



Supporting
document 5.39

Five Minute Settlement Rule Business Case

2020-2025
Regulatory Proposal
January 2019





SA Power Networks

Five Minute Settlement Rule Business Case



IT regulatory submission for the 2020-2025 Regulatory Control Period

January 2019 – V2.0

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1 Executive summary

Topic	Detail
Recurrent non-network capital expenditure (capex)	Non-recurrent non-network IT capex.
Context / background	<p>A recent initiative within the National Electricity Market (NEM) is the introduction of the National Electricity Amendment (Five Minute Settlement) Rule 2017 No. 15 (Five Minute Settlement Rule) by the Australian Energy Market Commission (AEMC) for the 2020 – 2025 Regulatory Control Period (RCP).</p> <p>The introduction of the Five Minute Settlement Rule presents a number of changes to the operation of the National Electricity Market (NEM) and the regulatory obligations of its participants, including SA Power Networks. As a part of the mandate to reduce the time interval for financial settlement in the NEM from 30 minutes to five minutes, information technology systems will need to be updated to capture and transact interval meter data at five minute intervals. Accordingly, SA Power Networks has undertaken an evaluation of the impact of the regulatory change on our systems and processes with respect to their ability to meet the requirements of the rule change.</p>
Drivers	<p>The following represent the primary drivers for this business case, supported through their alignment with SA Power Networks' business strategies and programs:</p> <ol style="list-style-type: none"> 1. Compliance with regulatory rule change and Distribution Network Service Provider (DNSP) license conditions 2. Capability to calculate network charges and produce a network bill for interval meter data
Options considered	<p>We have investigated options for meeting the requirements of the Five Minute Settlement Rule.</p> <ul style="list-style-type: none"> • Option 0 – Do Nothing – Do not comply with regulatory change As failure to comply will create an extreme risk for SA Power Networks¹, the option of not complying with the rule change has not been considered. • Option 1 – Compliance through process change Due to the market requirements for capturing and transacting high volumes of data, it is considered that neither increased labour resources nor modification of business processes can provide a credible solution. This option would not mitigate the extreme risk for SA Power Networks. <p>We have therefore assessed the following two credible options:</p> <ul style="list-style-type: none"> • Option 2 – Compliance through modifying existing systems • Option 3 – Compliance through implementing new systems

¹ Refer to Section 2.3.1 for the Risk of Not Proceeding

Topic	Detail
Option selected	<p>Option 2 - Compliance with Five Minute settlement through modifying existing systems, has been identified as the most prudent and efficient option for SA Power Networks to pursue in response to the introduction of the Five Minute Settlement Rule.</p> <p>Our assessment identified that this solution achieves compliance and minimises the system changes required across the Market Transaction and Meter Data Management systems and, consequently, will be implemented in the most efficient manner.</p> <p>Further, our market and meter data system modifications will be undertaken concurrently with those for CitiPower and Powercor by our service provider, CHED Services, enabling costs and resources to be minimised.</p>
Estimated cost	<p>The total forecast capital expenditure for Option - 2 - Compliance through modifying of existing systems is \$7.7 million² with all expenditure occurring during the 2020-2025 RCP.</p> <p>We do not expect to incur any material additional operating expenditure following the completion of this project. We have identified potential cost increases relating to additional bandwidth and data storage requirements; however, these have been assessed as having an immaterial cost impact as the number of interval metered sites in the South Australian jurisdiction is expected to increase at a moderate rate over the next 15 years.</p> <p>Accordingly, any recurrent costs following the completion of this project can be absorbed by SA Power Networks.</p>
Risks of not proceeding	<p>The risks of not proceeding with the implementation of the requirements of the Five Minute Settlement Rule are that SA Power Networks:</p> <ul style="list-style-type: none"> • will not be able to meet its regulatory obligations, be in breach of its licence conditions and therefore unable to operate as a DNSP; and • will not have the capability to produce a network bill for interval metered sites. <p>The overall risk rating has been assessed as Extreme.</p>
Regulatory framework	<p>Ensuring compliance with our regulatory obligations necessitates meeting the requirements of the Five-Minute Settlement Rule in a prudent and efficient manner.</p> <p>As outlined above, this program of work has been designed to minimise the amount of system changes required, therefore this objective will be achieved.</p>
Supporting evidence	<p>This business case has been prepared to meet the requirements of the National Electricity Amendment (Five Minute Settlement) Rule 2017 No. 15 which will reduce the time interval for financial settlement in the NEM from 30 minutes to five minutes. It will commence on Thursday, 1 July 2021.</p> <p>As a NEM participant, SA Power Networks is obligated to comply with the rule change.</p>
Customer and stakeholder engagement	<p>We conducted an Information Technology Deep Dive Workshop with customers and other stakeholders where we described the need to update our systems to</p>

² All costs are in Dec \$2017.

Topic	Detail
	<p>support our regulatory and legal obligations (see Supporting Document 0.15 - Think Human IT Deep Dive Workshop Report).</p> <p>Our stakeholders “seek clarity on what the proposed expenditure ...covers and the rationale for the expenditure”. We acknowledge their feedback and have taken it into consideration when proposing the most appropriate option for this business case.</p>

2 Drivers

2.1 Introduction

A recent initiative within the regulated market is the introduction of the [National Electricity Amendment \(Five Minute Settlement\) Rule 2017 No. 15](#) (**Five Minute Settlement Rule**) by the Australian Energy Market Commission (**AEMC**).

The introduction of the Five Minute Settlement Rule presents a number of changes to the operation of the National Electricity Market (**NEM**) and the regulatory obligations of its participants, including SA Power Networks.

Maintaining excellence in regulatory management is an imperative of SA Power Networks' strategic plan and, accordingly, compliance with the rule change is a strategic imperative for SA Power Networks.

As a part of the decision to reduce the time interval for financial settlement in the NEM, we will be required to modify our processes and systems to capture and transact meter data to five minute intervals (currently held at 30 minute intervals). Accordingly, we have undertaken an evaluation of the impact of the regulatory change and the process options available to ensure compliance.

2.2 Objectives

This business case will seek to deliver the following key business objectives in an efficient manner:

- Continued compliance with all regulatory and distribution licence conditions;
- Address the necessary SA Power Networks' process changes required to transition to metering data at five minute intervals;
- Enable SA Power Networks to calculate network bills for interval metered sites; and
- Provide flexibility for the business to comply with future time interval changes for metering data.

2.3 Issues and risks associated with the current state

Our current systems and processes do not to comply with the regulatory rule change.

2.3.1 Risk of Not Proceeding

A risk assessment was conducted using our corporate risk framework (refer Appendix E). The results indicate that a failure to address this requirement will create Extreme risk for SA Power Networks as demonstrated in Table 1.

Table 1: Major Business Risks Associated with the Current State

Risk ID	Risk Description	Consequence Description	Inherent Likelihood	Inherent Consequences	Risk Rating
1	Legal Compliance Non-compliance with regulatory rule change and Distribution Network Service Provider (DNSP) license conditions.	Unable to efficiently implement regulatory compliance changes will result in <ul style="list-style-type: none"> • Financial/Regulatory (\$1m < Penalties < \$10m) • Reputation (intervention by regulator) • Reputation (severe impact on SA Power Networks' public image) 	Almost certain	Catastrophic	Extreme

Risk ID	Risk Description	Consequence Description	Inherent Likelihood	Inherent Consequences	Risk Rating
2	Financial Inability to calculate network charges and produce a network bill for interval meter data.	Inability to generate a network bill will place the main corporate cash flow at risk and potentially restrict business operations <ul style="list-style-type: none"> Financial (\$10m > Cash Flow < \$100m) 	Almost certain	Major	Extreme

2.4 Detailed description of drivers

The following represent the primary drivers for this business case, supported through their alignment with SA Power Networks' business strategies and programs. A detailed discussion of the relationship between the recommended option and our business strategies is provided in Appendix B.

2.4.1 Compliance with the Regulatory Obligations

SA Power Networks ability to comply with NEM regulatory obligations is fundamental to our participation in the market as a DNSP.

2.4.2 Requirement to Produce the Network Bill

It is a financial imperative for the continued operation of SA Power Networks to calculate network charges and produce a network bill for interval meter data.

3 Scope

3.1 Scope of Need

Compliance with the Five Minute Settlement Rule requires adopting the prescribed MDFF NEM22 meter data format that standardises the format for transferring meter data between the Meter Data Providers, the Australian Energy Market Operator (**AEMO**) Hub, and other market participants. SA Power Networks Market Transaction and Meter Data Management systems were designed with reference to the current MDFF NEM12 data format. Accordingly, we will need to make modifications such that existing systems and interfaces can capture and transact meter data in the new prescribed format. Refer to Appendix C for a description of the system architecture impacted by the implementation of the Five Minute Settlement rule.

This business case seeks to identify and evaluate alternative options for complying with the Five Minute Settlement Rule and recommends the most feasible and efficient option in line with the Australian Energy Regulatory (**AER**) Expenditure Assessment Guidelines.

3.2 Scope Inclusions

The scope of this change will include any process, system or interface required to capture, transact, bill and report on five minute interval meter data to meet regulatory and stakeholder obligations.

This includes but is not limited to the following systems:

- Market Transaction System (**MTS**)
- MTS Gateway
- Meter Data Management System – Itron Enterprise Edition (**IEE**)
- Interfaces (including to Billing and associated billing systems)

3.3 Scope Exclusions

The scope specifically excludes:

- All costs which relate to periods outside of the 2020–2025 Regulatory Control Period (**RCP**);
- Legacy applications currently scheduled to be decommissioned in the current RCP; and
- Any changes associated with modification to network planning or monitoring systems³.

³ AEMC Five Minute Settlement Implementation Information Sheet, 28 November 2017 - Networks (access [here](#))

4 Options Assessment

4.1 Options considered

We have investigated options for addressing the impact of the regulatory rule change.

- **Option 0 – Do Nothing** – Do not comply with regulatory change.
As maintaining excellence in regulatory management is a strategic imperative for SA Power Networks and a failure to address this requirement will create extreme risk for SA Power Networks⁴, the option of not complying with the rule change has not been considered.
- **Option 1** – Compliance through process change.
This option would involve implementing physical process change and ‘work arounds’ to avoid changes to core market and meter data management systems. The transmission of interval meter data is a high-volume transaction that occurs through internal and external (AEMO Hub) interfaces. Due to the nature and volume of the data involved and the market requirements for capturing and transacting this data, it is considered that neither increased labour resources nor modification of business processes can provide a credible solution. This option would not mitigate the extreme risk for SA Power Networks as described in Section 2.3.1.

We have therefore considered the costs, benefits and risks associated with following two credible options:

- **Option 2** – Compliance through modifying processes and existing systems.
- **Option 3** – Compliance through implementing new processes and systems.

4.1.1 Option 2 - Compliance through modifying existing processes and systems

This option involves a one-off capital investment to modify existing systems, and processes for the commencement of the Five Minute Settlement Rule. Given the impact on SA Power Networks’ market facing systems, a well-planned and comprehensive program of work will be required to meet the requirements of the rule change prior to its commencement on 1 July 2021.

Our approach to compliance focuses on minimising system changes and undertaking an appropriate level of testing to minimise implementation risks. Our highly connected systems fulfil many key functions within SA Power Networks’ operations and the market, therefore testing forms a major component of this program of work.

4.1.1.1 Option 2 Project Costs

The table below is a summary of the project delivery costs. Please refer to Appendix A: Vendor Cost Estimate for a detailed view of these costs. To achieve the specified objectives, \$7.7 million⁵ has been estimated by our service provider incorporating a two-phase project spanning 2021 and 2022.

Table 2: Option 2 Delivery costs (\$000’s Dec \$2017)

Cost component	Cost type	Financial year					Total
		2020/21	2021/22	2022/23	2023/24	2024/25	
Vendor Delivery	capex	4,757	2,956	-	-	-	7,712
Total		4,757	2,956	-	-	-	7,712

4.1.1.2 Option 2 Project Cost Assumptions

1. The project will comprise two components:
 - a. the functional component to be completed prior to the commencement of the Five Minute Settlement Rule (1 July 2021).

⁴ Refer to Section 2.3.1 for the Risk of Not Proceeding

⁵ All costs are in Dec \$2017

- b. The performance, scaling and storage component to be completed in 2022.
- 2. Adequate resources will be available to conduct system, integration, user acceptance, regression and performance testing, as required.
- 3. Preliminary project cost estimates and timeframes provided by our service provider are realistic and represent the most efficient approach to implementation based on previous services provided.

4.1.1.3 Option 2 Recurrent Costs

We do not expect to incur any material recurrent costs following the completion of this project. We have identified potential progressive cost increases relating to additional bandwidth and data storage requirements but have assessed them to be minimal. Discussions with our service provider have confirmed that the number of interval metered sites and the expected rate of growth in the South Australian jurisdiction is small in market terms. In addition, the unit costs for bandwidth and data storage are both trending downwards in real terms suggesting that our additional requirements may be offset by cost reductions. Accordingly, any recurrent costs following the completion of this project can be absorbed by SA Power Networks.

4.1.1.4 Option 2 Recurrent Cost Assumptions

- 1. Increased dispute management costs are unlikely or minimal.
- 2. Increased bandwidth and data storage costs from transacting five minute interval data are minimal.
- 3. Recurrent costs associated with points 1 and 2 above will be absorbed by SA Power Networks.

4.1.1.5 Option 2 Expected Benefits

The benefits are the mitigation of operational risks defined in section 2.3.1 and summarised in Table 3.

Table 3: Option 2 Expected Benefits

Benefit Type	Benefit Effect	Benefit	Measure	Date Benefit Expected
Intangible	Direct	Continued compliance with AEMC rules and conditions of DNSP license.	Compliance achieved	1 July 2021
Tangible	Direct	Continued ability to produce network bills for interval data.	Network Bills produced, and revenue received	1 July 2021
Tangible	Direct	Performance and scaling will enable a more efficient solution.	Efficiency of bill preparation	End 2022

4.1.1.6 Option 2 Expected Disadvantages

Table 4: Expected Disadvantages

Disadvantage	Consequence outcome (Value, Measure)
A reduction from 30 minute to five minute time intervals will increase the volume of data storage required to keep seven years of data as required to satisfy NEM Rules.	Upfront capital expenditure will be required to provide the additional database storage at the commencement of the project but progressive cost increases as the volume of interval meters in South Australia increase will be absorbed.
The greater volume of data generated may drive an increase in the volume of retailer disputes for the network bill.	It is anticipated any increased costs will be minimal and can be absorbed by SA Power Networks.
SA Power Networks will require increased bandwidth to receive five minute metering data from AEMO.	Any increased cost has been assessed as minimal and will not adversely impact SA Power Networks.

4.1.1.7 Option 2 Business Risks

The major business risks of non-compliance with the regulatory obligations are avoided by adopting this option. The residual likelihood would reduce to unlikely with a risk rating of Low.

There are project risks (refer Appendix D) associated with implementing the changes to the systems and processes impacted by the Five Minute Settlement Rule. These systems and processes play a significant role in market operations; however, they are mature, as is our capability for managing changes in this environment. An appropriate emphasis will be placed on testing to ensure there is a low risk of project failure.

4.1.2 Option 3 - Compliance through implementing new processes and systems

SA Power Networks can achieve compliance with the Five Minute Settlement Rule through implementing new processes and systems.

The following discussion explores Option 3 relative to Option 2 only.

4.1.2.1 Option 3 Project Costs

This business case does not explore the costs associated with implementing Option 3 in detail as the effort required is not warranted for the purpose of decision making in this instance. This approach is inherently costlier than Option 2 because:

- it would require the (unnecessary) replacement of our core meter data management system, IEE;
- the existing systems will require decommissioning;
- the existing data will require migration or archiving; and
- there are many bespoke interfaces between the IEE, market systems and other corporate systems. Many of these interfaces would need to be redeveloped.

Our preliminary investigation and previous experience supports the argument that the cost of implementing a new meter data management system, interfaces to market systems and new business processes will be more expensive than Option 2 without providing any additional tangible or intangible benefits. This means the resulting Net Present Value (NPV) of this option would be less favourable than Option 2.

4.1.2.2 Option 3 Recurrent Costs

As Option 2 assumes no recurrent costs, we also assume Option 3 will achieve the same outcome in the long term. In the short term, there may be some additional, immaterial, recurrent costs for archiving/retrieving of historic data.

4.1.2.3 Option 3 Expected Benefits

The current market and meter data management systems and interfaces are operating efficiently, effectively and can be configured to meet the requirements of the rule change. Option 3 will not deliver any additional benefits to that provided by Option 2 for this purpose.

4.1.2.4 Option 3 Expected Disadvantages

In addition to the disadvantages identified for Option 2, Option 3 will have a will have a higher project cost, a lower NPV and will take longer to implement, the consequence being that it is not a prudent investment option.

4.1.2.5 Option 3 Business Risks

Option 3 would avoid the business risks associated with not complying with the Five Minute Settlement Rule. The residual likelihood would reduce to Possible with a risk rating of Medium.

This option, however, is not a prudent investment in terms of both the resources required and the timeframe available to achieve compliance. Consequently, SA Power Networks would be at risk of:

- acting imprudently as a suitable, lower cost alternative has been identified;
- failing to implement a compliant solution within the regulated timeframe; and,
- disrupting cash flow until a network bill for interval metered sites can be produced.

4.2 Options assessment

A summary of the costs and benefits associated with the options detailed above is set out in Table 5. A more detailed cost, benefit and risk assessment is provided in Section 4.3.

Table 5: Costs associated with options considered (\$million Dec \$2017)

Option	Total Cost ⁶	NPV ⁷	2020-25 RCP Cost ⁸	Overall Risk Rating	Benefits ⁹	Ranking
Option 0: Do Nothing Do not comply with Regulatory Change	nil	nil	nil	Extreme	Zero expenditure	4
Option 1: Compliance Through Process Change	\$ ¹	(\$\$) ¹	\$ ¹	Extreme	Lower cost option	3
Option 2: Compliance through modifying existing processes and systems	\$7.7	(\$7.6)	\$7.7	Low	Achieves Compliance	1
Option 3 - Compliance through implementing new processes and systems	>\$7.7 ¹⁰	<(\$7.6)	>\$7.7	Medium	Achieves Compliance	2

¹ Because this was discounted early as a credible option, this option was not costed.

⁶ Represents the total capital expenditure required above the current level of recurrent expenditure, over the 10-year cash flow period from July 2020 to June 2029.

⁷ Net present value of the proposal over the period July 2020 to June 2029, based on discount rate of 2.89%.

⁸ Represents the total capital expenditure required above the current level of recurrent expenditure within the 2020-25 RCP.

¹⁰ Section 4.1.2.1 describes why the cost would be materially more than \$7.7 million.

4.3 Cost, benefit and risk assessment

The overall cost, benefit and risk assessment for each option is summarised in Table 6. The risk assessment was conducted in accordance with the SA Power Networks Risk Management Framework.

Table 6: Overall cost, benefits and risk assessment for the options considered

Option	Benefits	Costs / risks	Overall risk rating
Option 0: Do Nothing Do not comply with Regulatory Change	Zero expenditure	Unable to participate in the NEM / Produce a network bill	Extreme
Option 1: Compliance Through Process Change	Lower cost option	Does not adequately reduce risk of being unable to participate in the NEM / Produce a network bill	Extreme
Option 2: Compliance through modifying existing processes and systems	Compliance with regulatory obligations	Project Delivery Risk Cost: \$7.7m	Low
Option 3 - Compliance through implementing new processes and systems	Compliance with regulatory obligations	Project Delivery Risk Cost: >\$7.7m	Medium

4.4 Option selected

Option 2 - Compliance through modifying existing processes and systems, is the recommended option because:

- Option 0 – Do Nothing is inconsistent with SA Power Networks regulatory obligations, corporate values and business strategy;
- Option 1 – Compliance Through Process Change is not a credible option. Due to the market requirements for capturing and transacting high volumes of data, it is considered that neither increased labour resources nor modification of business processes can provide a credible solution. This option would not mitigate the extreme risk for SA Power Networks; and
- Option 3 – Compliance through implementing new processes and systems does not satisfy the National Electricity Rules (NER) requirement of being a prudent operator as the costs are likely to be materially higher than Option 2 without providing any additional benefits.

Accordingly, Option 2 is the most prudent and cost-efficient option for SA Power Networks to pursue in response to the introduction of rule change.

The technical solution has been designed to minimise the amount of system change required across the Market Transaction and Meter Data Management systems and, consequently, will be implemented in the most efficient manner. Option 2 demonstrates a clear alignment to the NER Expenditure Objective of regulatory compliance and the proposed expenditure represents the optimal level of investment to achieve this objective.

The emphasis on testing mitigates the project risk associated with critical data flows between integrated systems.

Furthermore, the recommendation aligns with the business objectives outlined earlier as it:

- provides ongoing compliance with SA Power Networks' regulatory obligations and distribution licence conditions;
- enables SA Power Networks to calculate network bills for customers with interval meters;

- addresses and delivers upon the foundations of SA Power Networks' strategic framework through excellence in regulatory management; and
- ensures SA Power Networks upholds its reputation in the market for regulatory compliance and excellence.

Our market systems service provider, CHED Services, has advised the most efficient approach to implementing the required changes is concurrently with the modifications for the CitiPower and Powercor market systems. The costing of this option is based on a quote provided by CHED Services and these details are in Appendix A: Vendor Cost Estimate.

Option 2 reflects CHED Services implementation schedule (Table 7) and can be fully implemented in the 2020-25 RCP to achieve the regulated commencement date of 1 July 2021.

Table 7: Option 2 Project implementation schedule

	2020		2021		2022		2023		2024		2025	
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec
Milestones												
Projects	2020 – 2025 Regulatory Period											
Plan. Design, build test and deploy Phase 1												
Plan. Design, build test and deploy Phase 2												

4.5 Supporting evidence

The AEMC has made a rule to align operational dispatch and financial settlement at five minutes. This will reduce the time interval for financial settlement in the NEM from 30 minutes to five minutes. It will take effect from Thursday, 1 July 2021.

Refer to the [National Electricity Amendment \(Five Minute Settlement\) Rule 2017 No. 15](#).

4.6 Consistency with NER expenditure requirements

SA Power Networks considers that the capital and operating expenditure to implement the Five Minute Settlement Rule is required to achieve the expenditure objectives listed in clauses 6.5.6(a) and 6.5.7(a) of the NER as discussed in Table 8.

Table 8: Contribution to the National Electricity Rules expenditure objectives

National Expenditure Objectives	Contribution
Comply with regulatory obligations	<i>The proposed expenditure seeks to implement solutions that will enable SA Power Networks to continue our ongoing compliance with regulatory obligations.</i>

Table 9 outlines the activities the Five Minute Settlement Rule project will undertake and to ensure forecast operating and capital expenditure is consistent with the requirements of clauses 6.5.6(c) and 6.5.7(c) of the NER.

Table 9: Activities to Meet the National Electricity Rules expenditure objectives

National Expenditure Criteria	Activity
Efficient cost of achieving the objective(s)	<p><i>This program of work has been designed to minimise the amount of system changes required across the Market Transaction and Meter Data Management systems. As critical data flows across multiple systems, testing has a special significance in order to ensure Go-Live is a success from both a schedule and delivery perspective.</i></p> <p><i>In addition to functional, integration and user-acceptance testing, regression testing has been identified as a high-focus area given the requirement to grandfather data flows for accumulation meters.</i></p> <p><i>By mitigating key risks to the budget, being defects post Go-Live and schedule delays, this ensures the most cost-efficient approach to compliance.</i></p>
Cost of a prudent operator	<p><i>To avoid non-compliance and associated penalties, a program of work has been prudently designed to minimise the amount, and therefore cost, of system change required across the Market Transaction and Meter Data Management systems.</i></p>
Realistic expectation of forecast and cost impact	<p><i>Cost inputs are be based on reasonable estimates as specified within the SA Power Networks policies and procedures.</i></p>

Appendix A: Vendor Cost Estimate

The cost model for Option 2: Compliance through modifying existing processes and systems is contained within the quote from our vendor contained in the following document which is available on request, “*5 Minute Rule Cost Model*”.

The costs associated with implementing Option 3 are not provided as the effort required is not warranted for the purpose of decision making.

Appendix B: Relationship to SA Power Networks' Business Strategies and Programs

The project contributes to the achievement of strategic objectives as described below.

Table 10: Contribution to corporate strategic objectives

Corporate Strategic Objective	Contribution
Providing customers with safe, reliable, value for money electricity distribution services, and information that meets their needs.	<i>Modifications to systems and processes that enable the business to effectively and efficiently capture and analyse Five Minute interval data allows insights into customer behaviour and the development of appropriate tariffs which contributes to customer perception of value-for-money electricity distribution services.</i>
Maintaining our business standing in the community as an exemplary corporate citizen of South Australia.	<i>Exemplary corporate citizenship is evidenced by a visible commitment to meeting regulatory requirements and providing South Australians with a safe and reliable, value-for-money electricity distribution service.</i>
Ensuring that our workforce is safe, skilled and committed, and that our resourcing arrangements can meet our work program needs.	N/A
Maintenance and development of key capabilities that will help sustain our success into the future.	<i>Modifying existing systems and processes to enable the business to effectively and efficiently capture and transact Five Minute interval data positions SA Power Networks needs to sustain its regulatory compliance and network billing.</i>
Maintain the business' risk profile, and protect the long term value of the business	<i>Modifications to systems and processes that enable the business to be compliant with the Five Minute Settlement Rule requirements significantly reduce the business' financial and regulatory risk profile.</i>

Table 11: Contribution to corporate core areas of focus

Corporate Core Areas of Focus	Contribution
Energised and responsive customer service	<i>The right tools combined with complete and accurate data sets and processes supports tariff development, accurate billing and efficient process for our customers.</i>
Excellence in asset management and delivery of service	N/A
Growth through leveraging our capabilities	<i>SA Power Networks has a strong capability in terms of its work force and existing systems. We will leverage our existing system capabilities to meet the Five Minute Settlement Rule requirements.</i>
Investing in our people, assets and systems	<i>The initiatives outlined propose to build on the assets and systems already owned by SA Power Networks.</i>

Table 12: Contribution to IT strategic objectives

IT Strategic Objective	Contribution
Ensure technology, systems and processes support SA Power Networks long-term business direction	<i>The long-term business direction is to maintain regulatory compliance. A component of this is updating technology and systems to comply with the Five Minute Settlement Rule.</i>
Ensure IT governance, planning and reporting are aligned with SA Power Networks strategy	<i>All governance, planning and reporting for the projects identified in this business case will be aligned with SA Power Networks' strategy.</i>
Partner with other business departments to deliver value through technology	<i>IT has built key relationships throughout the business to deliver technologies that meet business strategies across multiple disciplines. These same relationships and strategic alliances will continue to be further nurtured and developed.</i>
Ensure our people are informed and engaged, and have the right skills aligned with business objectives	<i>Our people will be trained on the impact of the Five Minute Settlement Rule in order to effectively engage with customers as required.</i>
Improve efficiency of our processes in line with good industry practices	<i>The enhancements to support the calculation of network charges using the MDFF NEM22 data format achieves alignment with new industry regulations.</i>
Continually identify and manage IT-related business risks to reduce potential business impact	<i>The main IT related business risk in relation to this business case is the ability of SA Power Networks to provide the technology changes in a time frame to meet the objectives. Adequate planning and resource management will be performed to mitigate this risk.</i>

Appendix C: System Architecture Impacted by the Implementation of the Five Minute Settlement Rule

We have identified modifications will be required to each system displayed in blue for the introduction of the new data format. As the underlying metering data flows through several highly critical and interdependent systems, the modifications are required to be made in parallel.

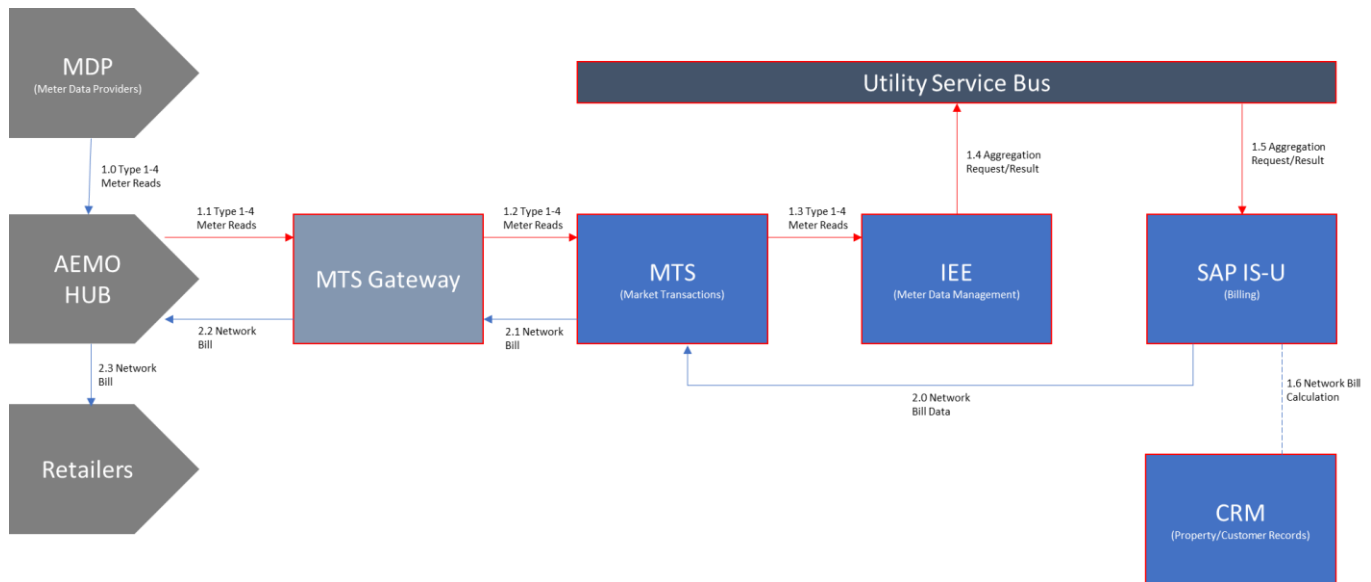


Figure 1 IT systems impacted by five minute settlement

Table 13 describes the relevant functionality of each of the above systems and identifies points of integration.

Table 13: IT systems role

System	Function
MTS/GATEWAY	Manages the market transactions and the flow of meter data between the NEM, electricity retailers, metering service providers, meter data managers and SA Power Networks' network billing system. The gateway is Integrated with MTS. MTS is integrated with IEE for the management of meter data.
IEE	Provides meter data management (collection, validation, estimation and substitution). Integrated with billing to exchange meter and consumption data to enable calculation of network bills.
SAP IS-U	Calculates network bills based on meter and consumption data from IEE. Integrated with CRM to record billing information against property/customer records.
CRM	Stores property/customer records.

Appendix D: Option 2 Project Risks

Table 14: Project risks associated with Option 2

Risk ID	Risk Description (Risk Line Item)	Consequence Description	Inherent Likelihood	Inherent Consequences	Risk Rating
1	Ineffective testing will be compounded in each interfaced system given the high-level of interdependency.	Going live with poorly tested systems will result in multiple disputes and significant rework to remediate the issues. Realisation of poor testing before Go-Live will require retesting and may potentially delay Go-Live.	Possible	Minimal	Low
2	Project risk, e.g. typical risks associated with delivering initiatives using a standard project lifecycle approach.	Unacceptable scoring of measures against which the project is monitored, e.g. Schedule, Scope, Quality, Risk Management and Cost.	Possible	Moderate	Low
3	Delivery of this project will impact the timing of other dependent projects.	Other projects score poorly for measures against which they are monitored, e.g. Schedule, Scope, Quality, Risk Management and Cost.	Possible	Minimal	Low

Appendix E: SA Power Networks Risk Management Framework

Risk Assessment - Qualitative Measures of Likelihood

Likelihood	Rating	Perception	Probability	Frequency
Almost Certain	5	Is expected to occur	96 – 100%	At least one event per year
Likely	4	It will probably occur	81 – 95 %	One event per year on average
Possible	3	May occur	21 – 80%	One event per 2 – 10 years
Unlikely	2	Not likely to occur	6 – 20%	One event per 11 – 50 years
Rare	1	Most unlikely to occur	0 – 5%	One event per 51 – 100 years

Risk Assessment - Qualitative Measures of Consequence

	Minimal	Minor	Moderate	Major	Catastrophic
Rating	1	2	3	4	5
Financial	Less than \$100,000	\$100,000 or more, but less than \$1m	\$1m or more, but less than \$10m	\$10m or more, but less than \$100m	\$100m or more
OH&S	Incident but no injury	Medical treatment only	Lost time injury	Death or Permanent Disability	Multiple Fatalities
Environment	Negligible damage that is contained on-site.	Minimal damage to the environment and small clean-up. Immediately contained on site.	Moderate damage to the environment and significant clean-up cost.	Significant environmental damage with wide spread impacts. Damage may be permanent.	Long term environmental harm. Permanent irreparable damage
Reputation / Customer Service	Localised customer complaints	Widespread customer complaints or Complaints to Ombudsman or Regulator	Intervention by the Ombudsman or Regulator	Repeated intervention by the Ombudsman or Regulator	Loss of Distribution Licence
	Adverse regional media coverage	Adverse State media coverage	Adverse media campaigns by customers, media, industry groups	Severe negative impact on both regulated and un-regulated businesses	Loss of Distribution Licence
Legislative and Regulatory	Minor breaches by employees resulting in customer complaints or publicity	Act or Code infringements resulting in minor fines	Severe Company or Officer fines for Act or Code Breaches	Prison sentences for Directors or Officers	Loss of Distribution Licence
	ACCC require apology and / or corrective advertising	ACCC require special offer be made to all customers / suppliers	ACCC minimum level penalties	ACCC moderate level penalties	ACCC maximum level penalties
	Directors / Officers given minimum fines	Directors / Officers given moderate fines	Directors / Officers given severe fines	Directors / Officers given prison sentences	Loss of Distribution Licence
Organisational	Absorbed without additional management activity	Absorbed with minimal management activity	Significant event which requires specific management	Critical event which can be endured with targeted input	Disaster which can cause collapse of the business
Reliability	2000 customers without supply for a min. of 12 hours (ie a medium size urban feeder)	10,000 customers without supply for a min. of 24 hours (ie a major storm related outage or a major substation outage)	Up to 40,000 customers without supply for a min. of 48 hours (ie major multiple zone substation coincident outages)	Over 40,000 customers without supply for longer than 48 hours (ie major geographical areas off supply)	Adelaide CBD without supply for longer than 24 hours

Risk Assessment - Level of Risk

	Rating	Minimal	Minor	Moderate	Major	Catastrophic
		1	2	3	4	5
Almost Certain	5	6	7	8	9	10
Likely	4	5	6	7	8	9
Possible	3	4	5	6	7	8
Unlikely	2	3	4	5	6	7
Rare	1	2	3	4	5	6

Risk Score	Risk Description
2	Negligible
3	Negligible
4	Low
5	Low
6	Medium
7	High
8	High
9	Extreme
10	Extreme

Appendix F: Acronyms and Abbreviations

Acronym / Abbreviation	Definition
ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
capex	capital expenditure
CRM	Customer Relationship Management
DSNP	Distribution Network Service Provider
Five Minute Settlement Rule	National Electricity Amendment (Five Minute Settlement) Rule 2017 No. 15
IEE	Itron Enterprise Edition
MDFF NEM22	New NEM metering data file format
MDP	Meter Data Providers
MTS	Market Transaction System
NEM	National Electricity Market
NER	National Electricity Rules
NPV	Net Present Value
RCP	Regulatory Control Period
SAP IS-U	SAP Industry Specific Solution - Utilities