved CRM and billing system capabilities. It is intended to assist management in its decision making with respect to investment, specifically, this business case addresses the following key questions:

1. What is driving the need to improve CIS and CRM capabilities?
    a. What is the strategic and regulatory context?
    b. What are the business requirements?
    c. What are the benefits of improved CIS and CRM capabilities?
    d. What are the risks to be mitigated?
    e. What technology trends will influence the decision regarding CIS and CRM investment?
2. What future-state CIS and CRM capabilities are required?
3. What are the architectural options for achieving the future-state?
    a. What criteria should be used to assess the options?
    b. What is the preferred option?
    c. What is the estimated IT capex and opex associated with each option?
4. What aspects of the current IT environments and IT portfolios need to be considered when thinking about how to transition to the preferred future-state option?
5. What is the best approach to transition to the preferred future-state option?

## 2.3 Scope

### 2.3.1 Systems scope

The scope of this business case is the improvement of system capabilities that are currently provided by the following systems:

1. **CIS/OV** – billing capability, customer management, limited service order management, and meter data management (MDM) for basic meters.
2. **IEE Meter Data Management (MDM)** – meter data management capability for interval meters.
3. **NESS and other satellite systems -** limited customer management capability for interval meters.

The Market Transaction System (MTS) fulfils the critical role of helping to manage market transactions to support the billing function, and customer management to a lesser extent. Its integration with CIS/OV is essential for CIS/OV to provide billing, service order and MDM capabilities. MTS is included in the analysis in this report, however, it is assumed that the MTS system will not be replaced. Any new billing system implemented in the future will interface with the current MTS. Likewise we assume that the IEE system for Meter Data management will be retained.

There are a number of additional "satellite" systems within SA Power Networks that provide similar or additional functionality which will be impacted through the replacement strategy. These include:

- NESS – provides customer and meter data functionality for large corporate and customers on existing interval meters. It also provides reporting and analytics capabilities (including Regulatory Tariff analysis). It is anticipated that NESS will be decommissioned as a result of any replacement strategy;
- MVRS – provides support for manual meter reading processes. This system would be progressively reduced in use in line with the anticipated rollout of smart meter technology in South Australia through to 2025;
- CARE – provides details of customer complaints management and compliments interactions. Currently implemented as an SAP extension, this functionality would be encompassed within the proposed CRM capabilities and CARE would be decommissioned.

There are number of supporting systems which are impacted by the options to improve billing and CRM capability, which are described in this report (e.g. Enterprise Asset Management (EAM) system). These systems are in scope to the extent where capability residing in the current CIS/OV or IEE systems (e.g. service order management) may ultimately reside in the supporting system in the proposed option. However, the scope of this report does not extend to improving the broader functionality of the supporting system. There are no recommendations to improve the overall EAM system. Rather, the intent is to fully leverage the capabilities in those systems. The scope of systems capability, and the projects required to achieve improved capability are detailed in section 7 and 8 respectively.

### 2.3.2 Business scope

From a business functional perspective the scope of this business case is the Customer Relations Department (CRD), including Connection Services, Revenue Management, Business Improvement and Planning and Customer Response. CRD is the primary business function impacted by the systems described above. Some of these functions are performed by CP/PAL Customer Service Group and they can also be affected.

While improved billing and CRM capabilities impact business functions such as Field Services, Network and Regulatory (e.g. tariff analysis) this impact is more indirect relative to the impact on CRD and therefore is excluded from this analysis given project timeframes.

### 2.3.3 Financial analysis scope

The financial analysis conducted during the development of this business case includes:

- Estimate of IT upfront cost to implement improved systems capabilities.
- Estimate of IT ongoing cost as a result of implementing improved systems capabilities.
- Estimate of the CRD ongoing cost impact as a result of implementing improved systems capabilities.
- Estimate of qualitative and quantitative benefits to SA Power Networks as a result of implementing improved systems capabilities.

Note: the estimation of IT and CRD costs includes the attributed share of Customer Service Group (CSG) costs (through CKI/HEI Electricity Distribution - CHED) from CP/PAL to support SA Power Networks.

The financial analysis also includes an estimate of the net present value (NPV) of options to improve billing and CRM capabilities, risk mitigation considerations and cost avoidance. Further detail regarding the scope and approach to conduct the financial analysis is included in section 9.

# 2.4 Approach

The approach undertaken to develop this business case consisted of gathering a number of inputs, and developing a number of outputs as defined by the business case development framework (*Figure 4*).

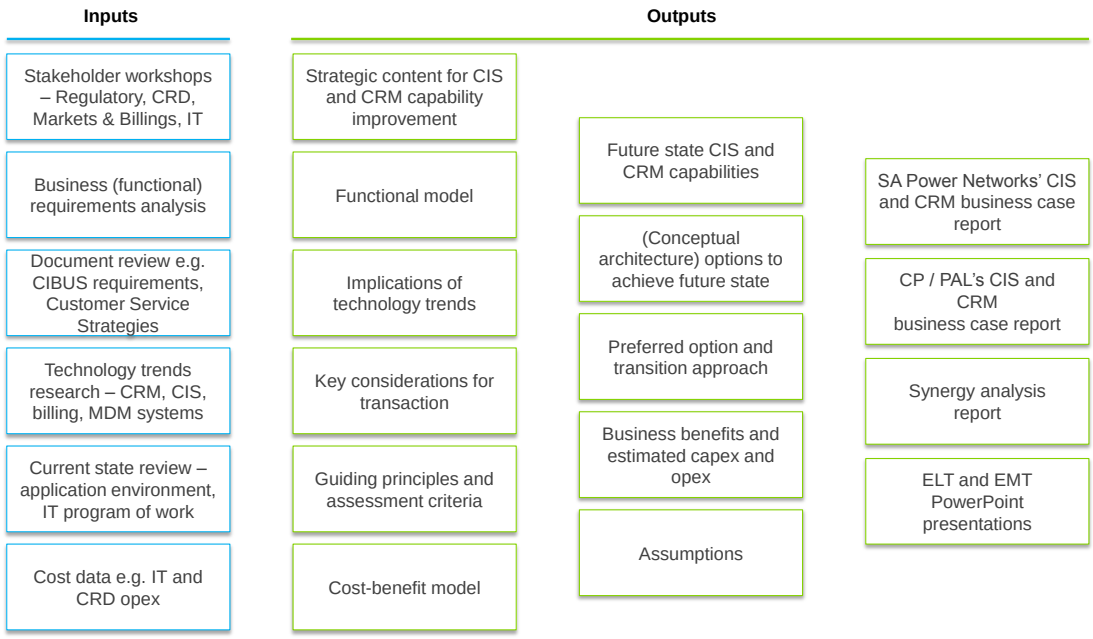



*Figure 4: Business case development framework*

# 3 Strategic context

This section describes the strategic context that is driving the need to improve CIS and CRM capabilities.

There are a number of industry challenges that distribution businesses currently face. These include the rising cost of electricity, workforce challenges, funding and customer choice, maintaining reliability and security of the network and asset renewal and maintenance challenges.

Some of these challenges have a direct or indirect relationship with a distributor's ability to service and manage its customers and manage demand. Demand management has a direct relationship with a distributor's ability to manage pricing, and therefore network costs[9]. In turn, the ability to manage pricing has a relationship with a distributor's billing and CRM capability – these relationships are summarised in *Table 7*.

| Industry challenge | Description | Billing & CRM capability relationship |
|---|---|---|
| Asset renewal, replacement and maintenance. | Involves meeting growth in demand, and the renewal and replacement of assets. | Improved demand management through pricing mechanisms can support the management of costs to maintain the network. Improved billing and CRM capabilities support the implementation of pricing mechanisms. Benefits from improved management of costs may also be shared with customers in the form of rebates or credits. |
| Rising cost of electricity. | Impact on operations and performance, aging network costs, rising input costs. | The ability to price more granularly can improve the ability to price according to the actual cost of distributing electricity and maintaining the network in certain geographic areas (cost reflective pricing). Improved billing and CRM capabilities support the ability to offer more granular pricing plans and tariffs. |
| Maintaining reliability and security of the network. | Enhance security compliance and reliability of network. | Management of peak loads will improve the ability to manage network reliability. Critical peak pricing and load shedding are two potential mechanisms to help manage peak load. Improved billing and CRM capabilities support the ability to implement these mechanisms through corresponding pricing implications. |
| Pricing | Government intervention and public perception | Greater public awareness and control, to some extent, of the impact of energy use on energy pricing and bills may support improved public perception and appropriate government intervention. Improved CRM capability supports the management of customer perceptions, while improved billing capabilities supports the provision of more informative pricing data to consumers. |
| Changes to consumer patterns and energy demand. | Increased residential and commercial customers, increased reliance on energy intensive appliances. | Proposed regulation (e.g. Power of Choice) tends to encourage greater demand-side participation and support improved demand management[10]. This will support the management of impacts from a growing population, as well as the use of energy intensive appliances. Improved billing and CRM capabilities support the ability to offer customers greater flexibility in how they manage electricity use and the |

[9] Network costs are also influenced by other variables such as field force efficiency.
[10] Source: http://www.aemc.gov.au/market-reviews/open/power-of-choice-update-page.html, September 2013

| Industry challenge | Description | Billing & CRM capability relationship |
|---|---|---|
| | | subsequent pricing impact. |
| Micro generation | Increased installation of alternative energy sources | Increased customer adoption of alternative energy sources such as solar PV panels has resulted in adverse revenue impacts. Additionally, current consumption based charging mechanisms mean that distribution costs are allocated inequitably to those with higher grid supplied consumption. Alternative pricing structures are required to ensure that distribution charges are allocated equitably across all grid connection points. |
| Customer Experience expectations | Changes across other industries such as Finance and Telecommunications are raising increased expectations for customer interaction and experience | Societal change is driving increased customer expectations with regard to customer engagement and experience. Customers expect to be able to communicate through a variety of channels, yet achieve a consistent and engaging experience through each. Customers expect information to be accurate and timely and for information to be provided for consumption on any device. Beyond technology, customers expect higher levels of consultation and engagement on planned investments and spending and even on design considerations such as the visual amenity of distribution structures and assets. Improved CRM capabilities are a vital enabler in meeting these increased customer expectations and enhanced customer experience. |

*Table 7: Billing and CRM capability relationship to industry challenges*

In addition to industry challenges, SA Power Networks faces more specific challenges including relatively flat energy delivery volumes and cost increases, which are putting further pressure on the bottom line.

In response to this industry and business context SA Power Networks has defined its Customer Service Vision (*'We will provide proactive, responsive, and reliable service to meet our customers' needs, now and in the future.')* and defined a set of key initiatives to support this vision[11]. Of particular relevance to this business case are the following values that define how this vision will be delivered:

- *Proactively provide and communicate current and accurate information to help our customers make informed decisions*
- *Plan ahead and invest responsibly in our infrastructure, systems and people*

To achieve the vision and address challenges, SA Power Networks has identified a series of technology enabled service improvement initiatives that have an impact on the technology required in the business. All have a relationship with billing and CRM capability.

| Service improvement initiative | Billing & CRM capability relationship |
|---|---|
| Enhanced Accessibility and Interaction to Improve Customer Service | Existing communication channels for customer interaction will remain but will be significantly enhanced through improved content and functionality for increased customer self-service and self-management.<br>Specifically, that information needs to be:<br>• Readily and easily accessible to employees who service customers |

[11] Source: http://www.aemc.gov.au/market-reviews/open/power-of-choice-update-page.html, September 2013

| Service improvement initiative | Billing & CRM capability relationship |
|---|---|
| | • Of high quality in terms of its accuracy, currency and completeness<br>• Contextually relevant in terms of customer information, customer interactions and customer related information.<br><br>Improved CRM capability supports the introduction of self-service capability. The provision of more accurate and comprehensive customer information, as well as functionality that allows customers to initiate, track and manage interactions via a single CRM system will help to allow SA Power Networks to make appropriate functions offered by the system available to multiple channels which are amenable to self-service (e.g. mobile, internet). Access to accurate and timely billing and metering data is an essential component of the information required to support this service need. |
| Increased Information<br><br>Visibility to improve the efficiency of service and consistency of experience | Access to customer related data by our employees will be via a single sign-on portal providing access to all customer and customer related data while masking the complexities of the underlying systems. Additional portals will be added and enhanced to allow self-service access by customers, retailers and electrical contractors.<br><br>Improved CRM and billing system capabilities will support the retention and improvement of customer service levels by providing all employees who interact with customers, better access to more accurate and timely customer information. These capabilities are particularly important given the anticipated introduction of more complex tariffs and pricing. In addition, improved CRM capabilities support the introduction of a self-service capability.<br><br>Greater efficiency and effectiveness with respect to customer service, and more robust and automated billing processes, particularly in an environment characterised by more complex tariffs and energy consumption behaviour (including demand side participation), will improve the cost effectiveness of servicing customers. |
| Improved<br><br>Data Quality<br><br>Availability<br><br>& Integration | Our underlying systems of record and corporate data sources will be subject to replacement, consolidation and improved data integration to better facilitate the information and functional needs of our customers and our operational business units.<br><br>Improved CRM and more streamlined data integration of billing and meter related data will assist in increasing data accuracy to support service experiences. Improved billing system capability will also improve the management of billing data and support better resolution of billing-related queries – improving the cost effectiveness of servicing customers. Greater automation of billing processes will help to minimise data errors associated with manual intervention as well as the number of disputes related to data inaccuracies. |
| Enhanced Insight<br><br>And Knowledge | The Customer Service Strategy identified the following key customer service attributes were found to be common across all customer segments, in order of importance:<br><br>• Knowledgeable employee<br>• Time taken to fix a request or enquiry<br>• Ability to address a request or enquiry<br>• Employees' ability to investigate a request or enquiry |

| Service improvement initiative | Billing & CRM capability relationship |
|---|---|
| | • Time taken to address a request or enquiry<br>• Relevance of response<br>• The way the query was handled<br>• Personalised service<br>• An improved CRM capability will enable the consistency of data to support these expectations. |

*Table 8: Billing and CRM capability relationship with SA Power Networks customer service improvement initiatives*

The Customer Service Strategy Roadmap and associated Customer Technology Plan identified a number of potential technology-related initiatives to support CRD business priorities, and the broader business strategy. The implementation of improved CRM and CIS capabilities align with these initiatives[12] and therefore support the Customer Service Strategy (*Table 9*) by addressing key pain points identified in the plan.

| Customer Technology Plan Improvement Targets[13] | CIS and CRM capability alignment |
|---|---|
| Customer Systems Improvements | Current customer information management (CIS) functionality will be improved by more modern CRM and related systems which support the delivery of customer services today (e.g. billing and Service Order Management Systems).<br>The CRM will support the concept of a single view of customer data and information to ensure that various employees who contact and interact with customers have access to a consistent set of customer-related information. |
| Service Interactions History | Improved CRM capability will enable improved multi-channel capability to allow customers to choose how to interact with SA Power Networks. The CRM will help to ensure that consistent data and information are presented to the customer regardless of channel and provide the necessary longitudinal view of interactions. |
| Property Information | Specific property systems will enable tracking of interactions by property and improve an understanding of consolidated views of ownership. |
| Meter Asset Information | A single system for asset management rather than utilisation of CIS/OV and EAM will improve lifecycle management of meter assets. |

*Table 9: Alignment of Customer Service Strategy initiatives*

Further evidence of the need to improve customer service and engagement by SA Power Networks has been provided by the Stakeholder Engagement project which defined an approach to engage with customers and seek input into SA Power Networks' directions and priorities for the future. The AER has released a final guideline which seeks to enhance the distributor's consumer engagement activities

[12] Initiatives may be incorporated into the CIS and CRM transition roadmap described in section 9.2 of this report.
[13] Potential initiatives identified in the Customer Service Strategy 2013 Implementation Roadmap.

and for the distributor to demonstrate a commitment to ongoing and genuine consumer engagement on a broad range of issues relevant to consumers. The overarching objectives of the Stakeholder Engagement Strategy aligned with the broader draft AER consumer engagement guideline[14], which include:

- Promote the achievement of national energy legislation objectives, so that energy services meet the long term interests of energy consumers.
- Increase the transparency of our regulatory activities and processes, and increase participation in these activities and processes.
- Facilitate our ability to understand stakeholder concerns and interests and incorporate them into our processes and activities.
- Improve the way we communicate and engage with our stakeholders, including enhancing the clarity, accessibility, relevance and timeliness of our communication throughout our engagement processes.

Work done to date provided the following insights into customer behaviour which further strengthen the need to better understand customer interactions and expectations. The research has suggested that SA Power Networks:

- Maximise opportunities to improve service opportunities
- Develop multi-channel communication strategies, and that
- Education will increase customer satisfaction

An improved CRM capability will assist SA Power Networks in aligning with the objectives of this broader framework by capturing customer interactions in a centralised system, and allowing improved reporting and analysis of trends, and identification of insights. An improved CRM capability will also support the management of communications to various stakeholder and customer segments and importantly enable the replacement of a range of legacy systems.

Appendix B of this document provides specific details on the alignment and contribution that this business case provides to:

- Corporate Strategic Objectives
- Corporate Core Areas of Focus
- Corporate IT Strategic Objectives.

Appendix C and D address the objectives and criteria of the Relationship to National Electricity Rules Expenditure Objective and the Meeting the National Electricity Rules Expenditure Criteria respectively.

[14] Source: http://www.aer.gov.au/sites/default/files/Draft%20AER%20Stakeholder%20Engagement%20Framework%20-%2018%20July%202013.pdf September 2013

# 4 Regulatory context

This section describes the regulatory context that is driving the need to improve CIS and CRM capabilities. Anticipated industry and regulatory changes, including those that are designed to encourage greater demand-side participation and support more effective demand management, will introduce more complex tariffs and pricing plans.

In order to manage this complexity from a billing and customer management perspective, improved CIS and CRM capabilities are required. These changes also require more complex interactions between sophisticated billing processes and service management processes (e.g. capping load during peak times and ensuring that corresponding billing implications are managed).

Potential industry and regulatory changes include meter contestability, the introduction of Power of Choice and National Energy Customer Framework recommendations, and more complex time of use pricing. Each of these industry and regulatory changes, and systems implications are discussed in the following tables.

### 1. Meter contestability

| Description | CIS / CRM systems implication / key requirement |
|---|---|
| • Expected to be introduced in January 2017 for the mass market[15].<br>• Will enable third parties to own the meter and provide meter data services.<br>• Will require third parties to send consumption data to the distributor in order for a network bill to be calculated[16].<br>• Will enable a distributor to own meters outside of their geographic network area and provide meter data services to respective consumers – however it is understood that this is not a priority for SA Power Networks<br>• It is anticipated that SA Power Networks will be the meter provider of last resort for meters in its current geographic network that are unattractive to third parties, or where third parties are negligent in their duty to service a meter. | • Ability to receive meter data from the market or third parties: interfaces to facilitate this data flow.<br>• Ability to turn on or off the charging applicable to metering for sites where it is no longer the meter data provider (MDP)<br>• Support the identification of a customer's metering service status to enable appropriate investigation of an outage prior to rolling a truck. This can help to manage service costs that may otherwise be billed to customer<br>• Ability to recover the costs of dispatching resources to address service issues that lie beyond the connection point (e.g. generate a bill for services / dispatch).<br>• Flexibility to turn meters back on under meter of last resort provisions. |

*Table 10: Meter contestability systems implications*

[15] Meter contestability exists today for type 1-4 meters.

[16] Meter contestability will not change the network billing process from the retailer's perspective. Retailers will still receive a network bill from the distributor which is based on a consumption x tariff calculation. (In the event that the retailer takes on the role of meter data provider we assume the meter data still needs to be provided to the distributor for calculation of the network bill, rather than the retailer inputting the data into their system directly).

## 2. Power of Choice

| Description | CIS / CRM systems implication / key requirement |
|---|---|
| • The Power of Choice Review is a combined State, Territory and Commonwealth government initiative through the Standing Council on Energy and Resources (SCER).<br>• Includes a number of National Energy Market (NEM) reforms to enable efficient demand-side participation by :<br>  ○ Enabling consumers to be rewarded for adopting demand side options (demand side changes).<br>  ○ Enabling the market to support consumer choice through better incentives to capture the value of demand side participation options and through decreasing transaction costs and information barriers (supply side changes).<br>• Key recommendations that are most relevant to distributors include :<br>  ○ More flexible electricity pricing to better reflect the costs of electricity supply at different times.<br>  ○ Price incentives for consumers who choose to change their consumption patterns, with safeguards for consumers with limited capacity to change their consumption.<br>  ○ Rewarding commercial and industrial energy users for changing their consumption patterns.<br>  ○ Improving consumer access to electricity consumption data to enhance understanding of their energy use. | • More sophisticated billing capabilities that can manage more complex and dynamic tariffs, including an ability to manage a more complex interdependency with meter and consumption data.<br>• More sophisticated customer relationship management capability to manage contracts and plans, and handle a potentially higher number of customer or retailer enquiries that may result from more complex tariffs and contracts.<br>• Self-service capabilities (e.g. mobile, internet), enabled by better customer relationship management capabilities, to facilitate improved access to electricity consumption data. |

*Table 11: Power of Choice systems implications*

### 3. Time of Use pricing[17] (including critical peak pricing)

| Description | CIS / CRM systems implication / key requirement |
|---|---|
| • Involves pricing electricity depending on the time of day it is used. This reflects the different costs of generating and distributing electricity throughout the day.<br>• Critical peak pricing is another type of ToU pricing where in exchange for lower prices for most of the year, on the days of peak demand, higher pricing may be offered for a few hours before reverting back to normal (e.g. use of air-conditioner on a hot day).<br>• Critical peak rebates are another potential demand management mechanism where customers are paid for reducing electricity consumption during peak periods. Advances in smart grid and home appliances in the future may also support the option of 'opting out' of higher pricing by turning off specific appliances. *This is similar to the underlying concept of load shedding where load is capped during times of peak demand in order to manage the physical impacts on the network and the associated costs.*<br>• **Cost-reflective pricing** – similar in concept to ToU however uses more granular location or customer segment data to determine tariffs to more accurately reflect the cost of distributing electricity to certain locations or to certain customer segments. | • Ability to manage more complex time of use pricing and corresponding billing implications.<br>• Ability to provide rebates in addition to dynamic pricing.<br>• Ability to change and manage tariffs based on other variables such as geographic location and customer segment.<br>• Ability to efficiently and effectively manage a potential increase in customer and retailer enquiries associated with more complex tariffs and plans. |

*Table 12: Time of Use systems implications*

### 4. National Energy Customer Framework (NECF)

| Description | CIS / CRM systems implication / key requirement |
|---|---|
| • NECF is a harmonised, national regime for the sale and supply of electricity (and gas) by retailers and distributors to customers. Key recommendations include:<br>  ○ Stricter timeframes and protocols for re-energisation and de-energisation of premises, enquiries and complaints, retailer billing and dispute resolution.<br>  ○ Increased obligations on the provision of information – provide, maintain and share information between market participants.<br>  ○ Guaranteed service standards including proactive payments when service standards | • Ability to support efficient handling of service orders, and resolution of complaints and disputes – particularly in an environment characterised by more complex tariffs and plans.<br>• Ability to capture complete and accurate end-to-end customer interaction, customer management and service activities information to support service provision and auditing, and to minimise the risk of payments resulting from not meeting service standards.<br>• Ability to exchange demand-side participation data and payments to aggregators, and potentially identify and understand the associated end-customer. |

[17] Also known as dynamic pricing or flexible pricing.

| Description | CIS / CRM systems implication / key requirement |
|---|---|
| are not met. A greater obligation to provide these payments adds additional pressure for compliance.<br>○ Allowing consumers to sell energy they generate (e.g. solar, embedded generation, battery storage) to parties other than their retail electricity supplier (e.g. an aggregator). | |

*Table 13: NECF system implications*

- **Smart Meter Rollout (in South Australia)** – AEMC recommends that smart meters should be mandatory for all new and replacement (i.e. must stop installing accumulation meters) from Q1 2014. DMITRE is responsible for determining the policy position for South Australia by December 2013. Smart meters will be a necessary prerequisite to enable many of the Power of Choice initiatives proposed. Key billing implications include:
    - A requirement to increase the metering charge to fund the provision of smart meters, Options include exposing customers to the full cost of a new meter when supplied or alternatively smearing the costs across the full customer base which would lessen the price shock. Both options are potentially unpopular.
    - Improved billing capabilities are required to implement whatever cost recovery model is chosen.
- **Common communications standards for smart meters –** AEMC recommends the establishment of open-access and communication standards to support contestability in DSP end-user services enabled by smart meters. The current legacy CIS/OV system does not lend itself readily to the evolving increased levels of integration and interoperability. The impact of this is limited through the planned implementation of Enterprise Service Bus (ESB) technologies, however a challenge still remains in the ability to expose internal CIS/OV functionality as externally facing services.

# 5 CIS and CRM requirements

This section describes the CIS and CRM business requirements. It includes:

- The approach to identify and validate requirements.
- A summary of findings.

## 5.1 Approach

The approach to identify and validate CIS and CRM business requirements consisted of four steps:

- Development of the requirements baseline using the CIBUS Business Requirements document as a starting point.
- Grouping of requirements into the following categories:
    - Billing
    - Customer
    - Meter
    - Property
    - Reporting and analytics[18]
- Stakeholder consultation[19] to validate the capabilities (high level requirements) and identify any additional capabilities.
- Inclusion of possible regulator driven requirements.

## 5.2 Summary of findings

The business requirements define the desired set of functionality that system(s) must enable or support with respect to SA Power Networks' billing and customer management functions. There is a total of 360 business requirements for improved CIS and CRM systems. A summary of the number of requirements by category is provided in *Table 14*.

| Capability | Existing requirement[20] (from CIBUS Business Requirements) | Identified new requirements (from CIBUS Business Requirements) | TOTAL |
|---|---|---|---|
| Billing | 19% | 1% | **20%** |
| Customer | 14% | 31% | **45%** |
| Meter | 24% | 1% | **26%** |
| Property | 2% | 0% | **2%** |
| Reporting | 8% | 0% | **8%** |
| **TOTAL** | **67%** | **33%** | **100%** |

*Table 14: Composition of business requirements mapped to capabilities*

*Note: a more complete analysis of requirements will be conducted in the product selection phases.*

[18] Across customer and meter data including the establishment of relevant data stores
[19] A list of stakeholders interviewed is included in Appendix B
[20] Include both joint and SA Power Networks only requirements

Our analysis identified an increased importance in systems capability that is required to support customer relationship management and customer interactions. 45% of the total requirements are customer related, and of these 31% are new requirements. A summary of key requirements by category is provided below.

- **Customer:** Customer requirements make up the greatest proportion of business requirements (45%). 31% of all customer requirements are new and focus on:
    - **Multi-channel integration.** To improve customer engagement the requirements highlight a need to build multi-channel integration (e.g. portal, email, SMS and paper mail) and a greater ability to capture customer interactions. By doing this SA Power Networks can manage customer relationships with greater transparency and accessibility. Benefits to the customer from multi-channel integration include easier access to consistent information as and when required, using the customer's device of choice (e.g. mobile, internet, phone).
    - **Increasing the granularity of customer data** to enable better distinction of customers, in particular customers who are not necessarily associated with a NMI (e.g. property owners). Benefits to the customer include improved service due to the availability of more detailed information to support the resolution of queries and requests.
    - **Communications management** to enable more targeted communications to certain customer segments e.g. bushfire campaigns, and segments of the smart meter customer base. Benefits to the customer include more relevant and timely communications to minimise disruption and inconvenience (e.g. during planned outages) and increase preparedness and awareness (e.g. during bushfire season)
- **Billing and Meter:** Billing requirements describe functionality required to bill usage, generate invoices and execute market (B2B) transactions. These requirements constitute 46% (including Meter requirements) of the total number of business requirements. They highlight an anticipated increase in the complexity of billing and metering through the introduction of new tariff structures and pricing mechanisms (e.g. demand side participation).

  The billing requirements also define a need to improve the mechanisms to validate billing, improve re-billing functionality, and align with market methodologies to help ensure correct billing and allocation of revenue to retailers during market churn.

  Meter requirements accommodate the roll out of smart meters allowing for the capture of more granular data such as, the capture of installation details for smart meters and reasons for service orders. New meter requirements focus on the enhancement of existing meter and service order management processes, automating and tightening the current validation and controls mechanisms.

  However, those further requirements driven by the increasing complexity in metering via the introduction of the meter contestability and smart meters are not yet fully known or comprehended by the market.
- **Property:** The number of requirements for Property represents 2% of the total number of business requirements. While this is a comparatively small proportion compared to customer, billing and meter requirements, SA Power Networks' current systems are providing limited property management functionality today and there is a need to increase this functionality in the future – particularly to support greater customer management requirements. Property requirements include the need for a consolidated view of equipment registers, the ability to perform adjustments in captured data such as disposing of removed equipment, removing trouble codes on readings, and restricting meter multiplier values on basic meters.
- **Reporting and analytics:** The number of requirements for Reporting capabilities represents 8% of the total number of business requirements. Reporting requirements deliver capability in network billing, network tariff, demand and consumption reporting including customer load profile reports.

# 6 Current-state CIS and CRM capabilities

This section describes the current-state CIS and CRM capabilities. It includes:

- The **functional model** which provides a context for discussing CIS and CRM capabilities.
- **Current-state CIS and CRM** capabilities that are provided by existing systems.
- **Key issues and risks** associated with today's CIS/OV and CRM system capabilities.
- Relevant **projects from the current IT portfolio** (endorsed and planned).

## 6.1 Functional model

The functional model provides a context for discussing current (and future-state) CIS and CRM capabilities. It describes the business functions that must be supported or enabled by CIS and CRM systems *(Figure 5)*. The majority of these business functions are performed by SA Power Networks today however some are more limited than others (e.g. property management) and there is limited capability to interact between these functions. The functional model was developed based on the CIS and CRM business requirements and stakeholder consultation.

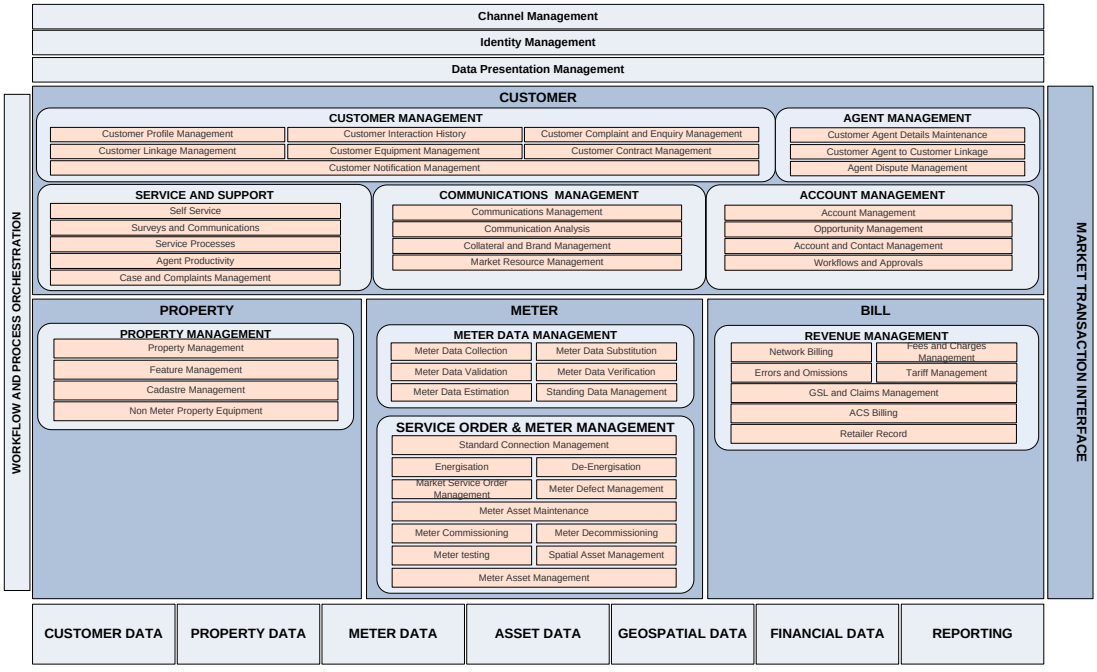



*Figure 5: CIS and CRM functional model – see Appendix D for a larger version*

An overview of each function is described in *Table 15*.

| Function | Short description |
|---|---|
| 1. Customer and agent[21] management | Management of customer and agent interactions with respect to customer service. Includes management of the customer profile, complaints, and customer interactions and provides a single view of these interactions to support service efficiency. |
| 2. Service and support management | Supports the provision of customer self service capability, supported by service process workflow management, and end-to-end case and complaint management. Coordinates interactions through multiple channels. Includes tracking functionality to help ensure customer service needs are met in a timely manner. |
| 3. Communications management | Manages communication campaigns that require management of mass customer interactions, provision of materials to stakeholders, and management of resources associated with the implementation of campaigns.<br>(Note: This is commonly considered a standard customer relationship function albeit this is not seen as a priority area for development in the short term by SA Power Networks) |
| 4. Account management | This includes managing accounts and opportunities that may have a sales element, or simply to follow up on issues as it relates to a customer service requirement. Also supports management of accounts and contracts. |
| 5. Property management | Includes the storage and management of property information such as asset location and property features (e.g. PV fitted). Includes standing data management which can be used to support communication and account management. Property information will also be leveraged by field services employees where network assets and customer properties intersect. |
| 6. Meter data management | Includes meter data reading and collection, (through manual and non-manual means), substantiation, validation, verification and estimation. |
| 7. Service order management | Management of connections, disconnections, energisations, de-energisations, market service orders, and meter defects. |
| 8. Meter asset management | Includes meter asset maintenance, commissioning, decommissioning, and test program management. |
| 9. Revenue management | Includes network billing, and management of fees and charges, errors and omissions, tariffs and claims. |

*Table 15: Overview of functions on the functional model*

[21] Agents refer to electricians and other third parties which may undertake work on behalf of the customer. It is not a reference to customer service agents in the call centre.

# 6.2 Current-state CIS and CRM capabilities

CIS/OV supports a number of customer, meter and billing functions as illustrated in *Figure 6*. It also supports limited property functions. There are a number of complementary systems that are integrated with CIS/OV, including Itron IEE and the Market Transaction System (MTS). These complementary systems exchange meter data with CIS/OV and interact with the market.

Billing for ACS (alternate control services) is supported by SAP. SAP-CARE and SAP CNS supports the customer function with its compliment & complaint management and customer notification functionalities respectively.

There are also a number of supporting systems in SA Power Networks' broader IT environment, which are not illustrated below however exchange data with CIS/OV to support its functionality (and vice versa). These supporting systems include:

- The SAP Enterprise Asset Management System (EAM)
- The Outage Management System (OMS)

In summary, current-state CIS and CRM capabilities are provided by a complex variety of systems. Some of these systems provide dedicated capabilities (e.g. SAP-Care for compliment and complaint management), while other systems and technologies are combined to provide desired functionality (e.g. Registered Electricians Centre (REX) self-service). The core system, CIS/OV, provides a broad range of customer and billing functionality in a single package.

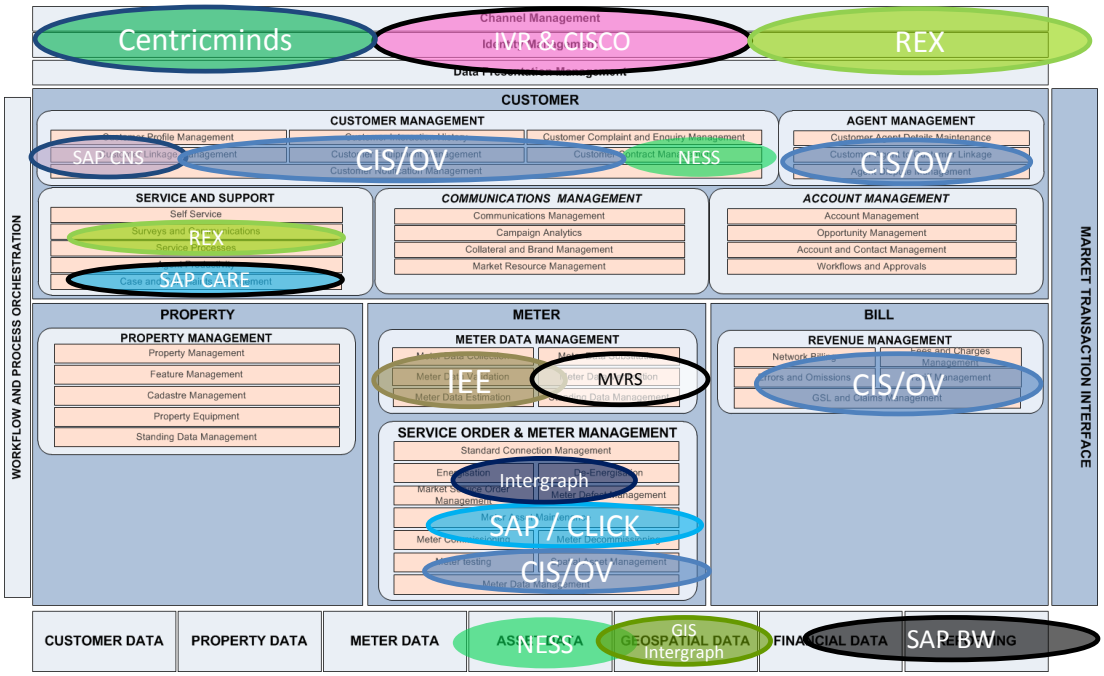



*Figure 6: Current CIS and related systems overlay on functional model*

A brief overview of each system is provided in *Table 16*

| Key | System | Overview |
|---|---|---|
| **Core CIS and CRM system** | | |
| | CIS/OV | Provides functionality for customer information and relationship management, consumption billing capability, standing data management, and meter data management for basic meters |
| **Complementary systems (integrated with CIS/OV)** | | |
| | Itron IEE | Provides the meter data management for interval meters; limited MDM for basic meters |
| **Supporting systems (integrated with CIS/OV)** | | |
| | GIS (Intergraph) | Provides geospatial context information of the network infrastructure and assets |
| | SAP | Provides billing functionality for Alternate Control Services (ACS) |
| | SAP BW | Provides the data warehouse, analytics and reporting functionality |
| | Centricminds | Provides web content management functionalities |
| | REX | Provides self-service portal for contractors to request a connection appointment which raises a service order in SAP and is scheduled in CLICK |
| | MVRS | Performs meter reading and reading route creation and maintenance capabilities |
| | Intergraph OMS | Provides outage management capabilities |
| | NESS | Provides interval data analytic & reporting functionalities and customer management for interval customers |
| | IVR & CISCO | Provides interactive voice response functionality to customers to connect with the business |
| | SAP CARE | Provides customer compliment and complaint management capabilities |
| | SAP CNS | Provides customer notification management capabilities |

*Table 16: Short description functionality supporting SA Power Networks*

## 6.3 CIS/OV key issues and risks

A review of CIS/OV in 2012 identified a number of issues that are likely to increase in scope and scale over time[22]. Key issues include:

- The legacy nature of the application due to its age, and the implications this has for the ability to customise and enhance the system.
- Uncertainty in the ability to establish a long-term vendor contract, which has implications for supportability. [redacted]
- Problems associated with the declining user base for CIS/OV which makes it difficult and less attractive for the vendor to develop further enhancements. [redacted]

The greatest risk with the continued use of CIS/OV is driven by external market changes that are anticipated due to increased consumerisation of energy services, as well as a greater need for distributors to consider more customer-centric models of service delivery.

Combined with the complexity of the current-state systems which provide CIS and CRM capability today, CIS/OV issues and risks leave SA Power Networks with a challenging systems environment in which to accommodate future regulatory change.

Current systems capability is dated and it is possible that it will not be able to be modified to support changes such as critical peak pricing, and the introduction of multiple financially responsible market participants (FRMPs)[23]. The limitations to making the modifications necessary to accommodate change arise from the architecture of CIS/OV. The architecture is highly coupled therefore the implementation of significant modifications to functionality is high risk at best, and unfeasible in a worst case scenario. Any attempt to implement significant modifications would add complexity to the existing system, which increases operational risk and adds costs to implement and support.

There are also a number of risks associated with the long-term use of the CIS/OV system, primarily due to its age and access to appropriate skills and support agreements. [redacted] the software will no longer be upgraded or developed due to the declining user base for CIS/OV. This is consistent with the product roadmap from 2006 as in the CIS Assessment business case. Therefore to implement modifications SA Power Networks would need to either:

- Procure services from a third party – it is highly unlikely that this is achievable given the very limited use of the software within other organisations today.
- Implement modifications with in-house resources – this requires the recruitment of scarce and specialised skills, which would be time consuming and expensive.

These alternatives represent very tactical and short term views of improving CIS systems capability. They do not provide a flexible billing system capability which SA Power Networks requires to accommodate future regulatory and market change. In addition neither alternative addresses the ongoing issue of vendor support beyond the current support agreement, and the operational risk of CIS/OV would remain. These alternatives also put the current support agreement with [redacted] at risk, since it is based on a known software release rather than software that has been modified by a third party.

This report analyses a number of options to migrate off CIS/OV including a 'do-nothing' option. At its most basic level, this option is defined as technical hardware and software upgrades of CIS/OV, however given [redacted] product roadmap, this is not achievable since no new software will be

[22] Business Case Summary – CIS Assessment, version 1, originally created October 22 2012, last updated May 6 2013.
[23] Further regulatory and market changes that will impact CIS/OV functionality are discussed in section 4.

released by [redacted]. Hardware upgrades alone would introduce a degree of uncertainty and risk in operating CIS/OV due to lack of vendor certification for hardware and software interoperability.

A more pragmatic definition of the do-nothing option would include ongoing compliance with market requirements using the current CIS/OV system, through the implementation of functional requirements. However given the constraints of the architecture, limited feasibility from a skill set and resource perspective, and negative impact on the current support agreement, achieving ongoing market compliance is not possible with this option.

## 6.4 CRM key issues and risks

In 2013, SA Power Networks developed a Customer Service Strategy and associated Customer Technology Plan that set out a number of objectives to be delivered during the 2014-2020 timeframe. The Customer Service Strategy sets out a long term vision to guide how customer service needs will evolve over time. The proposed vision is to:

'… leverage technology to provide improved and consistent customer service via a multi-communication channel delivery capability. Customer related information is improved and enhanced through new data sources, improved data quality and improved system integration. Access to information is via clear and clean portals and interfaces that mask the complexities of the underlying data sources and systems."

To achieve this, a number of customer behaviours were analysed and revealed:

- Not all customers are the same - It is important that SA Power Networks continue identifying relevant customer segments, and have targeted conversations to identify evolving needs, wants and issues, to continue delivering against their (changing) expectations

- Communication and information needs - customers want more choice in how they interact with SA Power Networks. The key is consistent, proactive and seamless service experience across all interactions, with some diverse service and communication channel preferences for different customer types.

- Self-service technologies and mobility - many customers want to find more information themselves as they seek greater autonomy and control over their interactions, information, and energy use. Customers expect self-service tools to be efficient, easy to use and available across multiple channels, particularly mobile devices such as tablets and Smartphones

Improved CRM capabilities are necessary to support these values. Specifically improved CRM capabilities must include the following to address business requirements:

- The ability to aggregate information relevant to meet customer expectations in a single repository

- A single source of truth for customer related information to support increasing the number of channels available and the consistency therein.

- Services impacting customers to be efficiently orchestrated to support the facilitation of new service delivery models.

- Being 'aware' to customer needs will require much more sophisticated analytics tools to be applied to single sources of customer information.

None of these foundational elements are available in the technology environment today. In order to support these values, improved CRM and analytics capabilities are required. Specifically the

Customer Technology Plan identified the following issues with SA Power Networks' current CRM and analytics capabilities:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

## 6.5 Prior management of risks and issues

The risks associated with the use of aging and disparate systems to provide such critical business functionality were identified many years ago and have been prudently managed by SA Power Networks over the last 6 years. By taking a cautious approach to the timing of a what would be a significant technology project to replace these systems, SA Power Networks is now in a position to consider the replacement of the capability provided by CIS/OV and the legacy customer systems as a co-ordinated program of work that addresses the risk of current systems, emerging technologies and heightened customer and regulatory expectations.

A summary of the recent approach to balancing the risks associated with this situation and the need to evolve customer information systems to support service expectations is provided below.

| Timeframe | Decision | Consideration |
|---|---|---|
| 2005-2010 | Plan and seek funding to replace CIS/OV | • Age of systems and risks of vendor support |
| 2011 | Extend Support agreement with system vendor [redacted] | • Confirm support arrangements to enable any replacement project to be undertaken |
| 2012 | CIS/OV retain/replace business case | • Review current business needs and customer requirements<br>• Assessed current technology risk |
| 2012 | Single view of customer requirements | • Identified need for single repository of customer information to improve efficiency and accuracy or service<br>• Recognised that customer information capability was not covered by a CIS system and customer expectations were changing rapidly<br>• Identified the emerging need for new billing capability |
| 2013 | Customer technology plan for customer systems investment through | • Prudent adoption of new customer technology replacement |

| Timeframe | Decision | Consideration |
|---|---|---|
| | to 2022 | • Relationship between customer information systems and billing replacement |
| 2013 | Update of Business Case to consider complete strategic position (this document) | • Recognised that single view of customer project would commence to manage customer information and service<br>• A standalone customer information system allows a pragmatic approach to replacing the balance of CIS/OV capability that leverages technology currently in place |

*Table 17: Management of CIS and CRM technical risks*

# 6.6 Relevant projects in current IT portfolio

SA Power Networks has a number of projects planned or endorsed for the current IT portfolio that must be taken into consideration when identifying and analysing the best approach to improve current CIS and CRM capabilities (*Table 18*).

| Project | Objective | Technology components impacted | Anticipated start and finish date | Estimated capital cost |
|---|---|---|---|---|
| **1. Single View of Customer (further validated by this business case)** | To provide a single user interface with a consolidated view of customer information accessible to all customer facing employees within SA Power Networks | - CIS/OV<br>- SAP CARE<br>- NESS<br>- ESB | To commence by Jan 2014 | - $12.1m (covers CRM, analytics reporting and creation of associated data stores) |
| **2. CIS Functional Enhancements** | Upgrade the functionality of CIS/OV for both SA Power Networks and PAL/CP<br><br>Total of 18 Business Requirements – 13 functional requirements and 5 risk/compliance requirements | - CIS/OV | Deployment Q4 2014 | - Capex $2.55m (Inc. margin) spread over 2013/2014 ($491K/$1.86M) |
| **3. CIS/OV Technical Upgrade** | Ensure CIS/OV integrates into the current CP/PAL and SA Power Networks technical environment as it currently does<br><br>Technical upgrade of third party software components of the technology stack | - CIS/OV technology stack | Deployment Q1 2014 | - Capex $549,036 – includes cost of $46,600 incurred during start up and initiation<br>- No Opex impacts |
| **4. IEE/MTS Upgrade Project (shared cost)** | Update the current Itron market systems software to the latest compatible release on robust IT infrastructure with minimal disruption to the business | - Itron IEE<br>- Itron MTS | Start Q4 2013<br>Planned Go-Live Q1 2015 | - Capex $2,961,010 (ex-margin) including CHED hardware ($700,000) |

| Project | Objective | Technology components impacted | Anticipated start and finish date | Estimated capital cost |
|---|---|---|---|---|
| | Implement IEE v7.0 SP4 and MTS 1.6 (the upgrade) | | | |
| **5. Identity Management Project** | Provide improved systems and information security for both internal employee and external customers and partners | Customer Facing developments | Strategy 2014 then implementation through to 2016 | - Strategy $150,000 |
| **6. Enterprise Integration Project** | Provide a common integration and interoperability platform based on SA Power Networks' canonical data model | - Oracle Fusion (subject to confirmation) | Start Q3 2013<br>Platform capabilities in place by end Q2 2014<br>Specific integration requirements project driven | - Will be confirmed |
| **7. Web Content Management System Project** | Provide support for two-way, mobile enabled, customer specific interactions and consistency of experience across all communication channels that meets compliance standards and is able to address the specific needs of individual customers | - CentricMinds (to be replaced)<br>- Replacement technology to be determined | Start Q1 2015<br>End Q4 2015 | - Capex $1,887,271 inclusive of hardware and software |
| **8. Multichannel / Website refresh** | A staged release strategy for incremental enhancement of customer specific web interactions or additional mobile enabled capabilities. | - Content Management System | Quick Wins Start Q1 2014<br>Annual website refresh<br>Customer and agent portal enhancements in line with back-end system enhancements | - Capex $5,451,354 cumulative over 5 years reset period. |

*Table 18: Relevant projects in current IT portfolio*

These projects are illustrated on the transition roadmaps in section 9 to illustrate interdependencies and pre-requisites for the implementation of CIS and CRM future-state capabilities.

# 7 Future-state capabilities

This section describes the technology trends that influence future-state capabilities (in addition to business requirements, and the strategic and regulatory context). It also describes the future-state capabilities that are required to accommodate CIS and CRM business requirements (*Figure 7*).

## 7.1 Technology trends

Research conducted during the development of this report identified a number of trends that have implications for the decision to invest in improved CIS and CRM capabilities, including the approach to and timing of the investment. These trends which are summarised below, influence the identification of future-state capabilities. The trends are detailed in Appendix F.

- **Customer Information Systems**
  - Current billing (CIS) systems are not designed to easily accommodate complex tariff and billing requirements, which are anticipated in the future as the industry and regulation evolve.
  - It is anticipated that the development of such functionality will occur in parallel with industry development and regulatory change over the next 5-10 years – as a virtuous cycle to some extent, with technology influencing the industry and vice versa.
  - The focus on customer will grow the functionality of CIS systems especially from billing.
- **Accrual billing functionality**
  - Current billing systems use a batch method for billing – usage data is gathered, and tariffs applied via a batch calculation.
  - As more complex tariffs are introduced by the industry, accrual billing methods will be required to manage increased tariff complexity such as time of use pricing or critical peak pricing, and other demand management pricing mechanism.
- **Meter asset management and service order management**
  - Enterprise asset management (EAM) software has increased in maturity over the last 10+ years and is now better able to accommodate meter asset management and broader service order management requirements.
  - There is less reliance on CIS systems to accommodate service order management requirements. Alternative systems that deliver meter asset management and service order management functionality are instead integrated with CIS, works management and scheduling systems.
- **Meter data analytics**
  - Utilities that are implementing AMI programs are increasingly implementing AMI MDM functionality initially, rather than replacing legacy CIS systems. This allows demand management requirements to be accommodated within AMI program timeframes. This is consistent with the approach that CP/PAL adopted to establish its AMI system capabilities. This approach is retained in the future-state options which are described in section 8.2.
  - Advanced meter data analytics products, which provide greater insight from increased data volumes, are also being designed in conjunction with MDM solutions, rather than in CIS software.

- **Multichannel self service**
  - Functionality of CRM software is continuously improving to accommodate new channels (e.g. mobile and social), and more complex customer relationships and interactions.
  - To maximise the benefits of this functionality, CRM integration with systems such as OMS, EAM and MDM is required, to communicate relevant messages to consumers in a timely manner.
  - CRM software also provides comprehensive auditing capabilities which can be used to help improve the customer experience.

Given the evolving nature of CIS software and lack of clarity on future industry and regulatory change, SA Power Networks' response to anticipated change and strategic positioning is imperative to any investment decision regarding CIS and CRM capabilities. In addition greater certainty regarding vendor product roadmaps will help to influence specific technology decisions in the future.

## 7.2 Future-state capabilities

This section describes the future-state capabilities that are required to accommodate the business requirements identified in section 5. There are nine distinct capabilities which must operate in a coordinated manner to accommodate the requirements. These requirements are illustrated on the functional model and described in *Table 19*

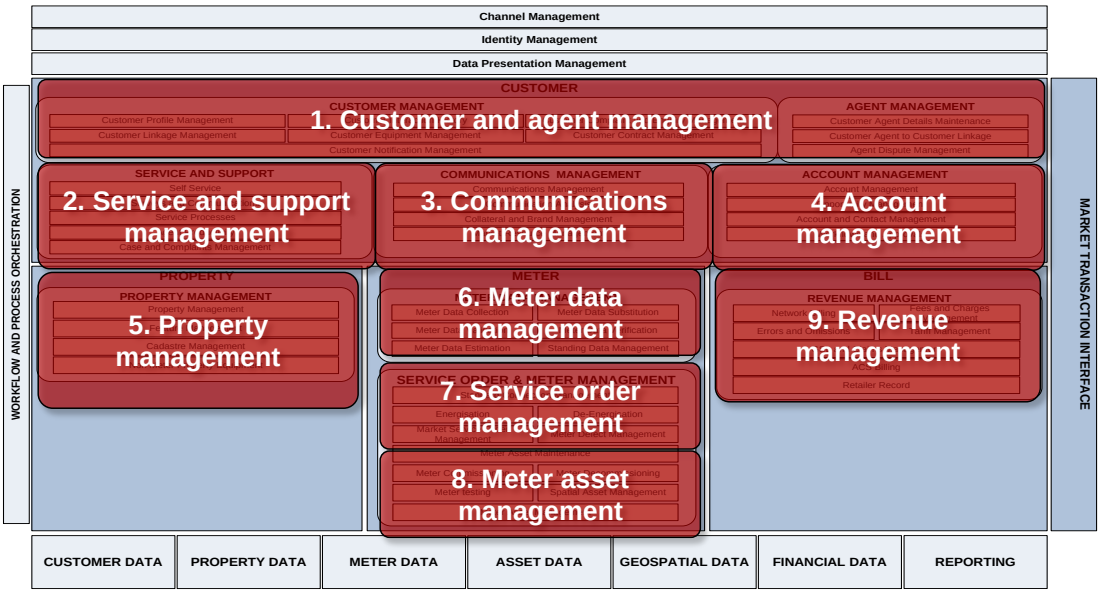



*Figure 7: Future-state capabilities – see Appendix D for a larger version*

| Function | Overview |
|---|---|
| 1. Customer and agent management | Management of customer and agent interactions with respect to customer service. Includes management of the customer profile, complaints, and customer interactions and provides a single view of these interactions to support service efficiency. |
| 2. Service and support management | Supports the provision of customer self service capability, supported by service process workflow management, and end-to-end case and complaint management. Coordinates interactions through multiple channels. Includes tracking functionality to help ensure customer |

| Function | Overview |
|---|---|
| | service needs are met in a timely manner. |
| 3. Communications management | Management of communications campaigns that require management of mass customer interactions, provision of materials to stakeholders, and management of resources associated with the implementation of campaigns. |
| 4. Account management | This includes managing accounts and opportunities that may have a sales element, or simply to follow up on issues as it relates to a customer service requirement. Also supports management of contracts. |
| 5. Property management | Includes the storage and management of property information such as asset location and property features (e.g. PV fitted). Includes standing data management which can be used to support customer and agent, service and support, campaign, and lead and opportunity management. |
| 6. Meter and market data management | Includes management of standing data[24], meter data reading and collection, (through manual and non-manual means), substantiation, validation, verification and estimation. |
| 7. Service order management | Management of connections, disconnections, energisations, de-energisations, market service orders, and meter defects. |
| 8. Meter asset management | Includes meter asset maintenance, commissioning, decommissioning, and test program management. |
| 9. Revenue management | Includes network billing, and management of fees and charges, errors and omissions, tariffs and claims. |

*Table 19: Future-state capabilities*

As part of this project the organisation also needs to establish the data stores to capture and manage data from all the above sources to support business reporting and analytical reporting capabilities.

[24] The implementation of standing data management is likely to result from custom development, due to specific Australian requirements, and has been classified under meter data management due to the close relationship between meter related information and standing data status.

# 8 Options to achieve future-state

This section discusses the conceptual application architecture options to achieve the future-state capabilities described in section 7.2. The options allow analysis of the most appropriate approach to achieve the future-state and take into consideration technology trends, and the ability to transition to the future-state[25]. This section includes:

- **Guiding principles** for the development of options to achieve the future-state capabilities described in section.
- **Two feasible options** to achieve the future-state capabilities.
- **A 'do nothing' option**.
- **Criteria to assess** each option.
- **The assessment of each option** according to the defined criteria.

## 8.1 Guiding principles

The following eight principles were identified to guide the development of each option:

- Ensure application architecture is modular and flexible to accommodate changes to the Distributor's role in the market (driven by regulatory and / or strategic objectives).
- Ensure that core functional requirements are accommodated.
- Provide a foundation to accommodate future smart grid requirements – driven initially by greater complexity in tariffs and billing, demand management, and demand-side participation.
- Consolidate the application environment with a focus on leveraging existing technology platforms where they can provide the required functionality (e.g. SAP, Oracle).
- Re-use existing applications where this is pragmatic from a long-term (10+ year) perspective.
- Adhere to information security principles and new security concerns that may arise from market and regulatory change (e.g. meter contestability).
- Minimise workflow exceptions and enable more automated management of exceptions when they occur.
- Design and implement a more user-friendly technology environment that promotes ease-of-use and single views of data – minimise the need for end-users to log onto multiple systems to get work done.

[25] Transition to the future-state is discussed in section 9.

# 8.2 Options

This section describes three options:

- **Option 1: Integrated CIS supplemented with CRM** – this option is most similar to today's architecture with respect to CIS/OV. It involves the implementation of an integrated software product (CIS) to provide comprehensive functionality (e.g. customer management, billing, service order management, and meter data management). It also involves the implementation of an integrated software product to provide CRM capability.
- **Option 2a: Modular billing and markets supplemented with CRM** – this option adopts a more modular approach to implementing future-state capability for revenue management, meter data management, service order management and meter asset management. Similar to option 1, it involves the implementation of an integrated software product to provide CRM capability.
- **Option 2b: Modular billing and markets supplemented with cloud CRM** – this option is the same as option 2a however the CRM systems capability is provided by a software as a service (SaaS) offering rather than an on-premise CRM software product.
- **Option 3: 'Do nothing'** – this option is intended to help ensure ongoing compliance with market requirements using the current CIS/OV system, through the implementation of functional requirements. It also includes technical upgrades of hardware and software components as required. It does not include functional enhancements to accommodate new or changing business requirements, except where these are required due to regulatory or market change. It does not include the implementation of any CRM functionality (e.g. Single View of Customer) in addition to what exists today, and what is in the current IT portfolio.

Within each option the organisation will also establish the data stores to capture and manage data from all modules deployed to support business reporting and analytical reporting capabilities.

Each option is described in more detail below. While an infrastructure as a service (IaaS) option was considered during the development of this business case, it was not explicitly analysed as an option. The primary reason for this exclusion is the analysis previously conducted by CP/PAL that investigated IaaS database capabilities (for non CRM and CIS systems). Key findings from the analysis indicated that the service offerings available in the Australian market today provide less performance than on-premise solutions. High levels of performance are particularly important for future-state billing capabilities given the more dynamic nature of billing in the future. Key findings also indicated that the total cost of ownership was less attractive due to CP/PAL's Oracle licensing agreement which provides a greater benefit than any IaaS database offering.

## 8.2.1 Option 1: Integrated CIS supplemented with CRM

This option involves the implementation of a comprehensive, end-to-end CIS system that provides customer and agent management, meter data management for basic meters, service order management and revenue management functionality. The CIS system provides standing meter data management functionality for basic and interval meters. This option also involves:

- Implementation of a separate MDM system to support interval meters using current systems (where possible).
- Implementation of a dedicated property management system to provide a longitudinal view of property and customer appliances (including solar panels).
- Implementation of a CRM system to provide stakeholder service and support, communications management, and account management functionality.

The conceptual application architecture for this option is illustrated in *Figure 8*

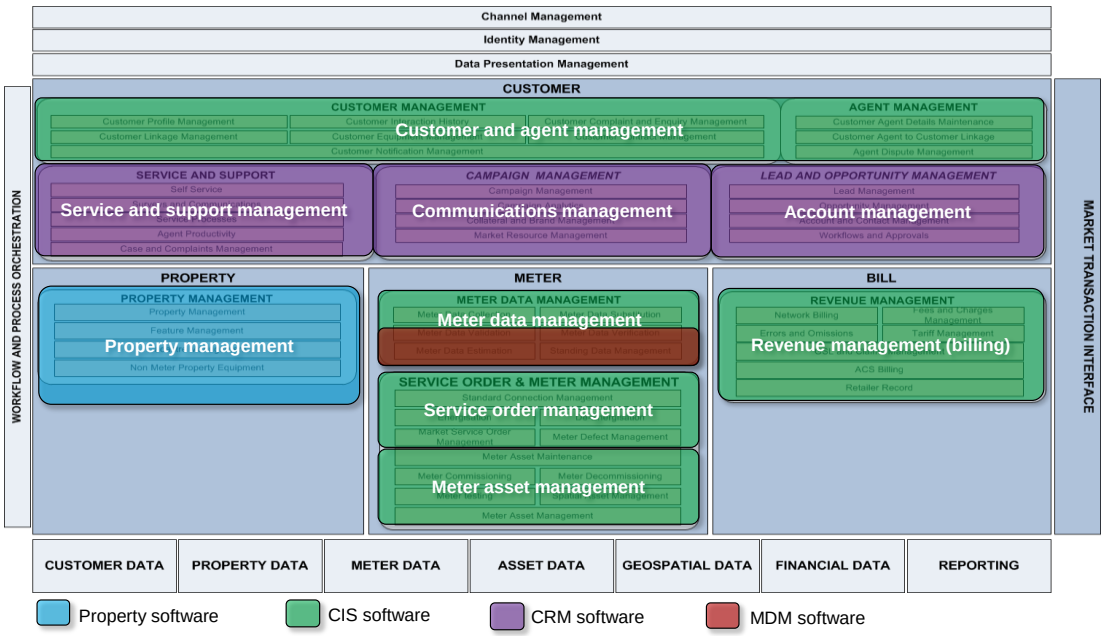



*Figure 8: Option 1 conceptual application architecture*

While this option involves the implementation of integrated software products (CIS and CRM), it still requires integration between the two products, as well as integration with supporting systems that reside in the current application environment (and are described in section 6.2). Under this option the CIS must be integrated with the following systems:

- The USB to receive customer / retailer initiated service orders via the market.
- The MTS to enable (B2B) market transactions.
- The interval MDM to receive meter data for billing.
- The enterprise asset management and work scheduling systems to exchange service order management and meter asset management data.
- The GIS to accommodate geospatial data requirements e.g. to view a (thematic) map with meter locations.

The CRM system must be integrated with the following systems:

- The CIS to reference 'property' and NMI data (captured as part of standing data) to support customer interactions.
- The CIS to exchange service order tickets and status updates to manage service orders and monitor activities against the customer record.
- The OMS to receive outage notifications specific to a NMI, to enable notifications to be recorded against customer records.
- The IVR system to exchange contact details.
- The portal to support self service capabilities. Portal could be included in CRM functionality.

With respect to data sources, under this option the CIS is the database of record (DBoR) for:

- Customer and agent data at the meter level, customer or retailer initiated service order data, meter standing data, meter asset data and billing data.

- Customer data, service and support workflow data, communications and account management data, and the Property Management system is the DBoR for property data including customer appliances installed (inc. solar panels).

The advantages of this option include the decreased need for integration between separate software components, which minimises complexity and risk from this perspective. There is also greater certainty regarding the interoperability of the components in the CIS (e.g. customer management, revenue management). This decreases the need for interoperability due diligence when compared to an architecture that comprises of separate (vendor) software components. Procurement effort may also decrease since there are fewer individual software components to go to market for. Contract management overhead may also decrease given that there are fewer vendors to manage.

#### 8.2.1.1 Option 1 risks

Key risks with this option are as follow:

| Risk ID | Risk Description (Risk Line Item) | Consequence Description | Inherent Likelihood | Inherent Consequence | Risk Rating |
|---|---|---|---|---|---|
| B001 | The higher risk associated with significant software package implementations | The higher extent of business disruption if the complete integrated CIS package was implemented at once.<br>Realisation of benefits may also be deferred until the entire package is implemented. | Likely | Major | High |
| B002 | Implementation of immature software packages might lead to inflexibility in future enhancements | As the maturity and capability of technology evolves, particularly with respect to billing engine (revenue management) capability, there is risk that the entire CIS will require an upgrade to implement the improved capability. This could create significant subsequent projects for SA Power Networks in the future. | Likely | Major | High |
| B003 | Billing requirements might change during the implementation of CIS | As billing requirements evolve and become clearer there is also the risk that requirements may change during implementation of the CIS (CIS implementations are typically two to three years in duration). Therefore this option may require a re-scoping of the CIS implementation while the project is in progress, creating budget uncertainty and increasing costs | Possible | Moderate | High |

*Table 20: Major business risk associated with Option 1*

### 8.2.2 Option 2a: Modular billing & markets supplemented with CRM

This option involves the implementation of an integrated CRM software product that provides customer and agent, service and support, campaign, and lead and opportunity management functionality. Similar to option 1, it also involves the implementation of a separate, dedicated property management system to provide a longitudinal view of property and customer appliances (including solar panels).

Meter data management functionality is implemented in a separate and dedicated MDM system to manage meter reads and related functionality. Meter asset management functionality is implemented in a dedicated enterprise asset management (EAM) system, which is integrated with a works scheduling system to support service order management. Standing meter data management functionality may be incorporated into the meter asset management solution or implemented separately.

A dedicated billing engine is implemented to generate network bills, and accommodate more dynamic and complex pricing models, including Alternate Control Services[26].

The conceptual application architecture for this option is illustrated in *Figure 9*

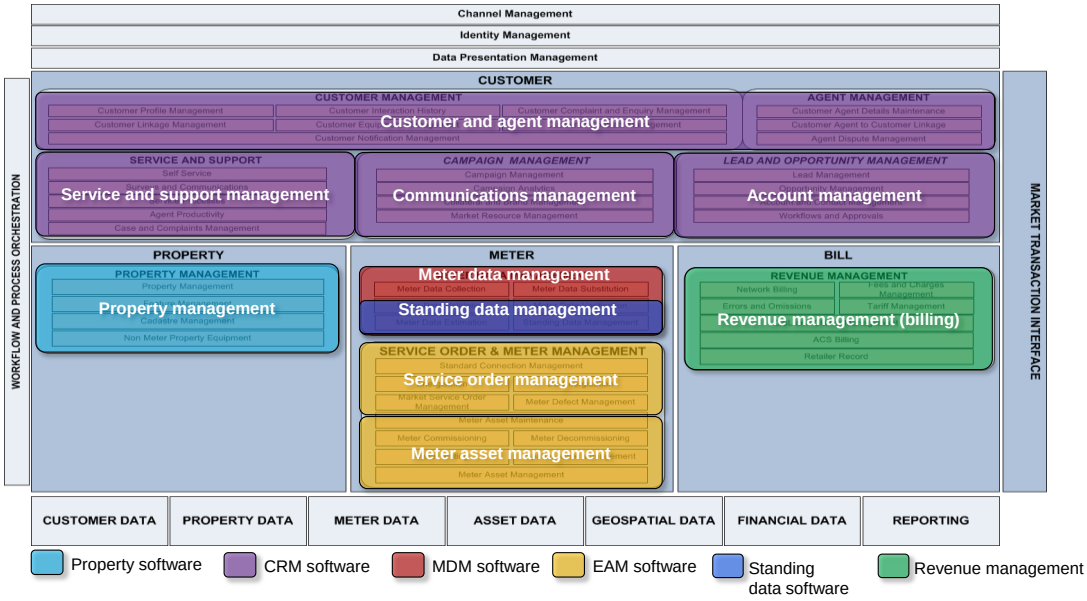



*Figure 9: Option 2 conceptual application architecture*

Given the modularity of this option there is an increased need for integration and workflow management to ensure that all software components are coordinated to deliver an end-to-end system which accommodates functional requirements. Key integration points are described below:

- **CRM**
    - Integration with the Property Management System to reference 'property' data to support customer, retailer and other stakeholder interactions.
    - Integration with the EAM to exchange service order tickets and status updates to manage service orders and monitor activities against the customer record.
    - Integration with the OMS to receive outage notifications specific to a NMI, to enable notifications to be recorded against customer records.
    - Integration with the billing engine to access billing data to address customer, agent or retailer enquiries (including enquiries related to negotiated services and charges).

[26] Billing for capital works will continue to be conducted from SAP, however will be supported by CRM.

  - Integration with contact management software to record details of customer interactions with telephony systems and contact centre employee.
  - Integration with the enterprise customer portal to support self service capabilities.
- **Property management**
  - Integration with the GIS to accommodate geospatial data requirements e.g. to view a (thematic) map with meter locations and network connectivity.
  - Integration with the Enterprise Asset Management (EAM) system to provide property and site access details to field service crews.
  - Integration with the MDM and billing engine solution with respect to any property related consumption and generation capabilities and potential demand side participation and billing implications.
- **MDM and billing engine**
  - Integration between the MDM and billing engine to exchange meter and consumption data, to enable calculation of network bills.
  - Integration with the Market Transaction System (MTS) to enable (B2B) market transactions.
  - Integration with the CRM to record billing information against customer records.

With respect to data sources each software component is the DBoR for certain data:

- **CRM system:** customer data, service and support workflow data, communications and account management data.
- **Property management:** all property related information and customer appliances installed (inc. solar panels).
- **Standing data management:** all standing data related to national market.
- **EAM system:** meter asset information, works management and scheduling.
- **MDM system:** DBoR for meter read data.
- **Billing engine:** DBoR for billing data.

The advantages of this option include the increased ability to implement capability as business requirements and technology evolve and increase in certainty. Implementation of more modular software components also minimises implementation risk compared with integrated package implementations. Business disruption risk is also minimised and is more manageable. Benefits may also be realised more incrementally, aligned with the relatively quicker implementation of individual software components. The ability to upgrade certain components to take advantage of new technology capability is increased, with implementation not necessarily requiring replacement of a significant part of the architecture.

#### 8.2.2.1 Option 2a risks

Key risks with this option are as follow:

| Risk ID | Risk Description (Risk Line Item) | Consequence Description | Inherent Likelihood | Inherent Consequence | Risk Rating |
|---|---|---|---|---|---|
| B001 | Integrations and workflows will become more complex | Increased integration and workflow complexity. However there is broader scope to design workflow to | Likely | Minor | Medium |

| | | | | | |
|---|---|---|---|---|---|
| | | align with SA Power Networks' requirements and business processes, rather than conforming to workflow specified by a CIS package (or customising the package to align with SA Power Networks' workflow requirements). | | | |
| B002 | Increased integration costs | Increased integration and workflow complexity may increase the costs of implementation. | Possible | Moderate | Medium |
| B003 | Increased errors in the BAU environment | If not designed and managed appropriately, integration and workflow complexity can result in increased errors in the BAU environment. Therefore consideration needs to be given to how these can be minimised and handled in an automated manner when they do occur. | Possible | Minor | Low |
| B004 | Increased procurement, and contract / vendor management effort | This option may increase procurement, and contract / vendor management effort due to the modular approach. | Possible | Moderate | Medium |
| B005 | Increased transition complexity | Increased transition complexity with transition interfaces required to be built to interact with CIS/OV while it still exists. | Possible | Moderate | Medium |

*Table 21: Major business risk associated with Option 2a*

### 8.2.3 Option 2b: Modular billing and markets supplemented with cloud CRM

This option is the same as option 2 however the CRM systems capability is provided by a cloud-based CRM offering (SaaS). Compared with other capabilities defined in the future-state model, cloud-based CRM offerings are relatively mature. There are several tier 1 and tier 2 providers offering CRM SaaS offerings – including SAP, Microsoft Dynamics, salesforce.com, Kana and SugerCRM.

Depending on the vendor, CRM SaaS offerings provide a broad range of CRM functionality including account, contact, order, quote and campaign management. Products may also provide case and knowledge management, and workflow capabilities. Extensions to core functionality may include social listening, customer portals and social intranets which can support the creation of forums for external parties and stakeholders to interact.

Cost estimates for this option (section 10) are based on a broad range of CRM functionality as described above however do not include the above extensions to core functionality. Cost estimates also include capital costs to transition to the cloud CRM solution.

The conceptual architecture for this option is the same as for option 2a (Figure 11).

#### 8.2.3.1 Option 2b risks

Key risks with this option are as follow:

| Risk ID | Risk Description (Risk Line Item) | Consequence Description | Inherent Likelihood | Inherent Consequence | Risk Rating |
|---|---|---|---|---|---|
| B001 | Increased data privacy and security risks | Potential off-shoring of data by the SaaS provider which may increase data privacy and security risks.<br>Potential data security risks with the transfer of data between the SaaS solution and SA Power Networks' internal systems for both transaction processing and reporting and analytics. | Possible | Minor | Low |
| B002 | Limited ability to customise the SasS solutions | Potentially limited ability to customise the solution as required – different SaaS vendors will have different approaches to managing customisations. | Possible | Moderate | Medium |
| B003 | Increased integration complexity | Potential integration complexity due to the volume of transactions and number of points of interaction between the SaaS solution and SA Power Networks' internal systems. | Possible | Moderate | Medium |

*Table 22: Major business risk associated with Option 2b*

While there are a number of risks associated with SaaS solutions, that are different in nature to on-premise solutions, there are mitigations that may be suitable for SA Power Networks.

### 8.2.4 Option 3: "Do nothing"

The "do nothing" option is intended to help ensure ongoing compliance with market requirements using the current CIS/OV system, through the implementation of new market requirements where possible. It also includes technical upgrades of hardware and software components as required and where possible. It does not include functional enhancements to accommodate new or changing business requirements, with the exception of those required by market changes. It does not include the implementation of any CRM functionality in addition to what exists today, and what is in the current IT portfolio (e.g. Single View of Customer).

This option involves:

- Continued use of CIS/OV for customer and agent management, standing data management, service order management, meter asset management and revenue management (billing). Service and support will continue to be provided by the Cisco agent desktop and OAM.
- Continued use of ITRON IEE for meter data management for interval meters.
- Continued use of all remaining supporting systems.

The conceptual application architecture for this option is illustrated in *Figure 10*

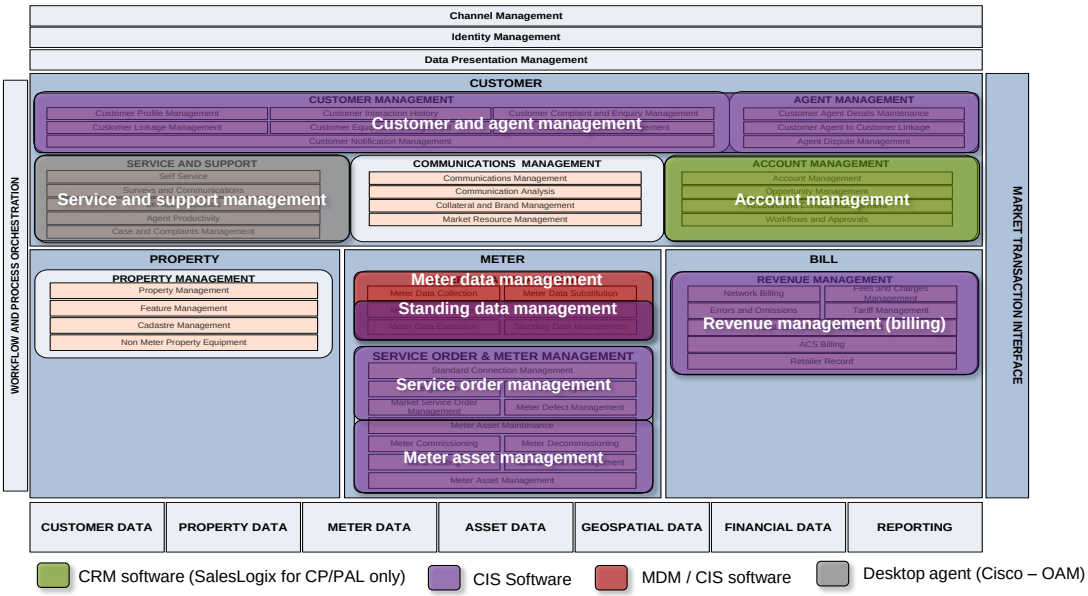



*Figure 10: Option 3 conceptual application architecture*

Given that this option does not involve the replacement of existing systems there are no changes to key integration points or data sources. However depending on the nature of new market requirements, the implementation of functionality to comply with these requirements is likely to require extensive changes to CIS/OV interfaces with other systems in the application environment..

Although CHED secured an agreement with [redacted] in Q4 2011 for support of CIS/OV, it indicated that the software will no longer be upgraded or developed due to the declining user base for CIS/OV. This is consistent with the product roadmap from 2006. Therefore to implement modifications SA Power Networks would need to either:

- Procure services from a third party – it is highly unlikely that this is achievable given the very limited use of the software within other organisations today.
- Implement modifications with in-house resources – this requires the recruitment of scarce and specialised skills, which would be time consuming and expensive.

These alternatives represent very tactical and short term views of improving CIS systems capability. They do not provide a flexible billing system capability which SA Power Networks requires to accommodate future regulatory and market change. In addition neither alternative addresses the ongoing issue of vendor support beyond the current support agreement, and the operational risk of CIS/OV would remain. These alternatives also put the current support agreement with [redacted] at risk, since it is based on a known software release rather than software that has been modified by a third party. Finally they do not provide the capability to support the information required to meet customer service expectations.

Additionally, emergent meter contestability requirements under Power of Choice reforms are likely to drive increased interoperability requirements with external parties and additional market participants

Whilst this option offers advantages in terms of lower capital investment and lower implementation risk compared with the implementation of options 1 and 2 it is not considered a viable solution as it does not enable SA Power Networks to meet their customer and regulatory needs or address the key issue of technical risk of a core business system. Accordingly SAPN has not prepared costing for Option 3.

#### 8.2.4.1 Option 3 risks

Key risks with this option are as follow:

| Risk ID | Risk Description (Risk Line Item) | Consequence Description | Inherent Likelihood | Inherent Consequence | Risk Rating |
|---|---|---|---|---|---|
| B001 | Unable to support and accommodate future regulatory or market change | The likely application challenges to support and accommodate future regulatory or market change due to the architecture underpinning the CIS/OV application. | Likely | Major | High |
| B002 | Lack of Delphi[27] developer skills | Inability to access scarce skills to implement changes required from market and regulatory change. | Possible | Major | High |
| B003 | Potential increase in business operating costs to implement manual workarounds in the absence of appropriate systems capability. | Continuing ageing of current functionality and infrastructure if planned enhancements will not be implemented.<br><br>Manual workarounds will increase the risk of re-work due to errors.<br><br>Disruption to the business due to the introduction of new business processes to support manual workarounds. | Possible | Major | High |
| B004 | Risk associated with endor support | Inability to secure a long term support arrangement following expiry of the current agreement since the vendor is ramping down support for CIS/OV due to a declining user base. | Possible | Major | High |

*Table 23: Major business risk associated with Option 3*

[27] is the programing language used in CIS/OV

There is also a limit to which manual work can supplement appropriate systems capability. For example, manual processes will be limited in their ability to calculate more dynamic and complex tariffs, including those that may result from advances in demand side participation. There is a risk that this option will not allow SA Power Networks to establish the right systems capabilities in an appropriate timeframe to accommodate future regulatory and market change.

## 8.3 Assessment criteria

The following criteria were defined in consultation with stakeholders to assess the appropriateness of each option.

- The option supports respective Customer Service and Stakeholder Engagement Strategies.
- The option provides a foundation to accommodate anticipated future regulatory change (compliance).
- The option enables and supports strategic business objectives, including innovation objectives.
- The option minimises complexity associated with systems integration and USB (Utility Service Bus) logic.
- The option minimises complexity and resource duplication during transition to the future-state.
- The option has an attractive NPV relative to the other options.
- The option supports selection of mature software that has existing vendor support resources and implementation partners(s) in Australia.

# 8.4 Options assessment

Each of the three options described in section 8.2 were assessed against the defined assessment criteria in consultation with stakeholders. This assessment process supported the objective identification of a preferred option to implement the future-state capabilities. *Table 24* summarises the options assessment.

| Assessment criteria | Option 1: Integrated CIS supplemented with CRM | Option 2a & 2b: Modular billing & markets supplemented with (cloud) CRM | Option 3: "Do nothing" |
|---|---|---|---|
| This option supports respective Customer Service and Stakeholder Engagement Strategies. | ● | ● | ○ |
| The option provides a foundation to accommodate anticipated future regulatory change (compliance). | ◑ | ● | ○ |
| The option enables and supports strategic business objectives, including innovation objectives. | ◑ | ● | ○ |
| The option minimises complexity associated with systems integration and USB logic. | ◑ | ◔ | ◑ |
| The option minimises complexity and resource duplication during transition to the future state. | ◔ | ◑ | ◕ |
| The option has an attractive NPV relative to other options. | ◑ | ◑ | ◔ |
| The option supports selection of software that is fit for purpose | ◑ | ● | ● |
| Existing vendor support resources and implementation partners can be sourced in Australia. | ◕ | ◑ | ● |
| **TOTAL** | ◑ | ◕ | ◔ |

● Option fully supports criteria. ◕ Option mostly supports criteria. ◑ Option has limited support for criteria. ◔ Option does not support criteria.

*Table 24: Options assessment*

# 8.5 Preferred option

Based on the advantages and disadvantages for each option, and the options assessment, the preferred option to achieve the future-state capabilities is **Option 2a: Modular Billing and Markets Supplemented with CRM**. In Summary Option 2a provides the following advantages over the alternatives considered:

- Enables customer service expectations to be met by a specific CRM solution with that program already scheduled for a 2014 commencement
- Leverages investment in current applications such as SAP for those CIS/OV functions associated with asset management and service/work order management
- Provides a billing solution with the flexibility required to meet regulatory requirements
- Provides flexibility in implementation timing as it does not require a "big bang" approach
- Takes advantage of technology trends with respect to customer and billing systems as it allows separate decisions to be made about billing and CRM solutions

Section 9 discusses two approaches to transition from the current-state CIS and CRM capabilities to the future-state conceptual application architecture described by option 2.

# 9 Transition to the preferred option

This section discusses:

- Considerations to transition to the future state under option 2.
- Three identified transition approaches to the preferred future state option (Option 2: Modular Billing and Markets Complemented by CRM) as discussed in section 8.5.
- A transition approach for non-preferred options (Option 1: Integrated CIS complemented by CRM for comparative purposes.

## 9.1 Transition considerations

*Table 25* lists the considerations that were taken into account to develop each transition approach. The considerations support the timing, sequencing, interdependencies and external dependencies of respective projects that are required to transition to the future-state capability.

| Consideration | Description |
|---|---|
| Addressing the capability gap (both existing and future) | The extent of the gap in current systems capability with respect to identified requirements was taken into consideration when determining a likely implementation approach from a timing perspective. |
| Leverage current IT portfolio and pre-requisite system capability requirements. | The timing of projects in the current IT portfolio which provide pre-requisite or interdependent capability (e.g. enterprise asset management, utility service bus, Single View of Customer) is taken into consideration when determining the timing of each respective project. |
| Aligns with the introduction of strategic and / or regulatory change. | The anticipated timing of strategic and regulatory change is taken into consideration to ensure that corresponding future state capability is established at the appropriate time. |
| Ability to manage implications of systems (and operational) change and also the dependency on other organisational change initiatives. | SA Power Networks' ability to manage the change associated with system implementation effort to ensure the transition approach is not overly ambitious or high risk. |

*Table 25: Transition considerations*

## 9.2 Transition to the preferred future-state option

Three options were identified to transition to the preferred future-state:

- **Transition approach 1:** Implements CRM functionality upfront, with property management capability implemented in parallel. This is followed by phased and overlapping implementation of service order management, meter asset management capabilities, with the implementation of billing engine capability occurring in parallel.
- **Transition approach 2:** Represents a more staggered approach to implementing the required future-state capabilities. Capabilities are implemented in the same sequence as transition

approach 1 with less overlap between projects. The implementation of billing engine capability does not occur in parallel with the implementation of service order and meter asset management capabilities. Instead implementation commences once these capabilities are established.

- **Transition approach 3:** Represents a staggered approach to implementing future-state capabilities in a similar manner to option 2 except billing is brought forward, and meter asset management and service order management is delayed as the last transition item.

Each approach is described in more detail below.

### 9.2.1 Transition approach 1

The alignment of transition approach 1 with the transition considerations is discussed in *Table 26.*

| Consideration | Description |
|---|---|
| Addresses significant capability gap. | Transition approach 1 delivers sovereign CRM functionality, property management capability and multi-channel capabilities by late 2015. Preparations to procure, design and replace standing data, service order management, meter asset management and revenue management will begin in the second half of 2015 and be fully completed by late 2017 in what is largely a big bang implementation approach. |
| Leverages current IT portfolio / pre-requisite systems capability is established. | This approach will leverage CIS/OV technical upgrades and CIS functional enhancements as interim steps before the final billing engine replacement can be completed. |
| Aligns with the introduction of strategic and / or regulatory change. | Full system functionality will be available by 2017 just 6 months after the planned introduction of contestable metering and forced tariff implementation. |
| Ability to manage implications of systems (and operational) change. | This approach aims to implement CRM and multichannel capability early, before proceeding with a big bang approach for the rest. This is likely to place a substantial load on the business from mid-2015 till mid-2017, however system functionality will be in place post 2017, thus allowing the business to completely retire CIS/OV relatively early in the program. |

*Table 26: Transition approach 1 – alignment with transition considerations*

Start and end dates, and interdependencies for transition approach 1 are summarised in *Table 27*.

| Capability | Start date | End date | Interdependencies |
|---|---|---|---|
| Customer and agent management | Jan 2014 | Apr 2015 | None |
| Service and support management | Jan 2014 | Apr 2015 | None |
| Communication management | Jan 2014 | Apr 2015 | Customer and agent management |
| Account management | Jan 2014 | Apr 2015 | Customer and agent management |
| Property management | Jan 2015 | Aug 2015 | None |
| Meter data management | Jan 2016 | Dec 2016 | MDM configuration to CIS/OV<br>IEE/MTS Upgrade Project |

| Capability | Start date | End date | Interdependencies |
|---|---|---|---|
| Revenue management (billing) | Jul 2015 | Jul 2017 | IEE/MTS Upgrade Project |
| Service order management | Dec 2015 | Oct 2016 | None |
| Meter asset management | May 2016 | Jul 2017 | IEE/MTS Upgrade Project |
| Standing data management | Nov 2015 | Jul 2016 | IEE/MTS Upgrade Project<br>SAP Works Management |

*Table 27: Transition approach 1 summary*

The project pre-requisite for this transition approach includes:

- Data Management
- Enterprise Asset Management
- Project and Program Portfolio Management
- Enterprise Blueprints (SAP roadmap reference)
- Data warehouse, Reporting and Analytics tool (CTP reference)
- Enterprise Integration Bus (CTP reference).

The project co-requisite from an outcome perspective for this transition approach includes:

- OMS upgrade
- Enterprise Content and Document Management.

The roadmap for transition approach 1 is illustrated in *Figure 11: Transition approach 1 roadmap* (an A3 version is included in Appendix G ).

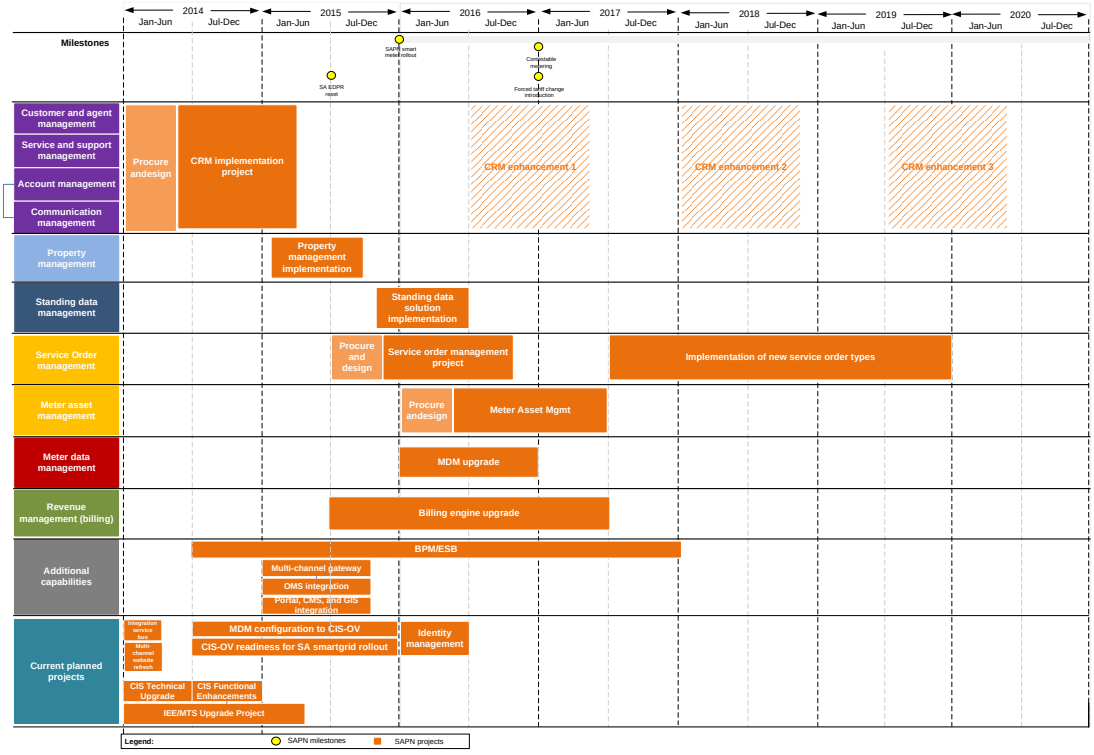



*Figure 11: Transition approach 1 roadmap*

### 9.2.2 Transition approach 2

The alignment of transition approach 2 with the transition considerations is discussed in *Table 28.*

| Consideration | Description |
|---|---|
| Addresses significant capability gap. | Transition approach 2 delivers sovereign CRM functionality, property management and multichannel capabilities by late 2015.<br><br>From mid-2015 through till late 2017 the focus will be on developing a new shared standing data repository, service order management, and meter asset management functionality.<br><br>It must be recognised that standing data, and service order records under this option will continue to need to be stored and updated in CIS/OV to support billing functionality for a much greater period of time (right up until mid-2019) at which time full end-to-end billing functionality will be replaced. |
| Leverages current IT portfolio / pre-requisite systems capability is established. | This approach will continue to leverage CIS/OV for a significant period of time, up until 2019, and hence technical upgrades and enhancements will be required as interim measures. |
| Aligns with the introduction of strategic and / or regulatory change. | Full CIS/OV replacement will not be completed until the end of 2019, which is 2 years post the forecast introduction of metering contestability.<br><br>It is important to note, that if anticipated regulatory changes do not occur, SA Power Networks has the option to delay the commencement of the billing engine implementation until 2019. This is the latest advisable date to start replacing the billing capability to align with the expiry of the [redacted] support agreement (due to expire in 2022[28]). |
| Ability to manage implications of systems (and operational) change. | This approach aims to implement capabilities in a phased approach over a 4.5 year program of work, starting with CRM and multi-channel, followed by standing data, service order management and meter asset management, before finally beginning and completing the billing engine upgrade. CIS/OV will not be completely replaced until at least the start of 2019, and possibly as late as 2021 depending on what new requirements are imposed on the business. |

*Table 28: Transition approach 2 – alignment with transition considerations*

Start and end dates, and interdependencies for transition approach 2 are summarised in *Table 29*

| Capability | Start date | End date | Interdependencies |
|---|---|---|---|
| Customer and agent management | Jan 2014 | Apr 2015 | None |
| Service and support management | Jan 2014 | Apr 2015 | None |
| Communications management | Jan 2014 | Apr 2015 | Customer and agent management |

[28] Given that [redacted] customer base for CIS/OV has been declining since 2006, there is a reasonable risk that a subsequent support agreement with [redacted] will be achievable beyond 2022. In addition [redacted] was recently acquired which adds greater uncertainty to the product roadmap and longer term support for CIS/OV.

| Capability | Start date | End date | Interdependencies |
|---|---|---|---|
| Account management | Jan 2014 | Apr 2015 | Customer and agent management |
| Property management | Jan 2015 | Aug 2015 | None |
| Meter data management | Jan 2017 | Dec 2017 | Prepare for metering contestability<br>MDM configuration to CIS/OV<br>IEE/MTS Upgrade Project |
| Revenue management (billing) | Jan 2018 | Dec 2019 | IEE/MTS Upgrade Project |
| Service order management | Jan 2016 | Apr 2017 | None |
| Meter asset management | Jan 2017 | Jul 2018 | IEE/MTS Upgrade Project |
| Standing data management | July 2017 | Feb 2018 | IEE/MTS Upgrade Project<br>SAP Works Management |

*Table 29: Transition approach 2 summary*

The project pre-requisite for this transition approach includes:

- Data Management
- Enterprise Asset Management
- Project and Program Portfolio Management
- Enterprise Blueprints (SAP roadmap reference)
- Data warehouse, Reporting and Analytics tool (CTP reference)
- Enterprise Integration Bus (CTP reference).

The project co-requisite from an outcome perspective for this transition approach includes:

- OMS upgrade
- Enterprise Content and Document Management.

The roadmap for transition approach 2 is illustrated in *Figure 12: Transition approach 2 roadmap* (an A3 version is included in Appendix G).

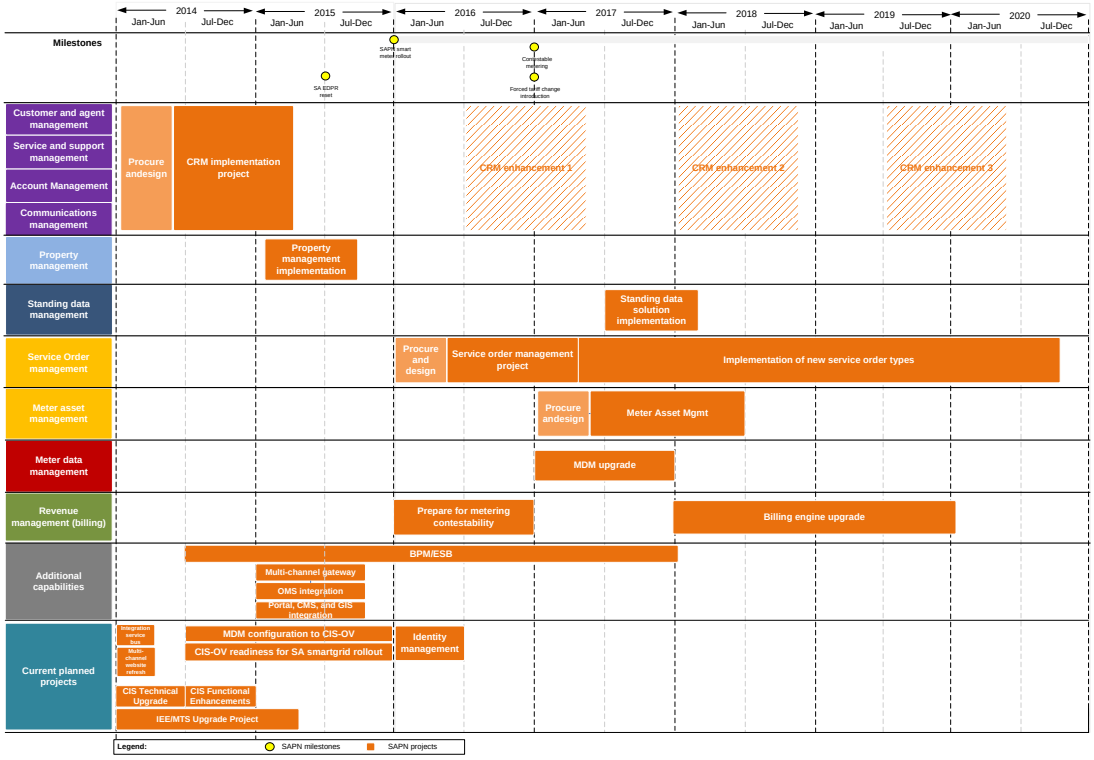



*Figure 12: Transition approach 2 roadmap*

### 9.2.3 Transition approach 3

The alignment of transition approach 3 with the transition considerations is discussed in *Table 30*

| Consideration | Description |
|---|---|
| Addresses significant capability gap. | Transition approach 3 delivers sovereign CRM functionality, property management and multi-channel capabilities by late 2015 as a standalone capability.<br>In late 2015-16 a new standing data solution will be implemented.<br>In transition approach 3, the billing engine upgrade will be completed at the same time as approach 2, but service order management and meter asset management will not begin until mid-2018. |
| Leverages current IT portfolio / pre-requisite systems capability is established. | This approach will continue to leverage CIS/OV for a significant period of time, up until 2020, which will necessitate technical upgrades and enhancements as interim measures. |
| Aligns with the introduction of strategic and / or regulatory change. | The majority of billing requirements will be completed by the end of calendar year 2018, which is two years post the forecast tariff change announcements.<br>Full CIS/OV replacement will not be completed until the beginning of 2020.<br>It is important to note, that should anticipated regulatory changes not occur, SA Power Networks has the option to delay the replacement of the billing engine until 2019 which is the latest |

| | |
|---|---|
| | advisable date to replace the billing system to ensure legacy support issues are substantially mitigated in time. |
| Ability to manage implications of systems (and operational) change. | This approach aims to implement CRM and multichannel capability early, before billing functionality, followed by service order management. |

*Table 30: Transition approach 3 – alignment with transition considerations*

Start and end dates, and interdependencies for transition approach 3 are summarised in *Table 31*

| Capability | Start date | End date | Interdependencies |
|---|---|---|---|
| Customer and agent management | Jan 2014 | Apr 2015 | None |
| Service and support management | Jan 2014 | Apr 2015 | None |
| Communications management | Jan 2014 | Apr 2015 | Customer and agent management |
| Account management | Jan 2014 | Apr 2015 | Customer and agent management |
| Property management | Jan 2015 | Aug 2015 | None |
| Meter data management | Jul 2017 | Jun 2018 | MDM configuration to CIS/OV<br>IEE/MTS Upgrade Project |
| Revenue management (billing) | Jan 2016 | Dec 2018 | IEE/MTS Upgrade Project |
| Service order management | Nov 2018 | Dec 2019 | None |
| Meter asset management | Nov 2018 | Dec 2019 | IEE/MTS Upgrade Project |
| Standing data management | Sep 2015 | Jun 2016 | IEE/MTS Upgrade Project<br>SAP Works Management |

*Table 31: Transition approach 3 summary*

The project pre-requisite for this transition approach includes:

- Data Management
- Enterprise Asset Management
- Project and Program Portfolio Management
- Enterprise Blueprints (SAP roadmap reference)
- Data warehouse, Reporting and Analytics tool (CTP reference)
- Enterprise Integration Bus (CTP reference).

The project co-requisite from an outcome perspective for this transition approach includes:

- OMS upgrade
- Enterprise Content and Document Management.

The roadmap for transition approach 3 is illustrated in *Figure 13: Transition approach 3 roadmap*(an A3 version is included in Appendix G).

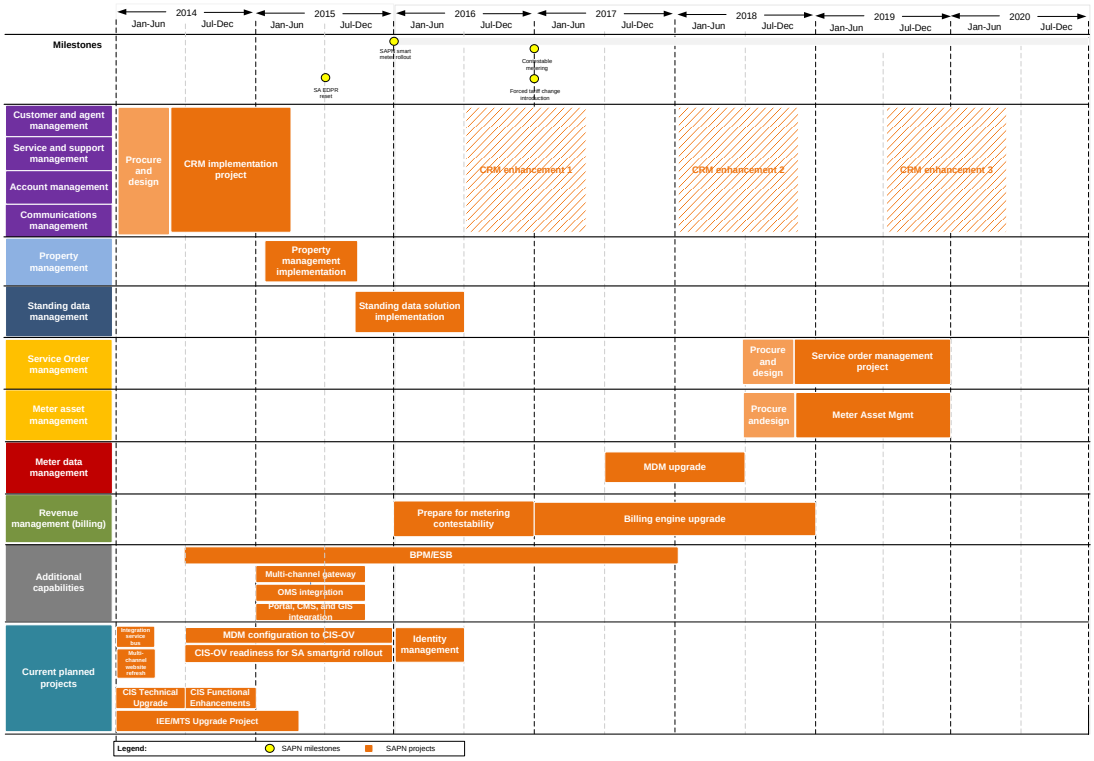



*Figure 13: Transition approach 3 roadmap*

### 9.2.4 Preferred transition approach

Transition approach 2 is the preferred approach. This approach is lower risk since capability is implemented incrementally rather than in a 'big bang' approach. Therefore there is lower implementation risk, and less disruption to the business at any given point in time. This approach also allows time for billing requirements to become more certain, as regulatory and market changes evolve and therefore allows SA Power Networks to invest in a billing solution which is better able to accommodate regulatory and market requirements.

If a SaaS CRM solution was procured the key change to the transition approach 2 roadmap would be the duration of the CRM implementation (customer and agent management, service and support management, communications management, account management capabilities) (*Figure 14*).

Whilst in general SaaS implementations can be as low as 25% of the duration of more traditional on-premise implementations, for this particularly project with highly complex transaction flow and multiple points of integration SAPN expects much longer duration for any cloud based solution.

Assumption: this recommendation is based on no major other business initiatives occurring within SA Power Networks. It only considers implementation approach in isolation.

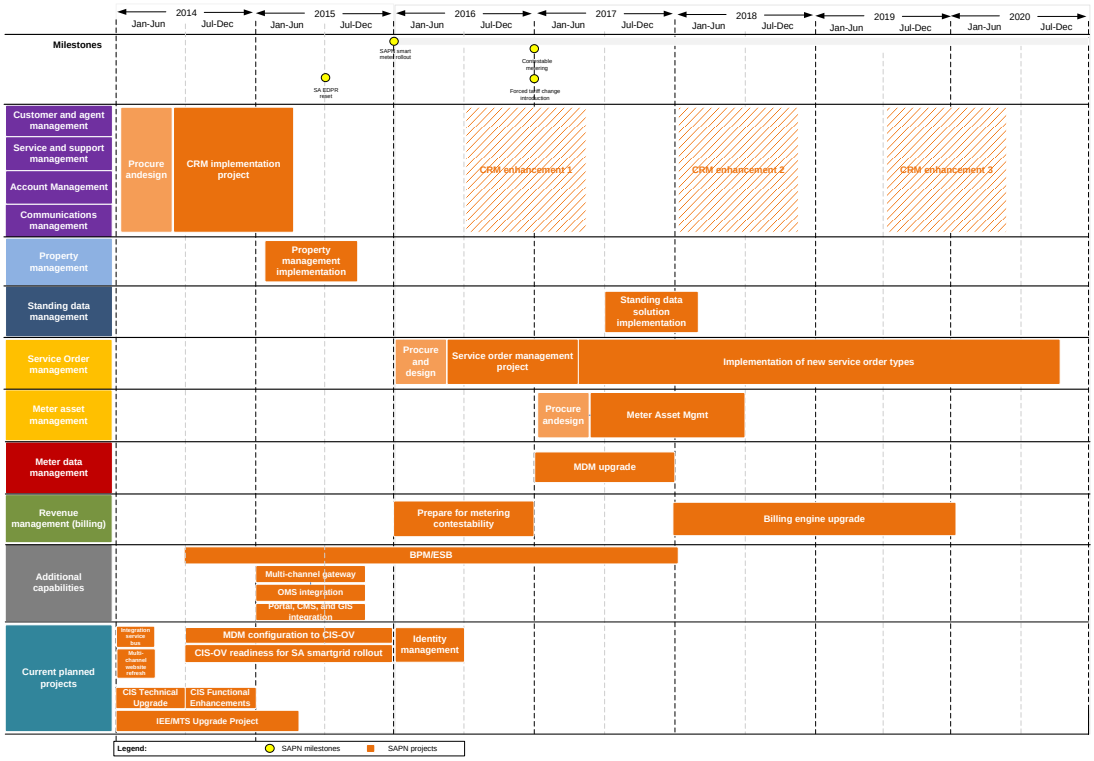



*Figure 14: Transition approach 2 roadmap for option 2*

# 9.3 Transition to non-preferred options

A separate transition approach for Option 1 was developed for comparative purposes. The transition approach for this option also supports the financial analysis (discussed in section 10). The transition approach for Option 1 is described below.

## 9.3.1 Option 1: Integrated CIS supplemented with CRM transition approach

The alignment of transition approach 1 with the transition considerations is discussed in *Table 32.*

| Consideration | Description |
|---|---|
| Addresses significant capability gap. | Option 1 delivers sovereign CRM functionality, property management capability and multi-channel capabilities by late 2015.<br>Preparations to do a complete CIS replacement will commence in late 2015, and run over a 3 year period.<br>All functionality will be implemented by mid-2018. |
| Leverages current IT portfolio / pre-requisite systems capability is established. | This approach will leverage CIS/OV technical upgrades and CIS functional enhancements as interim steps before the final billing engine replacement can be completed by mid-2018. |
| Aligns with the introduction of strategic and / or regulatory change. | Full system functionality will be available by 2018 which is 18 months after the planned introduction of contestable metering and |

| | |
|---|---|
| | potential tariff implementation. |
| Ability to manage implications of systems (and operational) change. | This approach aims to implement CRM and multichannel capability early, before proceeding with a big bang approach for the rest. This is likely to place a substantial load in the business from mid-2015 till mid-2018. |

*Table 32: Option 1 transition approach – alignment with transition considerations*

Start and end dates, and interdependencies for transition approach 1 are summarised in *Table 33*

| Capability | Start date | End date | Interdependencies |
|---|---|---|---|
| Customer and agent management | Jan 2014 | Apr 2015 | None |
| Service and support management | Jan 2014 | Apr 2015 | None |
| Communications management | Jan 2014 | Apr 2015 | Customer and agent management |
| Account management | Jan 2014 | Apr 2015 | Customer and agent management |
| Property management | Dec 2014 | Aug 2015 | None |
| Meter data management | Jun 2016 | Jun 2017 | MDM configuration to CIS/OV<br>IEE/MTS Upgrade Project |
| Revenue management (billing) | Dec 2015 | Jun 2018 | IEE/MTS Upgrade Project |
| Service order management | May 2016 | Apr 2017 | None |
| Meter asset management | Sep 2016 | Jun 2018 | IEE/MTS Upgrade Project |
| Standing data management | Apr 2016 | Jan 2017 | IEE/MTS Upgrade Project<br>SAP Works Management |

*Table 33: Option 1 transition approach summary*

The project pre-requisite for this transition approach includes:

- Data Management
- Enterprise Asset Management
- Project and Program Portfolio Management
- Enterprise Blueprints (SAP roadmap reference)
- Data warehouse, Reporting and Analytics tool (CTP reference)
- Enterprise Integration Bus (CTP reference).

The project co-requisite from an outcome perspective for this transition approach includes:

- OMS upgrade
- Enterprise Content and Document Management.

The roadmap for this transition approach is illustrated in *Figure 15* (an A3 version is included in Appendix G).

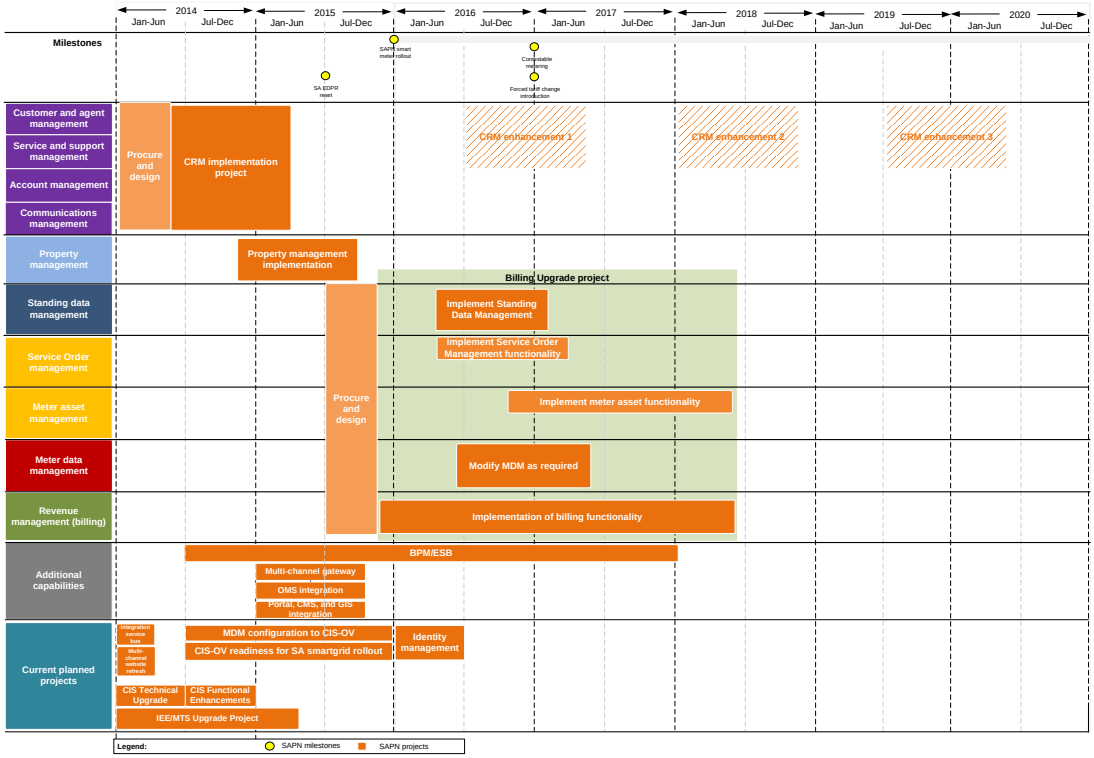



*Figure 15: Option 1 transition approach roadmap*

# 10 Financial analysis

A detailed financial cost model underpins the financial analysis of this business case is in a separate document.

## 10.1 Scope

This section describes the financial analysis conducted during the development of this report. The scope of the financial analysis is:

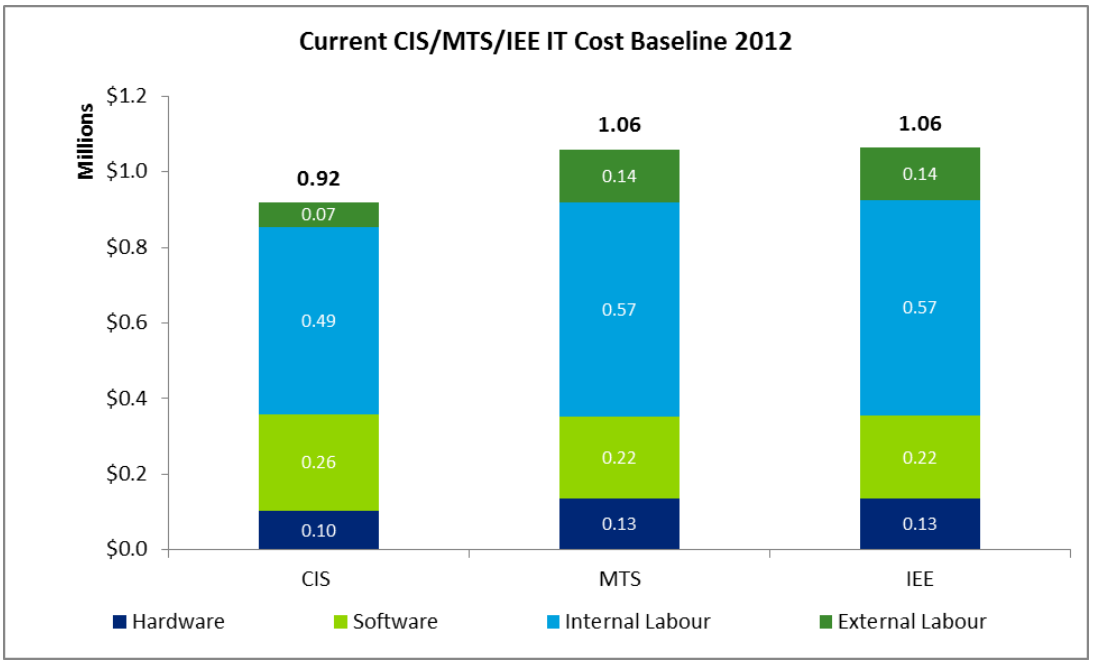
- **Estimated IT capital costs** to implement improved systems capabilities. IT capital cost scope includes:
    - Internal and external labour for project implementation.
    - Percentage allocation for project management, change management and risk.
    - Hardware capital costs for data centre, networks, servers, storage, database and operating systems.
    - Software license capital costs for application software, including USB software.
    - System enhancements and asset refresh costs (on a 3 year cycle).
- **Estimated IT operating costs** as a result of implementing improved systems capabilities. IT operating cost scope includes:
    - Internal and external labour for systems support.
    - Hardware maintenance costs for data centre, networks, servers, storage, database and operating systems.
    - Software maintenance costs for application software, including USB software.
- **Estimated quantitative benefits** to SA Power Networks as a result of implementing improved systems capabilities. The scope of quantitative benefits is primarily focused on the CRD's operating cost impacts. Benefits are discussed further in section 10.6.
- **Other estimated Customer Relations Department (CRD) operating cost impact** as a result of implementing improved systems capabilities. The scope of the CRD operating cost impact is number of CRD FTEs required to support SA Power Networks, and includes the direct operating costs shared with CP/PAL[29]. Scope includes overheads such as facilities however this is included as a percentage allocation of FTE costs, and is not based on SA Power Networks' data.

This Financial Analysis section also includes a description of **current CIS and CRM system capability costs**, current **CRD operating costs**, and **qualitative benefits**. The systems scope for current CIS and CRM capability costs is CIS/OV, MTS, Itron MDM, and USB (the proportion attributable to the in scope systems from CP/PAL). These systems are used to provide capability to both SA Power Networks as well as CP/PAL. The scope of current CRD operating costs includes all CRD FTEs (labour). It excludes overheads attributed to facilities, PCs and other services such as desktop support. The attributed proportion of CP/PAL CSG labour to SA Power Networks is also factored in.

[29] The attributed CP/PAL CSG costs to SA Power Networks does not include the margin of approximately 18-20% that is applied as a part of the charge to SA Power Networks.

# 10.2 Current CIS and CRM system costs

The current annual operating costs for CIS and CRM systems are summarised in *Table 34*[30]. It includes labour, hardware and software operating costs.



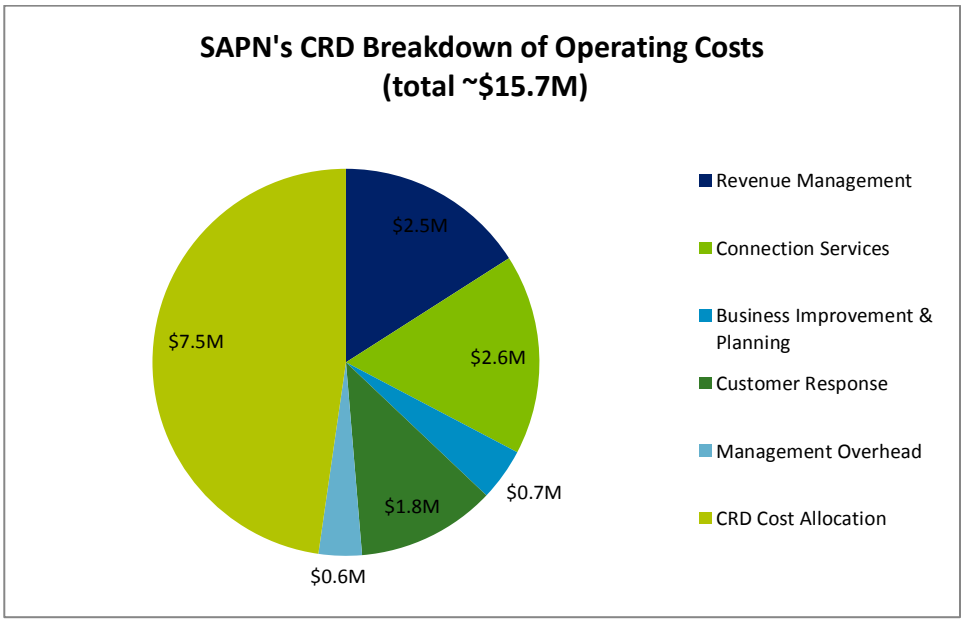

| System | Cost type | $ | Annual operating cost |
|---|---|---|---|
| **CIS/OV** | Hardware | $0.1M | $0.9M |
| | Software | $0.3M | |
| | Internal Labour | $0.5M | |
| | External Labour | $0.1M | |
| **Itron IEE (MDM)** | Hardware | $0.1M | $1.1M |
| | Software | $0.2M | |
| | Internal Labour | $0.6M | |
| | External Labour | $0.1M | |
| **MTS** | Hardware | $0.1M | $1.1M |
| | Software | $0.2M | |
| | Internal Labour | $0.6M | |
| | External Labour | $0.1M | |
| **Total** | | | **$3.1M** |

*Table 34: Current CIS and CRM systems operating costs*

[30] Source: SA Power Networks cost model v3 for CIS Review.xls

# 10.3 Current CRD operating costs

The current annual operating costs for CRD are summarised in *Table 35*[31].




| Function | Service | FTEs | Annual operating cost |
|---|---|---|---|
| Revenue Management | • Retailer relations management<br>• Meter data management<br>• Meter reading and service order management<br>• Data management and compliance | 20 | $2.5M |
| Connection Services | • Connection services (scheduler, administrator etc.)<br>• Connection completions (connection service offers, customer service offers etc.)<br>• Builder and contractor management | 25 | $2.6M |
| Business Improvement & Planning | • Business improvement<br>• Business industry and development | 5 | $0.6M |
| Customer Response | • Contact Centres services<br>• General inquiries<br>• Reliability payment | 17 | $1.8M |
| Management Overhead | | 2 | $0.7M |
| **CRD operating costs sub-total** | | | **$8.2M** |
| Attributed costs from CP/PAL CSG | • CSG services | - | $7.5M |

[31] Source: SA Power Networks cost model v3 for CIS Review.xls

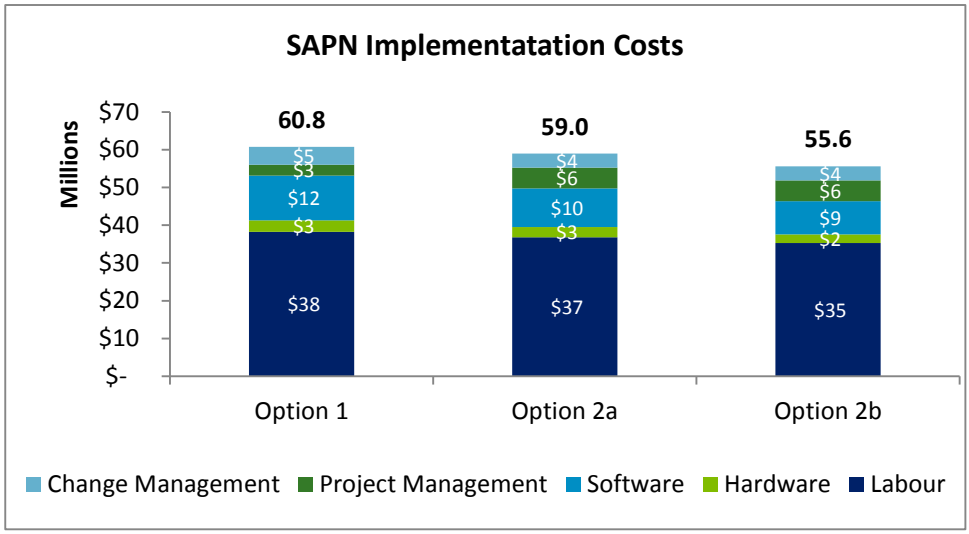
| | |
|---|---|
| **CRD (including attributed costs from CP/PAL CSG) grand total** | **$15.7M** |

*Table 35: Current CRD operating costs*

# 10.4 Estimated IT capital costs

## 10.4.1 Implementation capital costs

The estimated capital costs for each option described in section 8.2 are provided in *Table 36*. Costs are applicable to a nine year time horizon (CY2014 – CY2023). All costs are capitalisable.




| Option | Cost category | Cost | TOTAL |
|---|---|---|---|
| Option 1: Integrated CIS supplemented with CRM | Labour | $38M | **$60.8M** |
| | Software | $12M | |
| | Hardware | $3M | |
| | Project Management | $3M | |
| | Change Management | $5M | |
| Option 2a: Modular billing and markets supplemented with CRM | Labour | $37M | **$59.0m** |
| | Software | $10M | |
| | Hardware | $2.5M | |
| | Project Management | $5.5M | |
| | Change Management | $4.0M | |
| Option 2b: Modular billing and markets supplemented with cloud CRM | Labour | $35.3M | **$55.6m** |
| | Software | $8.8M | |
| | Hardware | $2.3M | |
| | Project Management | $5.5m | |

| Option | Cost category | Cost | TOTAL |
|---|---|---|---|
| | Change Management | $3.7m | |

*Table 36: Estimated IT capital cost for each option*

*Note: the full cost implication of hosting the CRM capabilities in the cloud in option 2b might not be fully costed in this estimate. Factors impacting the costs of provisioning from the cloud will include cloud communication, IT service management, vendor management and the ability of SA Power Networks in managing outsourced supply of IT services.*

The total capital implementation cost for each option is based on a number of individual projects to implement required systems capability. The cost for each project per year is provided in Table 30

| Option | Project | Cost | | | | | | Project Total | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| | | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | | |
| Option 1: Integrated CIS supplemented with CRM | CRM | $6.0m | $7.4m | | - | - | - | $13.3m | **$60.8m** |
| | Service order management | - | - | $0.9m | $0.2m | - | - | $1.1m | |
| | Meter asset management | - | - | $0.32m | $0.58m | $0.21m | - | $1.1m | |
| | CIS (Billing) | - | - | - | $24.6m | $16.8m | - | $41.5m | |
| | Property | - | $2.4m | - | - | - | - | $2.4m | |
| | MDM | - | - | $0.34m | $0.34m | - | - | $0.68m | |
| | Standing data | - | - | $0.58m | $0.07m | - | - | $0.65m | |
| Option 2a: Modular billing and markets supplemented with CRM | CRM | $5.3m | $7.3m | - | - | - | - | $12.6m | **$59.0m** |
| | Service order management | - | - | $0.87m | $0.2m | - | - | $1.1m | |
| | Meter asset management | - | - | - | $0.9m | $0.2m | - | $1.1m | |
| | CIS (Billing) | - | - | - | - | $23.8m | $17m | $40.7m | |
| | Property | - | $2.1m | - | - | - | - | $2.1m | |
| | MDM | - | - | - | $0.7m | - | - | $0.7m | |
| | Standing data | - | - | - | $0.6m | $0.07m | - | $0.66m | |
| Option 2b: Modular billing | CRM | $3.2m | $2.4m | - | - | - | - | $9.2m | **$55.6m** |
| | Service order management | - | - | $0.97m | $0.1m | - | - | $1.1m | |

| Option | Project | Cost | | | | | | Project Total | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| | | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | | |
| and markets supplemented with cloud CRM | Meter asset management | - | - | - | $0.9m | $0.21m | - | $1.1m | |
| | CIS (Billing) | - | - | - | - | $23.7m | $17m | $40.7m | |
| | Property | - | $2.1m | - | - | - | - | $2.1m | |
| | MDM | - | - | - | $0.7m | - | - | $0.7m | |
| | Standing data | - | - | - | $0.6m | $0.07m | - | $0.66m | |

*Table 37: Estimated IT capital implementation cost for each option by project*

The key drivers of difference between Option 1 and Option 2 are labour, project management, change management costs and contingency.

Labour costs are lower for Option 1 due to lower sourcing effort and lower effort attributable to designing and implementing interfaces between systems. Sourcing effort is lower because Option 1 assumes the implementation of relatively more packaged solutions within a shorter amount of time. This means that there is potential to use one software vendor and fewer system integration providers. Effort attributable to interfaces is lower also because of the relatively more packaged solutions, as packaged solutions require fewer interfaces between systems.

Project management costs are significantly lower for Option 1 due to the majority of projects being implemented within a shorter timeframe. This reduces the carrying costs of project teams.

The business cost to cope with large amounts of change within a shorter timeframe is reflected in higher change management costs for Option 1.

Assessment of the options against the criteria identified Option 2a as the preferred option. This option best supports SA Power Networks in accommodating business requirements, and enabling it to respond to industry, strategic and regulatory change with the greatest amount of flexibility. Option 2a also mitigates the risk of investing in an emerging technology environment through the use of the organisation's investment in SAP, utilising its asset management and works management capabilities to improve integration across customer based transactions that emerge from national markets. Further it leverages the planned investment in a CRM system to manage customer information and service interactions.

Simply put this option provides a CRM system to manage customer information and interactions, a dynamic and flexible billing engine to cope with emerging regulatory and consumer demands and leverages the current Enterprise Asset management system (SAP) to manage meter asset information and customer generated service orders. Current meter data systems are retained.

## 10.4.2 Implementation capital cost assumptions

The costing methods used in this business case are based on the combination of SA Power Networks and CP/PAL standard estimating approaches, supplemented with Deloitte method and their prior experience in similar size utility company.

**Option 1**

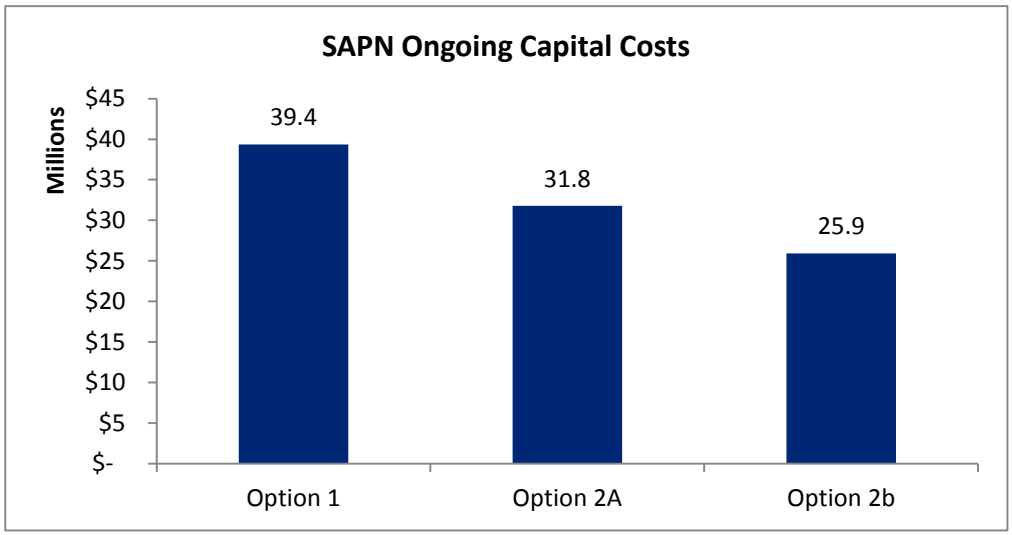
- Costs estimates for CRM are based on the SA Power Networks CTP's resource and cost baseline
- Costs estimates for CIS are sourced from SA Power Networks CIS business case
- Costs estimates for Property are sourced from SAP Property / Cadastral solution
- Project management overhead 15% of labour costs are based on Deloitte resource estimates from prior experience in similar size utility company
- Change management overhead 10% of labour costs are based on Deloitte resource estimates from prior experience in similar size utility company
- Hardware overhead 20% of labour costs based on Deloitte standard estimating approach
- Software overhead 20% of labour costs based on Deloitte standard estimating approach
- Blended daily rate of $1,000 for project implementation sourced from SA Power Networks is used. This is because the technologies use in the proposed systems is not yet mature and well understood.
- 30% contingency has been applied is included in the estimated costs based on Deloitte prior implementation experience for project in similar size and nature. Higher contingency due to greater likelihood of remediation post implementation as regulatory and technical requirements are not mature/well understood at time of design.
- Infrastructure (hardware and software) refresh every 3 years as per SA Power Networks IT architecture principles.

**Option 2**

- The capex costs assumptions for option 2a & 2b are same as option 1. However, 10% contingency has been applied is included in the estimated costs based on the SA Power Networks standard contingency rate.

### 10.4.3 Ongoing Capital Costs

The estimated ongoing capital costs for each option are provided in *Table 38*. Costs are applicable to a nine year time horizon (CY2014 – CY2023).




| Option | TOTAL |
|---|---|
| Option 1: Integrated CIS supplemented with CRM | $39.4M |
| Option 2a: Modular billing and markets supplemented with CRM | $31.8M |
| Option 2b: Modular billing and markets supplemented with cloud CRM | $25.9M |

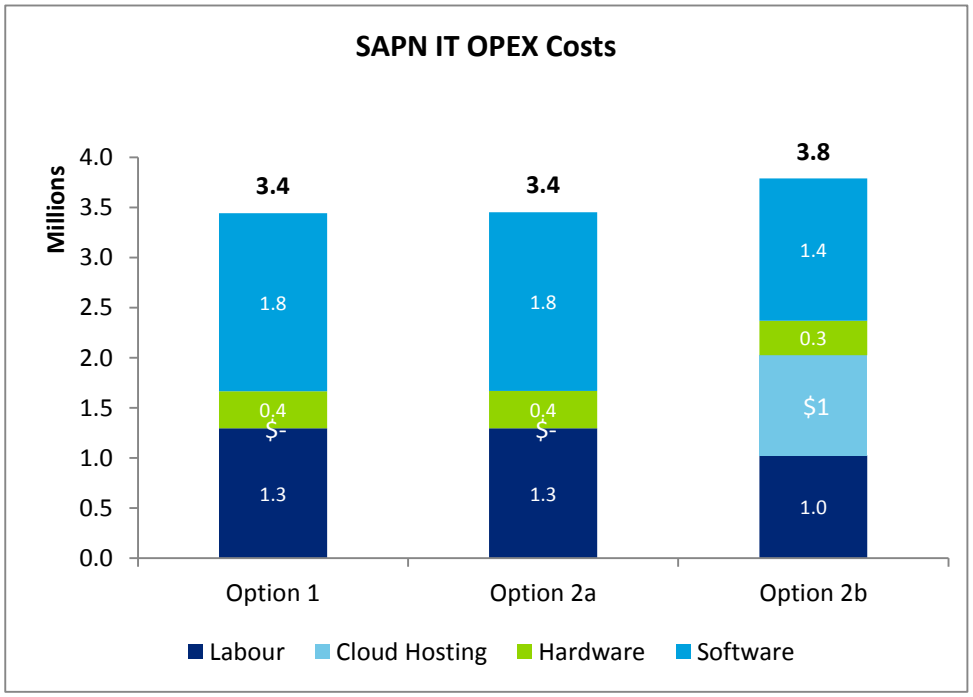
*Table 38: Estimated IT ongoing capital cost for each option*

*Note: the reason for high ongoing capital costs for option 2a is due to the standard SAPN refresh cycle of every three years at 100% rate of original hardware and software costs.*

Ongoing capital costs include the capital costs associated with estimated infrastructure refreshes for software and hardware expenses. This is estimated to occur every three years at original hardware and software purchase price according to the SA Power Networks' infrastructure refresh policy.

## 10.5 Estimated IT operating costs

The estimated annual IT operating costs for each option described in section 8.2 are provided in *Table 39*. Costs are applicable to a nine year time horizon (CY2014 – CY2023). Annual costs are taken from years where all projects have been fully implemented and have stabilised.




| Option | Cost category | Cost | TOTAL |
|---|---|---|---|
| **Option 1: Integrated CIS supplemented with CRM** | Labour | $1.3M | **$3.4m** |
| | Software | $1.8M | |
| | Hardware | $0.4M | |
| **Option 2a: Modular billing and markets supplemented with CRM** | Labour | $1.3M | **$3.4m** |
| | Software | $1.8M | |
| | Hardware | $0.4M | |
| **Option 2b: Modular billing and markets supplemented with cloud CRM** | Labour | $1.0m | **$3.8m** |
| | Cloud Hosting | $1.0m | |
| | Software | $1.4m | |
| | Hardware | $0.3m | |

*Table 39: Estimated IT operating cost for each option*

*Note: the full cost implication of hosting the CRM capabilities in the cloud in option 2b might not be fully costed in this estimate. Factors impacting the costs of provisioning from the cloud will include cloud communication, IT service management, vendor management and the ability of SA Power Networks in managing outsourced supply of IT services.*

IT OPEX costs cover only the operating costs associated with the projects referred to in section 8.2. It is estimated that IT operating costs as a whole will increase in the future due increased number of systems and increased functionality of systems to meet future business requirements. Overall, IT OPEX is expected to increase by $1.8m per annum for both options.

# 10.6 IT operating cost assumptions

The costing methods used in this business case are based on the combination of SA Power Networks and CP/PAL standard estimating approaches, supplemented with Deloitte method and their prior experience in similar size utility company.

**Option 1**

- Resources to be recruited and trained for business as usual operations support and maintenance
- CRM opex cost estimates are calculated at 1,200 resource days required per annum based on Deloitte resource estimates from prior experience in similar size utility company and validated with the SA Power Networks estimates
- Service Order Management opex cost estimates are calculated at 240 resource days required per annum based on Deloitte resource estimates from prior experience in similar size utility company
- Meter Asset Management opex cost estimates are calculated at 240 resource days required per annum based on Deloitte resource estimates from prior experience in similar size utility company
- CIS opex cost estimates are calculated at 960 resource days required per annum based on Deloitte resource estimates from prior experience in similar size utility company and validated with the SA Power Networks estimates
- Property opex cost estimates are calculated at 240 resource days required per annum based on Deloitte resource estimates from prior experience in similar size utility company
- No incremental MDM OPEX business resources
- No incremental Standing data OPEX business resources
- Blended internal daily rate of $450 for OPEX business resources sourced from SA Power Networks is used. This is because the technologies use in the proposed systems is not yet mature and well understood.

**Option 2**

- The opex costs assumptions for option 2a & 2b are same as option 1.

# 10.7 Estimated benefits

The estimated benefits for the options are provided in below. Benefits are explained qualitatively and then a high level quantification has been applied based on future scenarios that are design to illustrate the impact on CRD operations and the broader business given increased demand on the distribution network, and anticipated market and regulatory changes.

| Nature | Business function | Benefit | Financial benefit scenario example |
|---|---|---|---|
| **Cost recovery** | **Billing and Markets** | Ability to introduce cost reflective pricing to more accurately reflect the costs of maintaining the distribution network in certain geographic areas (cost reflective pricing), or by certain customer segments. | **Situation:** SA Power Networks need to invest in critical distribution infrastructure to support peak load situations, so as to minimise damage to the network, and also minimise the number of outages required across the state.<br><br>**Complication:** Significant capital investment is required to reduce the impacts of peak load events. |

| Nature | Business function | Benefit | Financial benefit scenario example |
|---|---|---|---|
| | | | **Answer:** Any CIS/OV replacement must support the introduction of cost reflective pricing plans, to reflect the true cost of maintaining the distribution network to reduce the need for additional peak related infrastructure.<br><br>**Illustrative benefit scenario:**<br>In 2012, SA Power Networks took receipts from customers of $1.38B. If cost reflective pricing measures could deliver even a 0.25% improvement in revenues, SA Power Networks could improve its cash position by **~$3.4M per year or $34.50M over a 10 year period.** |
| **Revenue enhancement** | **Network Services** | **Field work**<br>Increase in the completion rate of field work as a result of more timely (real time) property and customer data. This will contribute to greater employee utilisation and increase productivity (but is not the sole contributor to utilisation and productivity).<br><br>Increased ability to capture and manage field work if SA Power Networks contest for meters and subsequent field work outside of its network when corresponding regulation is introduced (in 2017). (The opportunity to increase field work is dependent on other factors) | **Illustrative benefit scenario:**<br>In 2012, SAPN spent $719.5M on payments to suppliers and employees. If field services accounts for 2/3 of expenditure, and improved data can improve the efficiency of field service delivery by 0.25% SAPN could potentially **save ~$1.2M per year or $12.0M over a 10 year period.** |
| **Cost avoidance** | **Network Services** | **Network management**<br>Less risk of outages due to the implementation of better demand management capabilities which are supported via CRM and a more sophisticated billing engine. (CRM and billing engine capability alone are not the only contributors to a reduction in the risk of outages)<br><br>Less spend on network augmentation due to better demand management capabilities which are supported via CRM and a more sophisticated billing engine. (CRM and billing engine capability alone are not the only contributors to a reduction in the risk of outages). | **Situation:** In order for SA Power Networks to implement demand management programs, it must also consider the potential impact on the end customer.<br><br>**Complication:** Existing capabilities do not allow SA Power Networks to both identify, campaign to, and manage a relationship with customers who may willingly participate in demand management activities.<br><br>**Answer:** Any CIS/OV replacement must enable SA Power Networks to institute sufficient customer relationship capabilities to support demand management programs.<br><br>**Illustrative benefit scenario:**<br>In 2012 SAPN invested $427M in capital works. If through the implementation of demand management initiatives can temper network capital works expenditure by 0.25% in future years (with no adverse impact to network performance), SAPN could potentially save **~$1.07 per year or $10.68M over a 10 year period on network augmentation.** |

| Nature | Business function | Benefit | Financial benefit scenario example |
|---|---|---|---|
| **Cost avoidance** | **Finance** | Opportunity to reduce write-offs and revenue leakage, particularly when more complex tariffs and plans are introduced along with tighter regulation regarding back-billing periods, due to more accurate billing data enabled through a more sophisticated billing engine. | **Situation:** At present SA Power Networks has a grace period of 9 months to resolve any errors in billing associated with systematic failures.<br><br>**Complication:** In future, SA Power Networks may be required to ensure that all billing is accurately completed within 30 days (example) or risk losing revenue in its entirety.<br><br>**Answer:** Any CIS/OV replacement must provide advanced auditing and information management capabilities to ensure all revenues are maintained.<br><br>**Projected magnitude benefit scenario estimate:**<br>Opportunity to reduce write-offs and revenue leakage, particularly when more complex tariffs and plans are introduced along with tighter regulation regarding back-billing periods, due to more accurate billing data enabled through a more sophisticated billing engine. |
| **Revenue enhancement** | **Customer Service** | Higher customer satisfaction and improved public image through the provision of more timely and accurate usage data, as well as data related to the status of service orders. | **Situation:** At present, most network billing interactions between SA Power Networks and the customer are via an intermediary (usually a retailer).<br><br>**Complication:** The level of systematic management of customer relationships in CRM is low in the current environment, and this impacts customer satisfaction and public image.<br><br>**Answer:** As a result, SA Power Networks does not have the necessary capabilities to manage more sophisticated customer interactions as prescribed in reforms such as power of choice in the future.<br><br>**Illustrative benefit scenario:**<br><br>Higher customer satisfaction and improved public image through the provision of more timely and accurate usage data, as well as data related to the status of service orders. |
| **Cost recovery** | **Revenue** | **Meter contestability**<br>Better ability to recover costs when meter provider churn occurs, through an improved ability to bill for related costs.<br><br>Better ability to recover costs from call outs to address outage or service issues which are not related to the meter in a contestable environment where SA Power Networks is not the MDP, through an improved ability to bill for related costs. | **Situation:** In many cases today, SA Power Networks provides trouble shooting services for customers who live within contestable metering zones whose costs are not adequately recouped through commensurate network revenue.<br><br>**Complication:** The potential introduction of meter contestability may increase the level of customer service enquiries and trouble-shooting effort that is not within SA Power Networks‘scope of work.<br><br>**Answer:** Therefore, SA Power Networks |

| Nature | Business function | Benefit | Financial benefit scenario example |
|---|---|---|---|
| | | | must ensure that it is able to recover costs associated with customer related issues that are not in its remit in a sophisticated and auditable manner.<br><br>**Projected magnitude benefit scenario estimate:**<br>This benefit would incorporate a significant administrative benefit, and reduce the amount of investigative re-work required in the business. Assume 2 FTE benefit **of ~$0.2M per year or $2M over a 10 year period.** |
| **Cost recovery** | **Revenue** | Better ability to recover costs from multiple customers when they begin to utilise a newly constructed infrastructure asset which is currently billed to the inaugural customer. CRM will support the ability to manage additional customers that the capex cost needs to be distributed to. (Capital works are billed from SAP and this will continue) | **Situation:** Where a network augmentation is funded by an individual for the purposes of connecting their property, agreements are entered into, such that rebates will be provided if and when additional customers connect to the aforementioned network.<br><br>**Complication:** Today, the management of this rebate is managed in manual processes outside of any central system, and requires manual intervention.<br><br>**Answer:** In future, the requirement to record investment, and contract information against individual customers should be included in a CRM capability.<br><br>**Projected magnitude benefit scenario estimate:**<br>This benefit would incorporate a significant administrative benefit, and reduce the amount of investigative re-work required in the business. Assume 0.3FTE benefit **of ~$0.03M per year or $0.3M**over a **10 year period.** |
| **Cost recovery** | **Revenue** | Revenue retention arising from more accurate pricing of alternate control services. | **Situation:** SA Power Networks currently undertakes a significant amount of alternate control services which is currently priced in an ad hoc manner that does not reflect the true costs of each job.<br><br>**Complication:** SA Power Networks is potentially forgoing significant revenues that could otherwise be appropriately charged for.<br><br>**Answer:** SA Power Networks needs a customer billing system that accurately records the true cost of work to ensure recoveries are maximised, and the integrity of billing is maintained.<br><br>**Projected magnitude benefit scenario estimate:**<br>In 2012 alternate control services and customer cash contributes accounted for $128.3M in revenue. If SAPN could improve its profit margin on revenues by 0.25% as a result of improved pricing, SAPN could deliver savings of **~ $0.32M per year or ~$3.21M over a 10 year period**. |

| Nature | Business function | Benefit | Financial benefit scenario example |
|---|---|---|---|
| **Cost avoidance** | **Customer Service** | **Improved channel efficiency**<br>A reduction in FTE effort required to service customers due to improved channel efficiency, better data and a greater understanding of the customer. This will result in more efficient customer service.<br><br>Improved channel efficiency may be realised through higher first call resolution rates, which are enabled by more accurate and complete customer data. While resolution rates may increase, the duration of front-office calls may also increase as employees are able to address customer queries more comprehensively. This increase may be offset by a corresponding decrease in back-office work – hence the need to analyse this benefit from an end-to-end customer service perspective.<br><br>Improved channel efficiency also includes the implementation of self-service capabilities (e.g. internet and mobile) which will reduce demand on end-to-end customer service processes, and therefore FTE effort required to service customers.<br><br>Improved channel efficiency and customer data quality will be critical to help offset the cost of managing increased customer service demand which may result from the introduction of more complex tariffs, plans and contestable services. | **Situation:** SA Power Networks currently has approximately 500 employees in customer service roles that utilise customer information systems to provide that service.<br>**Complication:** Current CRM systems are not adequate in providing those employees with timely and comprehensive customer data that will meet future customer interaction requirements and mandate for improving customer service.<br><br>**Answer:** Improved CRM will allow those employees to improve customer satisfaction and improve channel efficiency through self-service and faster access to comprehensive customer data.<br><br>**Projected magnitude benefit scenario estimate:**<br>In 2012 there were approximately 191,600 enquiries through the CRD. If the CRM/CIS can reduce enquiry effort by 15% this will reduce labour costs **by ~$0.13M per year or ~$$1.3M over a 10 year period.** |
| **Cost avoidance** | **Customer Service, Company Secretary and Legal** | **Dispute management**<br>Less spend on end-to-end dispute management. There is a risk that the number of disputes will increase with the introduction of more complex tariffs, plans and contestable services. In the absence of improved CRM and CIS systems the manual effort required to administer the dispute management process, and collect data and supporting evidence to contest the dispute will increase. | **Situation:** SA Power Networks currently dedicates 2 FTEs towards resolving ombudsman complaints and other disputes.<br><br>**Complication:** The number of complaints and disputes are likely to increase once demand management introduces further complexity to the price charged to customers.<br><br>**Answer:** SA Power Networks needs a fit for purpose billing engine and CRM system to deal with minimise disputes.<br><br>**Projected magnitude benefit scenario estimate:**<br>If CRM and improved billing systems are not implemented the number of disputes |

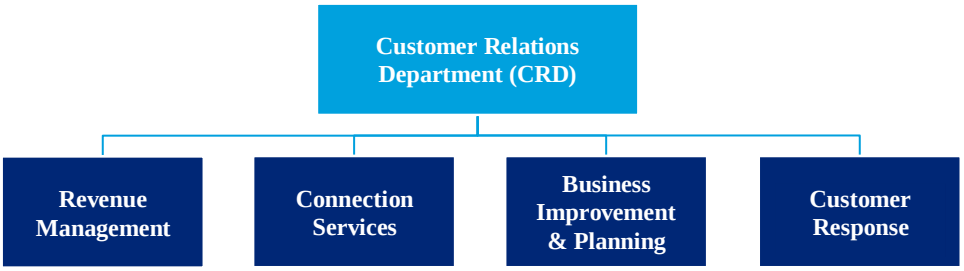
| Nature | Business function | Benefit | Financial benefit scenario example |
|---|---|---|---|
| | | | management staff may double leading to an avoidable cost of **~$0.3M per year or~$3M over a 10 year period**. |

*Table 40: Future (qualitative) benefits*

The replacement of CIS/OV and the implementation of CRM functionality is a contributory factor to deliver benefits as described above. It must be noted that an IT system replacement alone will not deliver the aforementioned benefits, but provides a necessary enabling platform for changes in the business to allow objectives to be met. For this reason, benefits stated are provided to illustrate the order of magnitude of potential benefits to be realised through a combination of measures.

# 10.8 Estimated CRD operating impact

The end-state model being proposed will have implications on the SA Power Networks' CRD group. The scope of these services includes:




* Including management overhead

*Figure 16: Customer Relations Department*

| CSG/CRD function | Current practice | Impact of new systems |
|---|---|---|
| Revenue Management | • Retailer relations management<br>• Meter data management<br>• Meter reading and service order management<br>Data management & compliance | New billing capabilities will give SAPN the ability to implement more complex tariff arrangements and offers, whilst minimising the number of exceptions and checks that would be required in a system that is not built fit for purpose.<br>Closer integration between the 'customer', billing data, and customer relationship management functionality will make the management of interactions simpler, and also provide a basis to allow more sophisticated commercial interactions in future.<br>MDM, coupled with Outage Management System (OMS) and advanced analytics capabilities should provide a platform for SAPN to better identify issues relating to illegal usage, theft, errors and omissions and equipment failure, and to be able to accurately monitor at risk customers or properties. |
| Connection Services | • Connection services (scheduler, administrator etc.)<br>• Connection completions (connection service offers, customer service officer etc.)<br>• Builder and contractor management | Management of transfer requests from retailers will remain the same.<br>The management of disputes can be more closely monitored and managed through resolution queue management functionality in CRM.<br>Site visits will also be supported by more automated and efficient dispatch, |

| CSG/CRD function | Current practice | Impact of new systems |
|---|---|---|
| | | with more contextual information provided and a greater level of automation to retrieve field data through the implementation of mobility capabilities. |
| Business Improvement & Planning | • Business improvement<br>• Business industry and development | Service order processes can be greater orchestrated through CRM capabilities, and through greater linkages with works and asset management capabilities. This will support further streamlining of manual service order management processes, and increase the ability of the organisation to monitor and manage performance and compliance. |
| Customer Response | • Contact Centres services<br>• General inquiries<br>• Reliability payment | CRM, and advanced case management functionality will allow for better coordination of activities in the management of complaints to reduce the length and cost of complaint disputation processes.<br>Greater levels of property and customer information will be provided to staff working in the field which will support improved customer interaction efficiency, and make field work easier to execute, and thus more efficient. |

*Table 41: Current-state business opex synergy*

# 11 Investment Appraisal

The case for investment in CRM and CIS capabilities for option 2a is strong from the following standpoints:

- The option adopts a modular 'good practice' approach to implementing the future-state capability. This allows time for billing requirements to become more certain, as regulatory and market changes evolve and therefore allows SA Power Networks to invest in a billing solution which is better able to accommodate regulatory and market requirements.
- The risks in increased integration and workflow complexity which can result in increased errors in the business as usual (BAU) environment are low to moderate. The risks in increased procurement management effort and transition complexity due to the modular approach are medium. There are no significant high risks in this option.
- The total costs of ownership (TCO) for option 2a are much lower than option 1.
- This option has higher net present value (NPV) than option1.
- The drivers for improved CRM and CIS capabilities are high
- The benefits align with SA Power Networks' customer service vision for 2020.

Option 2b is not selected even though it has the lowest TCO and the highest NPV value. This is because the immaturity of SA Power Networks in dealing with clouds hosting solutions, the complexity of the solution and the uncertainty of market capabilities to meet the organisation current business requirements.

| Option | Measure Type | Target | Recommended Option Values |
|---|---|---|---|
| 1 | NPV (Net Present Value) | NA | -$24.0M |
| | IRR (Internal Rate of Return) | 5.24% | -13.3% |
| 2a | NPV (Net Present Value) | NA | -$19,2M |
| | IRR (Internal Rate of Return) | 5.24% | -15.4% |
| 2b | NPV (Net Present Value) | NA | -$18,9M |
| | IRR (Internal Rate of Return) | 5.24% | -19.1% |

*Table 42: Invest appraisal breakdown*

# 12 Conclusion

This section describes the preferred option to improve CIS and CRM capabilities and the supporting rationale.

As an electricity distribution business, SA Power Networks is entering a significant period of change associated with the delivery of new capabilities to support smart grid driven innovation and regulation and customer service.

Given the cost and complexity associated with large scale CIS system implementations, and the extent of change forecasted, it is prudent for SA Power Networks to take a flexible, and modular approach to CIS and CRM systems capability improvement and investment.

During the development of this business case an objective assessment and analysis process has identified Options 2a – Transition Approach 2 (Modular Billing and Markets Supplemented with CRM, phased approach) as the most appropriate replacement option for SA Power Networks to pursue in the next regulatory period.

This conclusion is driven by the fact that this option and approach:

- Allows SA Power Networks to quickly establish the sophisticated CRM capabilities necessary to improve the customer experience.
- Allows SA Power Networks to deliver field work productivity improvements early whilst quarantining the need to commence the large and costly billing system implementation.
- Allows SA Power Networks to fully assess new billing requirements, to provide a greater level of certainty in its product selection at a later period in the next regulatory period, thus giving product vendors extra time to innovate and evolve technology offerings.
- Provides full provision for CIS's replacement within the next regulatory period to ensure legacy risks associated with the CIS/OV application are mitigated whilst minimising the likelihood of wasted investment in a non-suitable solution.
- Option 2a – Approach 2 provides SA Power Networks with modular flexibility to alter and separate key modular functions that may be required as a result of future regulatory or business decisions.

# 13 Document Authorisation and History

## 13.1 Revision history

| Date | Version | Name and Title | Purpose |
|---|---|---|---|
| 04/10/13 | v.10 | CIS & CRM Business Case | Initial draft |
| 04/11/13 | v.16 | CIS & CRM Business Case | Expanded the Executive Summary and Regulatory Context sections based on the Reviewers feedback. |
| 29/11/13 | v.20 | CIS & CRM Business Case | Added Customer Expectations into the Executive Summary<br>Expanded the CRM and CIS risks in section 8<br>Updated the Options' transition roadmaps in section 9<br>Updated the Financial Analysis in section 10 |
| 17/12/13 | v.24 | CIS & CRM Business Case | Updated the Executive Summary<br>Updated the CIS & CRM current state and future state capabilities' model<br>Updated the Relevant Projects in Current IT Portfolio in section 6.5<br>Updated the Financial Analysis in section 10<br>Updated the Expected Benefits in section 10.6 |
| 16/01/14 | v.26 | CIS & CRM Business Case | Added the Glossary of Terms<br>Updated the Executive Summary<br>Updated Future State Capabilities Model in section 7.2<br>Updated the Options' transition roadmaps in section 9<br>Updated the Assumptions in the Appendix A |
| 31/01/14 | v.27 | CIS & CRM Business Case | Minor update to the Executive Summary<br>Updated the Options' Conceptual Application Architecture in section 8<br>Updated the Expected Benefits in section 10.6 |
| 26/02/14 | v.29 | CIS & CRM Business Case | Minor update to the Executive Summary<br>Updated the Current State CIS & CRM Capabilities' model in section 6.2<br>Added section 6.5 Prior Management of Risks and Issues<br>Updated the Financial Analysis in section 10<br>Updated the Expected Benefits in section 10.7 |
| 28/03/2014 | v.31 | CIS & CRM Business Case | Incorporated KPMG's feedback to meet the Australian Energy Regulator (AEG) requirements |

## 13.2 Approvals

| Name and Title | Role | Signature and Date |
|---|---|---|
| Sue Filby – Customer Relations General Manager | Approver | |
| Chris Ford – Chief Information Officer | Approver | |
| David Woods - Manager Business Improvement and Planning Manager | Reviewer | |
| Fiona Marden – IT Project Manager | Reviewer | |
| Janette Bettcher – Manager Information Technology | Reviewer | |
| Katrina Jenkins – Manager Customer Response | Reviewer | |
| Ian Rogers – Manager Connection Services | Reviewer | |
| Mark Evans – Manager Revenue Management | Reviewer | |

## 13.3 Acronyms and abbreviations

| Acronym / abbreviation | Definition |
|---|---|
| ACS | Alternate Control Services |
| AEMC | Australian Energy Market Commission |
| AER | Australian Energy Regulator |
| BYOD | Bring Your Own Device |
| BPM | Business Process Management |
| B2B | Business-to-Business |
| CIS/OV | Customer Information System Open - Vision |
| CIS | Customer Information System |
| CTP | Customer Technology Plan |
| CP /PAL | CitiPower Pty and Powercor Australia Ltd |
| CSG | Customer Service Group |
| CRM | Customer Relationship Management |
| CRD | Customer Relations Department |
| CHED | CKI/HEI Electricity Distribution (Services) Pty Ltd |
| CNS | Customer Notification System |
| CIBUS | Customer Information Billing & Utilities System |
| CEP | Complex Event Processing |

| | |
|---|---|
| DBoR | Database of Record |
| EAM | Enterprise Asset Management |
| ESB | Enterprise Service Bus |
| EOA | Event Oriented Architecture |
| FTE | Full-time Equivalent |
| GAMS | GPS Address Matching System |
| GIS | Geographical Information System |
| IaaS | Infrastructure as a Service |
| IEE | ITRON Enterprise Edition |
| IVR | Interactive Voice Response |
| MDM | Meter Data Management |
| MDP | Meter Data Provider |
| MTS | Market Transaction System |
| MVRS | Multi-Vendor Reading System |
| NEM | National Energy Market |
| NECF | National Energy Customer Framework |
| NESS | Network Energy Sites System |
| NPV | Net Present Value |
| OMS | Outages Management System |
| SAPN | SA Power Networks |
| SaaS | Software as a Service |
| SCER | Standing Council on Energy and Resources |
| SOA | Service Oriented Architecture |
| SI | System Implementation |
| SVOC | Single View of Customer |
| ToU | Time of Use |

# 13.4 Documents referenced

| Document Title | Source | Date Sourced |
|---|---|---|
| 130706 SA Power Networks Value Roadmap - Final Presentation.pdf | Andrew Culley | 23-Aug |
| 24072013_ SA Power Networks _ValueRoadmap_Tool v 28.xlsx | Andrew Culley | 23-Aug |
| AER Better Regulation - Reform package update - August 2013.pdf | Hannah Williams | 2-Sep |
| CIBUS Business Requirements DocumentV1.2 ETSA ONLY | Fiona Marden | 01-July |
| CIS Assessment Summary vers Final.doc | Dallas Alcorn / Greg Minney | 21-Aug |
| CIS Business Case - CIS Replace Project Cost Model v12a.xlsx | Dallas Alcorn | 23-Aug |
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| Customer Service Tech Plan_v11.pptx | Nick Haslett | 20-Aug |
| ETSA CIS OV Decision Making Framework.pdf | Dallas Alcorn | 27-Aug |
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| Stage 1 Stakeholder & Consumer Workshop Report.pdf | SA Power Networks | 20-Aug |
| Voice of the Customer.pptx | SA Power Networks | 20-Aug |
| VPN Stakeholder Engagement Strategy Draftv0.5 - extract.pdf | Nick Haslett | 20-Aug |
| SA Power Networks Capital Governance Guidelines | Anna Lebedev | 17-Feb (2014) |

# 14 Limitation of our work

## General use restriction

This report is prepared solely for the internal use of SA Power Networks. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose set out in our Engagement Letter dated 23 August 2013. You should not refer to or use our name or the advice for any other purpose.

# Appendix A Assumptions

### 14.1.1 Implementation Cost Summary – Option 1

| Project | Financial year | | | | | | | | | | | Project total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | |
| CRM | $6.0m | $7.4m | | | | | | | | | | $13.3m |
| Service order management | | | $0.9m | $0.2m | | | | | | | | $1.1m |
| Meter asset management | | | $0.32m | $0.58m | $0.21m | | | | | | | $1.1m |
| CIS (Billing) | | | | $24.6m | $16.8m | | | | | | | $41.5m |
| Property | | $2.4m | | | | | | | | | | $2.4m |
| MDM | | | $0.34m | $0.34m | | | | | | | | $0.68m |
| Standing data | | | $0.58m | $0.07m | | | | | | | | $0.65m |
| **Total costs** | | | | | | | | | | | | **$60.8m** |

### 14.1.2 OPEX Cost Summary – Option 1

| Project | Financial year | | | | | | | | | | | Project total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | |
| CRM | | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $12,80m |
| Service order management | | | | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $1.17m |
| Meter asset management | | | | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $1.17m |
| CIS (Billing) | | | | | $1.68m | $1.68m | $1.68m | $1.68m | $1.68m | $1.68m | $1.68m | $11.74m |
| Property | | | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $1.67m |
| MDM | | | | | | | | | | | | |
| Standing data | | | | | | | | | | | | |
| **Total costs** | | | | | | | | | | | | **$28.55m** |

### 14.1.3 Implementation Cost Summary – Option 2a

| Project | Financial year | | | | | | | | | | | Project total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | |
| CRM | $5.29m | $7.30m | | | | | | | | | | $12,58m |
| Service order management | | | $0.87m | $0.20m | | | | | | | | $1.07m |
| Meter asset management | | | | $0.90m | $0.21m | | | | | | | $1.11m |
| CIS (Billing) | | | | | $23.8m | $17.0m | | | | | | $40.76m |
| Property | | $2.09m | | | | | | | | | | $2.09m |
| MDM | | | | $0.68m | | | | | | | | $0.68m |
| Standing data | | | | $0.59m | $0.07m | | | | | | | $0.66m |
| **Total costs** | | | | | | | | | | | | **$58.95m** |

### 14.1.4 OPEX Cost Summary – Option 2a

| Project | Financial year | | | | | | | | | | | Project total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | |
| CRM | | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $1.28m | $12.80m |
| Service order management | | | | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $1.21m |
| Meter asset management | | | | | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $1.06m |
| CIS (Billing) | | | | | | $0.92m | $1.68m | $1.68m | $1.68m | $1.68m | $1.68m | $9.33m |
| Property | | | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $1.67m |
| MDM | | | | | | | | | | | | |
| Standing data | | | | | | | | | | | | |
| **Total costs** | | | | | | | | | | | | **$26.07m** |

### 14.1.5 Implementation Cost Summary – Option 2b

| Project | Financial year | | | | | | | | | | | Project total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | |
| CRM | $3.11m | $6.10m | | | | | | | | | | $9.21m |
| Service order management | | | $0.97m | $0.10m | | | | | | | | $1.07m |
| Meter asset management | | | | $0.90m | $0.21m | | | | | | | $1.10m |
| CIS (Billing) | | | | | $23.78m | $16.99m | | | | | | 440.76m |
| Property | | $2.08m | | | | | | | | | | $2.08m |
| MDM | | | $0.68m | | | | | | | | | $0.68m |
| Standing data | | | $0.59m | $0.07m | | | | | | | | $0.66m |
| **Total costs** | | | | | | | | | | | | **$55.57m** |

### 14.1.6 OPEX Cost Summary – Option 2b

| Project | Financial year | | | | | | | | | | | Project total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | |
| CRM | | $1.62m | $1.62m | $1.62m | $1.62m | $1.62m | $1.62m | $1.62m | $1.62m | $1.62m | $1.62m | $16.18m |
| Service order management | | | | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $1.21m |
| Meter asset management | | | | | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $0.15m | $1.06m |
| CIS (Billing) | | | | | | $0.92m | $1.68m | $1.68m | $1.68m | $1.68m | $1.68m | $9.33m |
| Property | | | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $0.19m | $1.67m |
| MDM | | | | | | | | | | | | |
| Standing data | | | | | | | | | | | | |
| **Total costs** | | | | | | | | | | | | **$30.07m** |

# Appendix B Relationship to Business Strategies and Programs

| Corporate Strategic Objective | Contribution |
|---|---|
| Delivering on the needs of our shareholders, by achieving our target returns, maintaining the business' risk profile, and protecting the long term value of the business | |
| Providing customers with safe, reliable, value for money electricity distribution services, and information that meets their needs | Improved CRM and CIS capabilities:<br>• Increase customer satisfaction and improved public image through the provision of more timely and accurate usage data, as well as data related to the status of service orders.<br>• Reduce the risk of outages due to the implementation of better demand management capabilities.<br>• Serve as an IT platform for improved customer channel efficiency.<br>• Faster response to end-to-end customer dispute management.<br>• Improved reporting and customer analytics due to more timely and complete data on customer interactions. |
| Maintaining our business standing in the community as an exemplary corporate citizen of South Australia. | |
| Ensuring that our workforce is safe, skilled and committed, and that our resourcing arrangements can meet our work program needs | |
| Maintenance and development of key capabilities that will help sustain our success into the future | This project involves the implementation of an integrated CRM software product that provides customer and agent, service and support, campaign, and lead and opportunity management functionalities. The improved functionalities allow the organisation to meet and enhance the evolving customer expectations.<br>It also involves the implementation of a separate, dedicated property management system, meter data management, meter asset management, service order management, standing data management and revenue management (billing) functionalities which can accommodate for more complex and dynamic tariffs as |

| | |
|---|---|
| | the introduction of Meter Contestability and Power of Choice. |

*Table 43: Contribution to corporate strategic objectives*

| Corporate Strategic Objective | Contribution |
|---|---|
| Energised and responsive customer service | CRM as an external portal for customers to view their own interactions to support service attributes: timeliness, knowledge through accurate and relevant data, and personalised and accountable service<br><br>CRM serves as a system of record and portal for customer interactions.<br><br>CRM portal to provide a view of interactions covering property and asset location information. |
| Excellence in asset management and delivery of service | |
| Growth through leveraging our capabilities | This project provides a CRM system to manage customer information and interactions, a dynamic and flexible billing engine to cope with emerging regulatory and consumer demands and leverages the current Enterprise Asset management system (SAP) to manage meter asset information and customer generated service orders. |
| Investing in our people, assets and systems | |

*Table 44: Contribution to corporate core areas of focus*

| IT Strategic Objective | Contribution |
|---|---|
| Ensure technology, systems and processes support SA Power Networks long-term business direction | Implementation of an integrated CRM system is the foundation step towards a *Single View of Customer* vision. It provides single repository capabilities for customer information and customer interaction information supported by improved customer analytics and reporting.<br><br>Implementation of a CIS software package provides SA Power Networks a more dynamic and flexible billing engine to cope with emerging regulatory and consumer demands and leverages the current Enterprise Asset management system (SAP) to manage meter asset information and customer generated service orders. |

| | |
|---|---|
| Ensure IT governance, planning and reporting are aligned with SA Power Networks strategy | |
| Partner with other business departments to deliver value through technology | |
| Ensure our people are informed and engaged, and have the right skills aligned with business objectives | |
| Improve efficiency of our processes in line with good industry practices | Customer Technology Plan has positioned SA Power Networks' customer experience as a standard practice and capability across the organisation. The proposed investment option for the CRM and CIS capabilities in this business case supports SA Power Networks in achieving this position. |
| Continually identify and manage IT-related business risks to reduce potential business impact | SA Power Networks currently utilises various systems to support its billing and customer management activities. Key systems include CIS/OV and ITRON Enterprise Edition (IEE). The risks associated with the use of aging and disparate systems to provide such critical business functionality were identified many years ago and have been prudently managed by SA Power Networks over the last 6 years.<br><br>Replacement of the capability provided by CIS/OV and the legacy customer will address the risk of current systems, emerging technologies and heightened customer and regulatory expectations. |

*Table 45: Contribution to IT strategic objectives*

# Appendix C Relationship to National Electricity Rules Expenditure Objectives

| National Expenditure Objectives | Contribution |
|---|---|
| Meet or manage expected demand over the period (NB: this is community demand for electricity not demand for IT Services) | |
| Comply with regulatory obligations | |
| Maintain the quality, reliability and security of supply of services provided by SA Power Networks | SA Power Networks maintains the reliable of service by ensuring billing and CRM capabilities are maintained.<br>These capabilities in the proposed option:<br>• Allow SA Power Networks to establish the sophisticated CRM capabilities necessary to improve the customer experience.<br>• Allow SA Power Networks to deliver field work productivity improvements early whilst quarantining the need to commence the large and costly billing system implementation.<br>• Allow SA Power Networks to fully assess new billing requirements, to provide a greater level of certainty in its product selection at a later period in the next regulatory period, thus giving product vendors extra time to innovate and evolve technology offerings.<br>• Provide full provision for CIS's replacement within the next regulatory period to ensure legacy risks associated with the CIS/OV application are mitigated whilst minimising the likelihood of wasted investment in a non-suitable solution. |
| Maintain the reliability and security of the distribution system i.e. the electricity networks. | |

*Table 46: Contribution to the National Electricity Rules expenditure objectives*

# Appendix D Meeting the National Electricity Rules Expenditure Criteria

| National Expenditure Criteria | Activity |
|---|---|
| Efficient cost of achieving the objective(s) | The "Do Nothing" option has been considered from a cost, risk and outcome perspective and its implication for addressing the business requirements going forward.<br><br>Previous cost estimates from Customer Technology Plan (2013) have been leveraged where cost estimates were provided by leading vendors in combination with Deloitte's experience from clients in the same industry and/or similar size projects.<br><br>On-premise solutions have been considered. However, where appropriate, alternative sourcing and hosting options have also been considered for solution components and enabling technologies. |

| | |
|---|---|
| Cost of a prudent operator | Compared with other sectors, Australian electricity distribution has a low technology maturity level for customer communications. After several years of significant investment in customer technologies and in consideration of SA Power Networks' longstanding direct contact with customers (unlike some other state jurisdictions), it is currently placed well among DNSPs.<br><br>The proposed option adopts a modular 'good practice' approach to implementing future-state capability for revenue management, meter data management, service order management, and meter asset management, supplemented with an integrated CRM capability. This approach allows time for billing requirements to become more certain, as regulatory and market changes evolve and therefore allows SA Power Networks to invest in a billing solution which is better able to accommodate regulatory and market requirements.<br><br>The proposed option has been based on the solution capabilities currently available within the marketplace which indicates a single integrated solution that meets our requirements is not currently available. |
| Realistic expectation of forecast and cost impact | Consultations with business and IT team leaders have occurred to inform the costs and impact. These included consideration of data migration cost, resource costs for assisting vendor implementation, vendor training costs and uplift in operational costs and resource to support the solutions.<br><br>Extensive consultations have occurred during the preparation of the Customer Technology Plan across the Customer Relations Group leaders, the IT leaders and the Reset team, to understand costs, delivery timeframes and expected benefits.<br><br>Resources estimates are based on Deloitte's experience from clients in the similar size utility company.<br><br>Hardware and software estimates are based on vendor quotation obtained during the development of the Customer Technology Plan.<br><br>The risks associated with the use of aging and disparate systems to provide such critical business functionality were identified many years ago. Replacement of the capability provided by CIS/OV and the legacy customer will address the risk of current systems, emerging technologies and heightened customer and regulatory expectations. |

*Table 47: Activities to Meet the National Electricity Rules expenditure objectives*

# Appendix E Architectural models

## 14.1.1 SA Power Networks' Functional Model

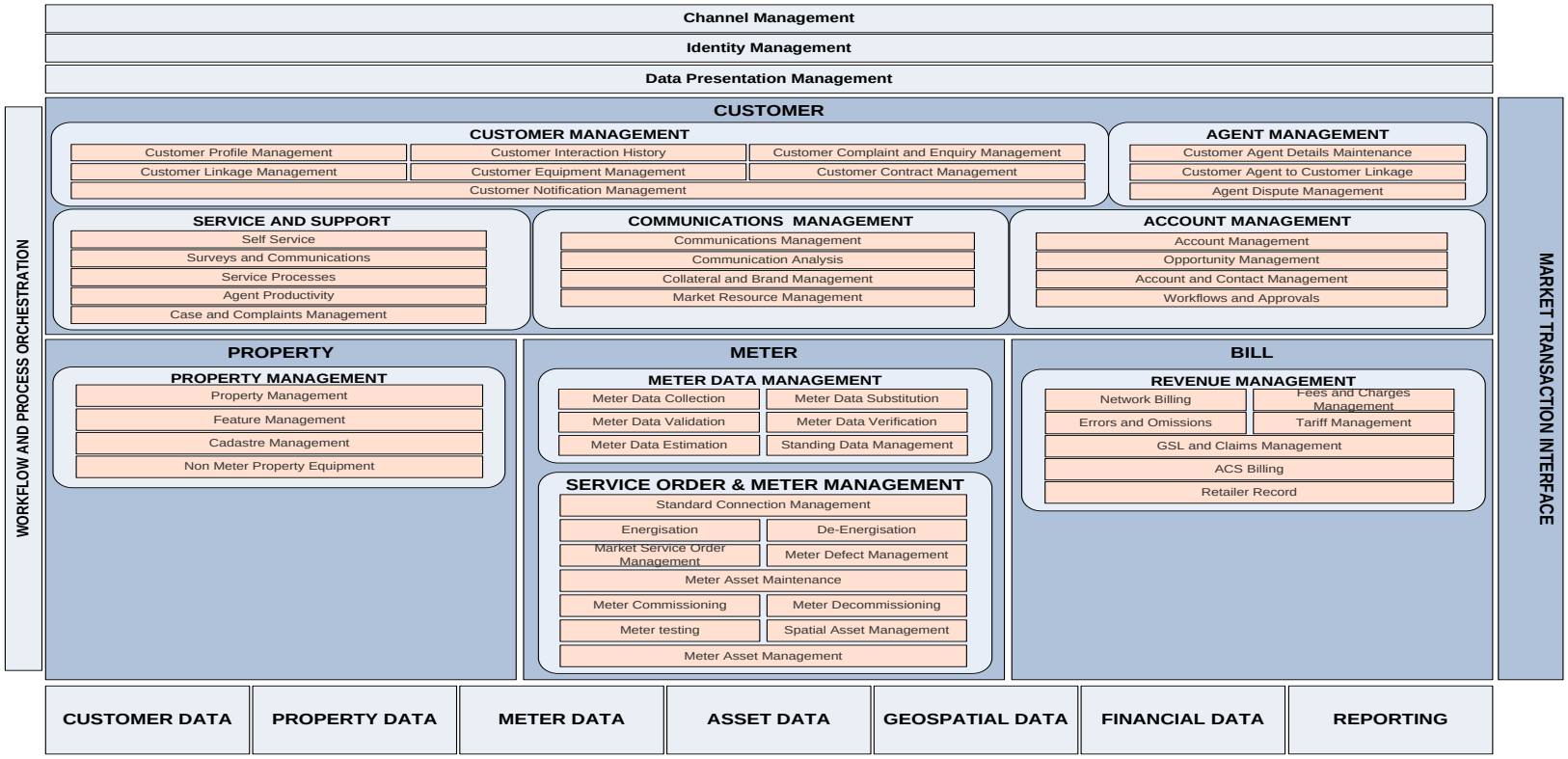


*Figure 17: CIS and CRM functional model*

## 14.1.2 SA Power Networks Current State Application Architecture Model

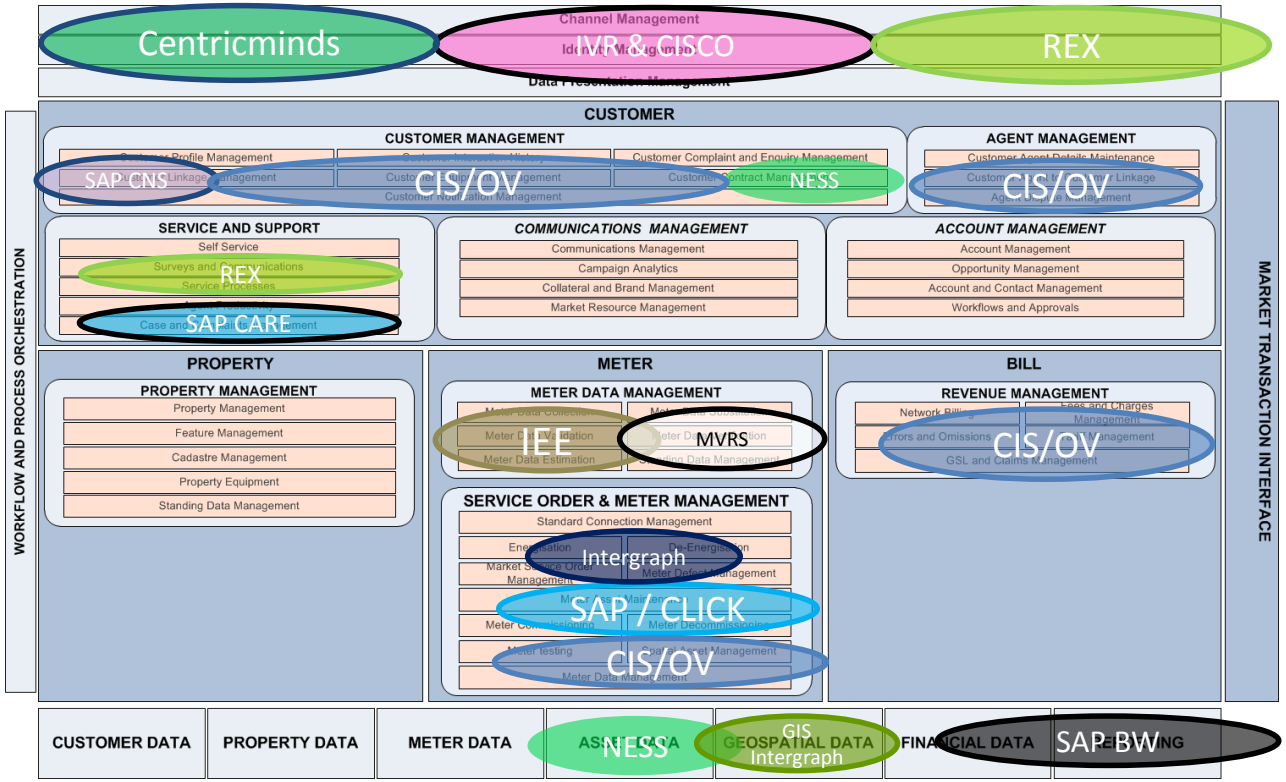


*Figure 18: CIS and CRM current state application architecture*

# Appendix F Detailed market research

Detailed research on technology trends is presented below. External research reviewed to identify technology trends is listed in Appendix E

### 14.1.3 Growing maturity of CIS products

Existing, and contemporary customer information systems (CIS) have been designed to incorporate a significant amount of functionality including:

- account maintenance
- order processing
- product/rate service management
- rate design
- billing and credit collections
- accounts receivable
- statement preparation and processing
- scheduling and tracking service orders; and
- exchanging data with market participants.

The problem with existing solutions is that almost all of these functions describe the end-state-customer as a meter or connection point rather than natively supporting advanced customer relationship functions without manual customisations. In many cases utilities deploy CRM functionality as a bridge to provide this additional functionality.

It must also be noted that there is substantial market and technological change impacting traditional utility models, and the technology environments that support them at the present time. Existing legacy, (and current) CIS products often still need to be heavily customised to provide functionality to support new billing models such as:

- Time of use
- 2 way dynamic pricing
- Capacity tariff
- Interval metering
- Electronic vehicle roaming plans

Given that widespread adoption of intelligent network principles is still in the development phase, mature adoption of all of the aforementioned capabilities may take some time, and as such **in the absence of integrated market offerings, utilities are likely to adopt 'bolt-on' and lower cost alternatives to meet new functionality in lieu of full legacy CIS replacements.**

### 14.1.4 Increasingly advanced customer billing requirements

Given it is highly probable that SA Power Networks will need to implement more sophisticated modes of billing operation, either autonomously or via cooperation with retailers, it is highly likely that

advanced dynamic billing, pricing and plan management capabilities will be required to support incremental real time billing.

It is critical to note, that at this time, the maturity of the product market to meet these new and unique requirements is extremely low, with significant investment and work still required in the industry to establish credible, working solutions. For this reason, **a wait and see approach to meet future billing requirements may be prudent, until such time as mature market solutions emerge. Any attempt to replace billing functionality with a legacy metering solution at this time may require significant future remediation or replacement.**

### 14.1.5 Importance of meter data management, and meter data analytics

Meter Data Management solutions have emerged as critical components in any Advanced Metering Infrastructure (AMI) deployment. MDM solutions typically offer a repository of meter related data providing core functionality to support validation, editing, estimations, use calculations, billing aggregation, load forecasting and asset utilisation analytics.

While industry implementation of MDM has typically focussed on meeting AMI requirements, there is interest in leveraging MDM to manage other functions such as:

- supporting demand response programs
- asset management (through optimal configuration and loss management)
- commodity management (load profiling and forecasting)
- CRM (via customer segmentation of static load profiles).

**All of this new functionality is being provided outside existing CIS packages, and thus must be considered as part of any CIS replacement programs, particularly where energy efficiency, and economic demand response (i.e. critical peak pricing) is the core requirement.**

In addition to core MDM products, Meter Data Analytics (MDA) tools offer a logically separate, although adjacent technology to support meter data management (MDM) capabilities such as:

- Providing analytics capabilities to support revenue assurance, outage notification and transformer load management; and
- Third party cloud offerings that allow entities to upload meter data to the cloud for more sophisticated forms of third party analysis.

### 14.1.6 Need to support advanced customer multichannel and self-service capabilities

The introduction of the smart grid and consumerisation of energy products is creating significant additional demands on utilities to provide sophisticated multi-channel capabilities that includes voice (IVR), web (portal), mobile (apps), SMS, and social media gateways to support a range of self service options that cannot be met by existing legacy CIS products easily.

If used correctly and in combination, multichannel tools can be used to deliver improved customer service experiences, whilst minimising increases in customer service provisioning costs. Implementation of this functionality is also likely to be simpler in a mature CRM environment, rather than trying to manually integrate discrete components into an existing legacy CIS application.

Multi-channel capabilities can also be used to drive a range of self service capabilities as described below:

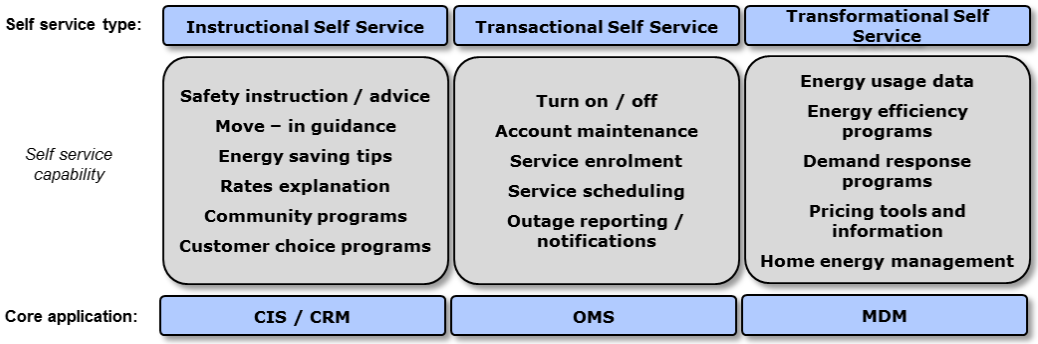


*Figure 19: Example multichannel self-service applications*

Considerations when implementing multichannel capabilities include:

- Identifying the products and services that should be supported through multichannel capability;
- Identifying high volume customer service interactions that can be substantially mitigated through the deployment of channel capabilities; and
- Providing a mechanisms for customers to easily register and access secure content, that is configurable to their own preferences.

**It also must be noted that a poorly designed self-service multichannel capability can actually drive up costs in traditional attended channels if poorly executed.**

### 14.1.7 Increasing importance of integration, and business process management

Smart grid programs have diverse reach in terms of their requirements centred primarily around two key concepts including:

1. **Infrastructure modernisation** which addresses the need to integrate renewables, enhance network resilience, improve asset use, and better monitor and control generation / storage and delivery infrastructure; and
2. **To improve the inclusion of the customer** in energy markets by addressing energy sustainability concerns through the enablement of energy efficiency programs such as demand response, and smart appliance integration.

Given the significant variance in use cases presented above, and the current inability of a single provider to meet all requirements in one solution, the integration of information and processes must be centrally orchestrated to operate efficiently.

As such, smart grid initiatives require adherence to common architectural principles and standards to be successful and there needs to be real consideration of topics such as business process management (BPM), service orientated architecture (SOA), event orientated architecture (EOA), and complex event processing (CEP) when assessing architectural options.

**Any architectural solution must address the requirement to integrate and orchestrate data from a number of different sources to achieve required objectives, and to decouple capabilities into a number of different functional applications.**

### 14.1.8 Enterprise Asset Management

Legacy CIS applications typically include simple meter asset management capabilities, plus capabilities to manage standing data, and work orders associated with the management of assets, all in a centrally coordinated set of tools. The problem with this approach in a contemporary context has been the increasing capabilities and sophistication of enterprise asset management (EAM) solutions in the marketplace that have been integral to efforts to drive improvements in workforce productivity and asset management effectiveness.

Modern EAM tools include advanced functionality to support:

- **Incorporation of geospatial data:** to assist internal planners, schedulers and field employee by providing a geographic context to jobs that need to be executed in the field;
- **Advanced scheduling algorithms:** to support sophisticated scheduling, dispatch, routing and mobility management as required;
- **Telematics integration:** to allow field assets to be monitored in the field to improve workforce safety, and better use of geographically disperse assets in the field; and
- **Improved in field mobile device usage:** to support standard processes, job instruction provision, automated field routing, and in field data capture methods.

**Sophisticated EAM capabilities must be assessed as part of a broader CIS replacement initiative, and may be implemented as a separate component to CIS in a future architecture. Any solution must also be able to update standing data, either within the meter data management solution or CIS solution moving forward however.**

### 14.1.9 Importance of 'shift trends' - cloud, social, mobile and big data

A number of big shifts are impacting how all IT services are being delivered:

- **Cloud:** as IT services are progressively commoditised utilities are going to need to re-think the ways IT services are purchased and delivered
- **Social:** will impact the way in which utilities interact with consumers in 2 way dialogues, with a requirement for these mechanisms to be able to integrate into CIS and CRM functionality. Social media is of particular interest in the areas of account management, billing, energy consumption, and outage management communications.
- **Mobile:** will increasingly become a primary delivery channel allowing consumers, employees and the organisation at large to interact seamlessly. Support for bring your own device (BYOD) policies should also be closely considered.
- **Big data:** big data and the tools to manage data from a range of sources to either predict, analyse or respond to events is going to become increasingly important. This may include the management of data coming from advanced metering infrastructure, SCADA data, and programmable logic data. This information can also be referenced geospatially with other attributes (such as location, weather and assets) to support more dynamic decision making.

**Interaction models, mobile access to real-time information, and assessing ways of leveraging data are all important considerations when choosing to replace CIS/OV.**

# Appendix G Transition roadmaps

*This appendix includes A3 versions of the transition roadmaps discussed in section 9*

### 14.1.10 Option 2: Approach 1 – Early billing system replacement approach

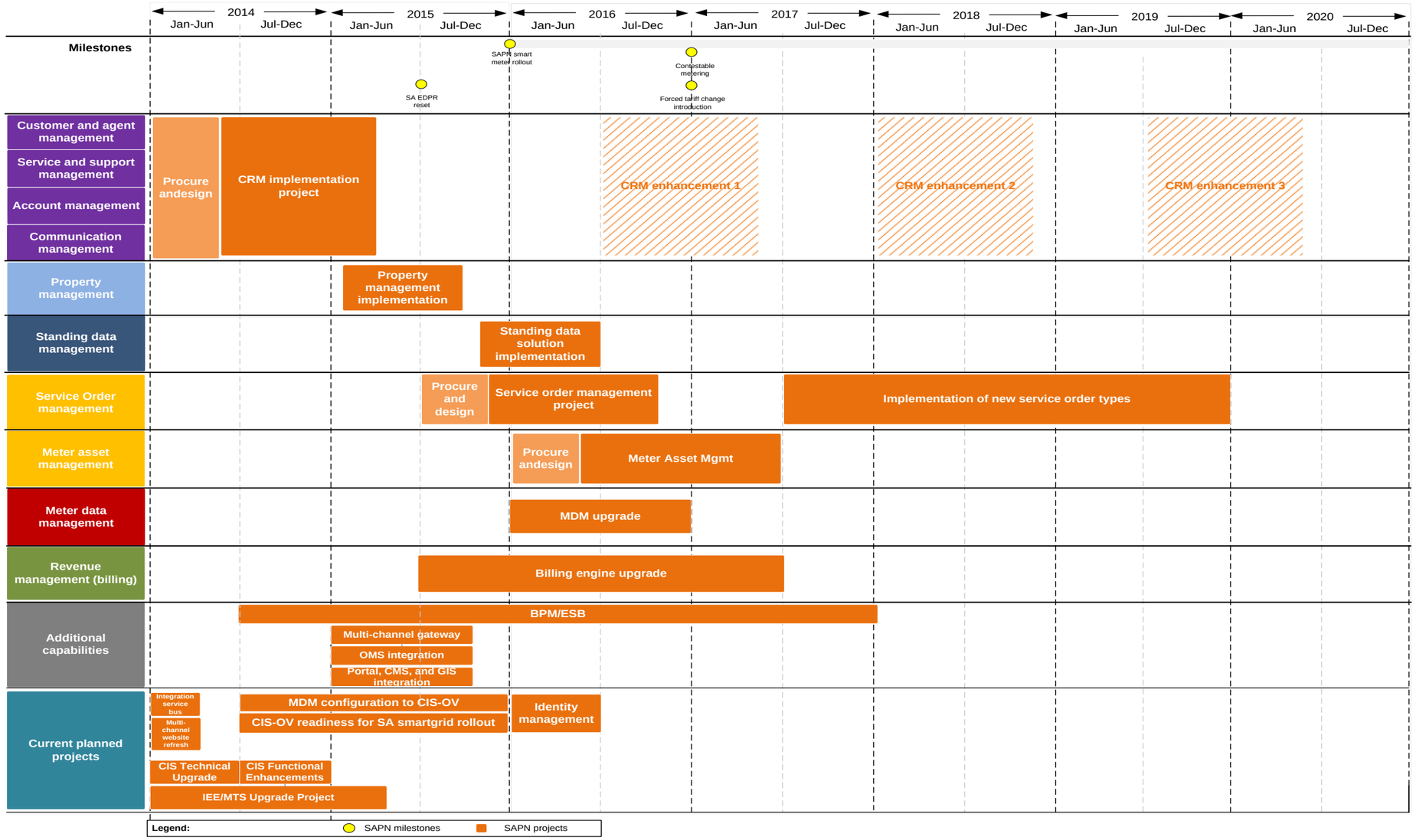


*Figure 20: Option 2 – Approach 1 Early billing system replacement program*

## 14.1.11 Option 2: Approach 2 – Late billing replacement approach

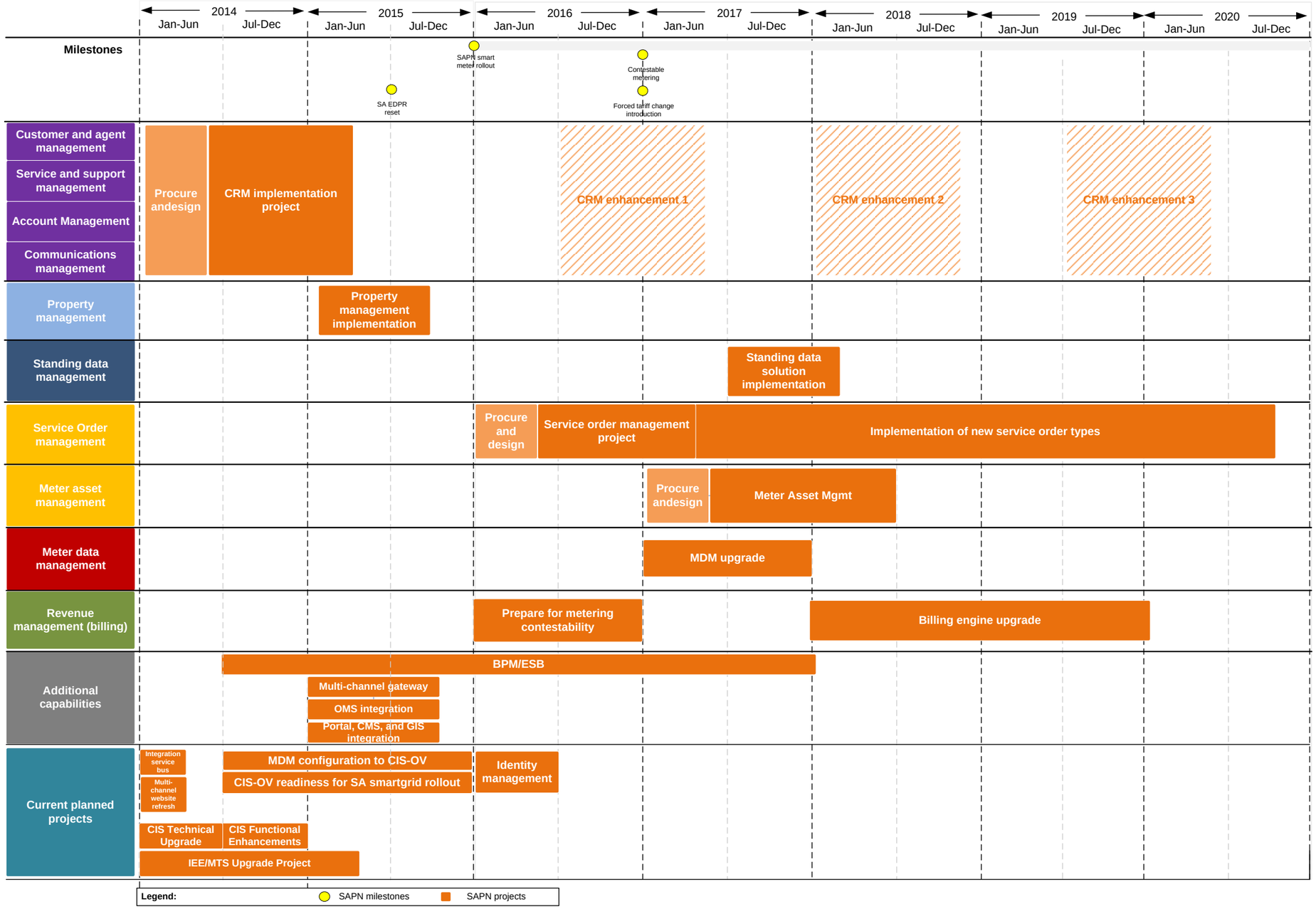


*Figure 21: Option 2 – Approach 2 Early billing system replacement program*

## 14.1.12 Option 2: Approach 3 – Early billing – late service order management approach

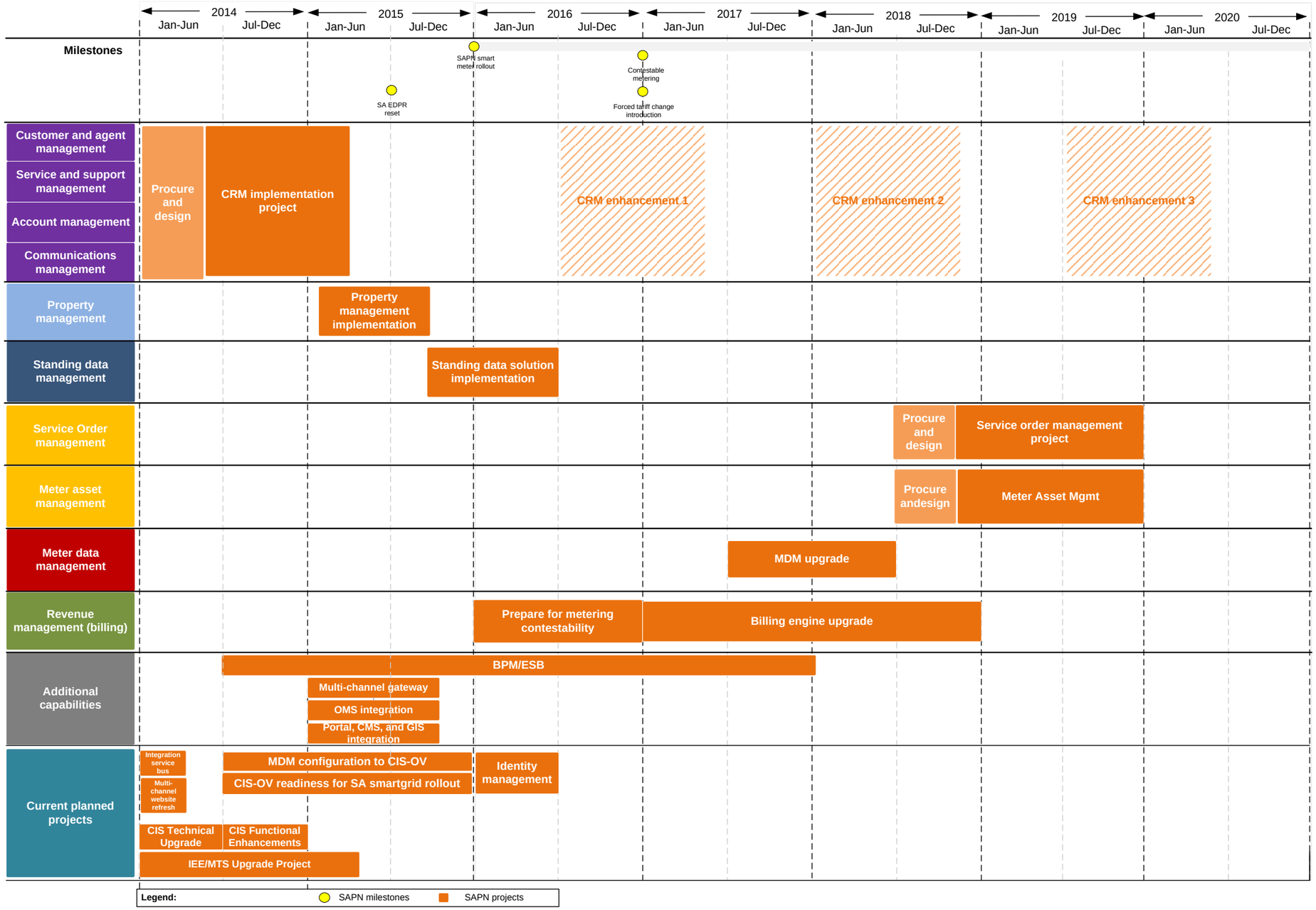


*Figure 22: Option 2 – Approach 3 – Early billing – late service order management approach*

## 14.1.13 Option 1: Integrated CIS supplemented with CRM

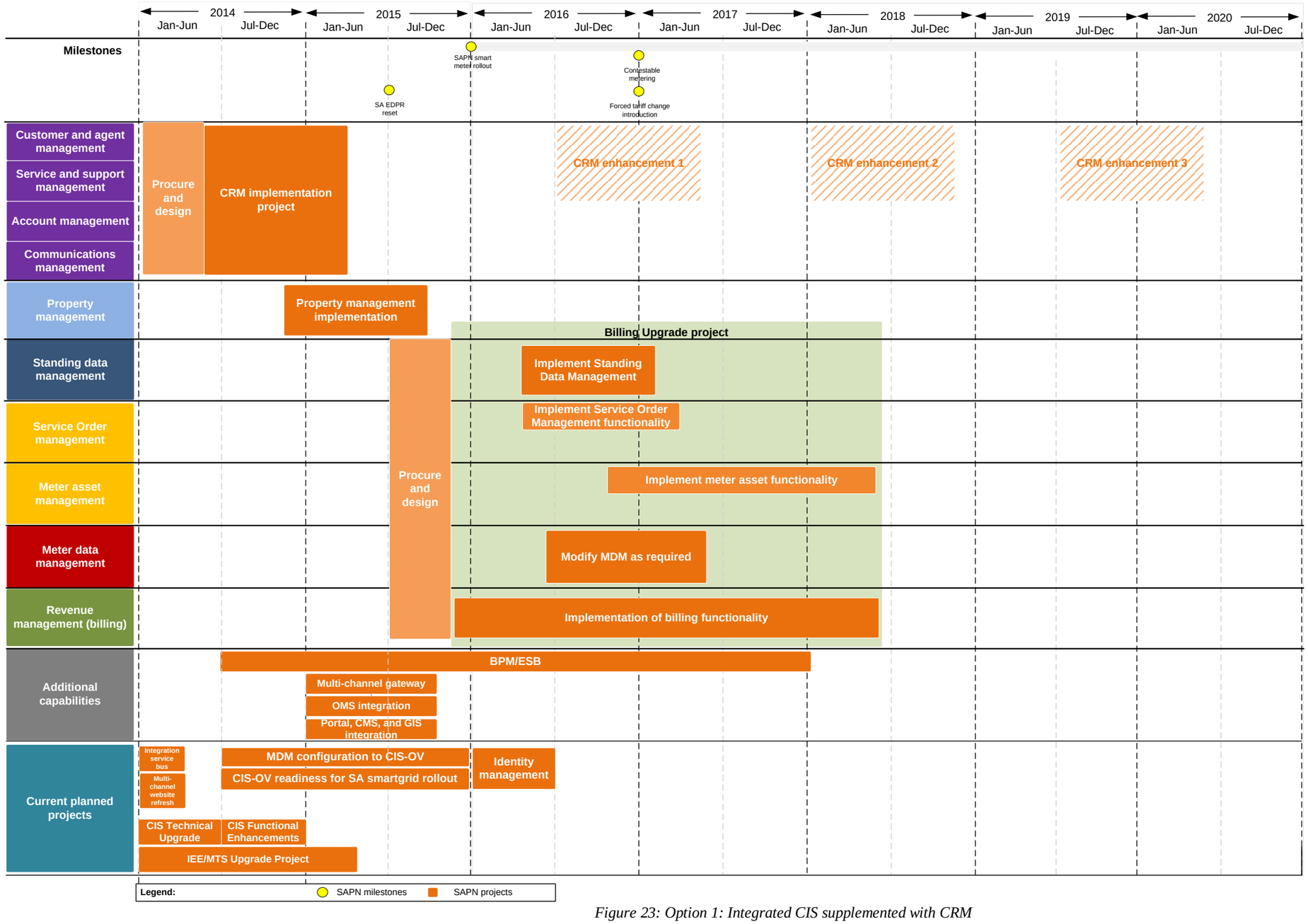


*Figure 23: Option 1: Integrated CIS supplemented with CRM*