Jemena Electricity Networks (Vic) Ltd

2016-20 Electricity Distribution Price Review Regulatory Proposal

Revocation and substitution submission

Attachment 7-18 Deloitte Access Economics - Power of Choice business case support

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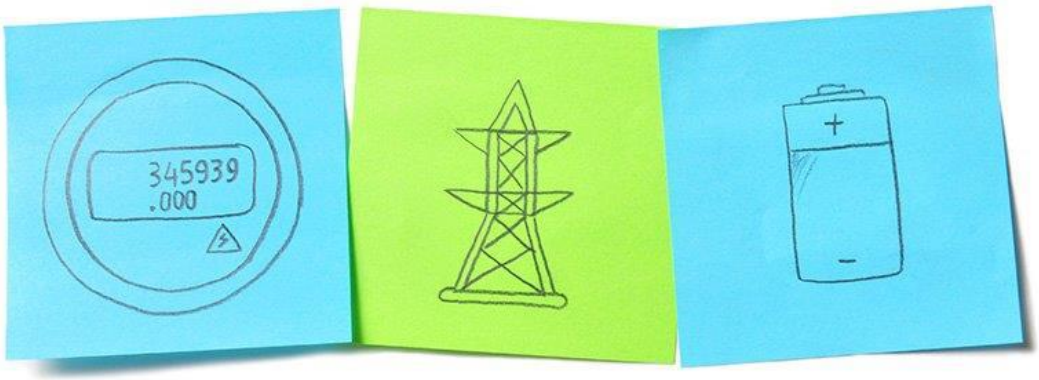
Jemena

Review of Power of Choice Business Case

December 2015



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Contents

1 Introduction

Substantial reforms to the National Electricity Market (NEM) are underway following recommendations to the state and federal governments by the AEMC's "Power of Choice review – giving consumers options in the way they use electricity" (AEMC 2012).[1] As the power of choice recommendations are implemented, Jemena Electricity Networks (Jemena) will incur costs to comply with the new regulatory obligations.

Jemena has engaged Deloitte Access Economics (DAE) to review its cost forecasts to ensure that they reflect the efficient costs that would be incurred by a prudent service provider in complying with the new regulatory obligations consistent with the power of choice recommendations. DAE has undertaken this cost review by seeking to satisfy itself on the following key questions:

- Do these new regulatory obligations require Jemena to make change to its business processes and systems? Has this been properly identified by Jemena?
- Has Jemena rigorously identified possible alternate options to achieve compliance with the changed regulatory obligations? What were the other options, and has Jemena chosen the best option?
- Are Jemena's cost estimates rigorously arrived at and reasonably reflect the efficient cost that would be incurred by a prudent operator?

In reviewing Jemena's business case, DAE found that Jemena has correctly identified the need to change its IT systems and considered alternative options to achieve compliance with the new rules. DAE examined the methodology and assumptions underlying Jemena's costs estimates for the preferred option. DAE considers that these cost estimates are underpinned by a robust examination of the IT systems that are impacted by the changes as a result of the power of choice (PoC) program.

We note that Jemena's phase 1 business case has now been internally approved. The phase 1 business case establishes the initial funding for phase 1 of the program ($1.38 M), with the charter to develop and deliver the PoC work streams. We consider that this is an appropriate level of internal approval at this stage of the project. This demonstrates an internal commitment to delivering these projects and we note that additional funding will be allocated as this project is undertaken.

Having reviewed Jemena's business case, DAE considers Jemena's proposed capital and operating expenditure reflects the efficient capital expenditure that Jemena needs to prudently incur to comply with its new regulatory obligations.

[1] http://www.aemc.gov.au/Markets-Reviews-Advice/Power-of-Choice-Stage-3-DSP-Review

2 Power of Choice programs

Jemena undertook a scoping assessment of the AEMC's PoC programs and concluded that the PoC program results in a number of new regulatory obligations. Jemena examined these new regulatory obligations to identify which of these resulted in a material additional cost burden on Jemena (See Table 1).

Jemena also identified that some new regulatory obligations either did not result in a material increase in costs, or there was still significant uncertainty about whether additional costs would be incurred (see Table 2). Jemena also identified that some costs would only be incurred if it decided to compete in the newly competitive metering market through a ring fenced entity - Jemena did not include any of these costs in its regulatory proposal.

Table 1 sets out the new regulatory obligations identified by Jemena and DAE's consideration of those changes.

Table 1 Power of choice – Projects in scope

Item No.	Jemena Finding – in scope	Jemena - Reasoning	DAE Comments
IS-1	PoC - Metering Competition (MC)	AEMC's final determination for Metering Competition was released on 26 Nov 2015 with a proposed 'Go live' in Dec 2017. Some metering businesses will move early as the present market rules do not preclude it.	DAE considers that with the making of the AEMC's final determination, that this constitutes a new or changed regulatory obligation. As such, we consider it appropriate that Jemena incurs the necessary efficient expenditure to meet this obligation.
IS-2	PoC - Customer Access to Data (CAD)	On 6 Nov 2014, the AEMC made new rules for consumers to easily obtain information about their electricity consumption from networks and retailers in an easy-to-understand, affordable and timely way. AEMO has published a new procedure for CAD which comes into force on March 2016.	DAE considers that with the making of the AEMC's final determination, that this constitutes a new or changed regulatory obligation. As such, we consider it appropriate that Jemena incurs the necessary efficient expenditure to meet this obligation.
IS-3	PoC - Shared Market Protocol (SMP)	The SMP final rule determination is anticipated in May 2016 with an AEMC recommended minimal implementation of new functions for December 2017.	DAE considers that whilst the final SMP determination has not been made, that the need to implement a process to meet the minimum service specification is triggered by the AEMC's determination Metering Contestability of 26 November 2015.
IS-4	PoC - Distribution Network Pricing (DNP)	The DNP rule change was complete in November 2014 and prescribed the pricing development in the submitted case for Jemena EDPR 2016-2020. The DNP project allows for the technical implementation of demand based tariffs	Jemena is awaiting AER approval of its proposed changes to its tariff structure as part of the 2016-2020 EDPR. In the event that the AER approves Jemena's proposed pricing approach, it should concurrently approve the efficient expenditure

Item No.	Jemena Finding – in scope	Jemena - Reasoning	DAE Comments
			required to implement this changed pricing approach.
IS-5	PoC - Program Governance	Program Management, Budgeting, Finance, Risk, Scheduling, Legal, Reporting, Contract Management, Consulting, Industry Engagement, Working groups, Business Engagement, Resource Backfill, Change Management, Continuous monitoring of program change variance to PoC scope.	DAE considers that the project governance costs are an integral part of implementing the power of choice programs. As such, they comprise part of the efficient costs that would be incurred by a prudent service provider in meeting its changed regulatory obligations.

Table 2 sets out the elements of the power of choice program that were identified as having no material impact on Jemena. DAE considers that Jemena was thorough in identifying regulatory changes that do not result in a material cost impact.

Table 2 Power of choice – Out of scope

Item No.	Jemena Finding - Out of Scope	Jemena - Reasoning
OS-1	PoC - Meter Replacement Process (MRP)	MRP has no identified impact to the regulated Jemena market systems environment and is excluded from this program. Note the rule change is now expected to be a minor clarification within the existing rules and processes. The PoC Governance framework will keep a watching brief in case the situation changes.
OS-2	PoC - Embedded Networks (EN)	EN assumptions have a moderate identified impact to the regulated Jemena market systems environment; Based on the present assumptions these changes could be completed by business as usual resources and is therefore presently excluded from this program. The PoC Governance framework will keep a watching brief in case the situation changes.
OS-3	PoC - Demand Response Mechanism (DRM)	DRM has no identified impact to the regulated Jemena market systems environment and is excluded from this program. The PoC Governance framework will keep a watching brief in case the situation changes.
OS-4	Cleansing NMI Standing Data / MSATS Effectiveness Review (CDER)	CDER is presently not well defined and the initial assumptions are not adequate to forecast the event. CDER remains out of scope of the program until it is defined and assessed to have an impact beyond business as usual administrative actions. The PoC Governance framework will keep a watching brief in case the situation changes.
OS-5	Emerging unregulated market opportunities are out of scope	The PoC shall be viewed from the perspective of a Jemena regulated asset for the purpose of costing. That is emerging unregulated opportunities are out of scope and would require their own business cases for a new and unregulated activity. An unregulated operating model would need to be consistent with the to be released ring fencing guidelines.
OS-6	Establishing an unregulated contestable metering business or capability is out of scope	If or when Jemena enters the contestable metering market it would be in isolation and ring fenced in accordance with the to be released ring fencing guidelines (i.e. separation from the Jemena regulated metering

Item No.	Jemena Finding - Out of Scope	Jemena - Reasoning
		business) and is therefore outside of scope.
OS-7	PoC - Multiple Trading relationships (MTR)	On 19 Nov 2015 the Australian Energy Market Commission (AEMC) published a draft rule determination to not make a draft rule in relation to the multiple trading relationships (MTR) rule change request.[2] It is therefore assumed (based on the assumption that the final decision will not reverse this positon) that MTR in its present form will not proceed and is excluded from scope.

2.1 Power of Choice Conclusion

Having examined these programs, DAE found that Jemena has undertaken a rigorous process that has correctly identified the power of choice programs that would result in increased costs in meeting its regulatory obligations.[3] Further, Jemena has been thorough in identifying those programs that would not result in a material impact on Jemena's efficient costs or where there is a low level of certainty and excluded these from the proposed expenditure.

As a result DAE is satisfied that:

1. Jemena's regulatory obligations have changed due to recent AEMC rule change decisions

2. Jemena has identified instances where these changes will impact on its IT systems and requires changes to be implemented.

Accordingly, DAE considers that Jemena will have to incur additional capex and opex to comply with its new regulatory obligations. In the remaining sections of this report, we closely examine the nature of the IT system and process changes required and examine Jemena's cost forecasts to ensure that they are prudent and efficient.

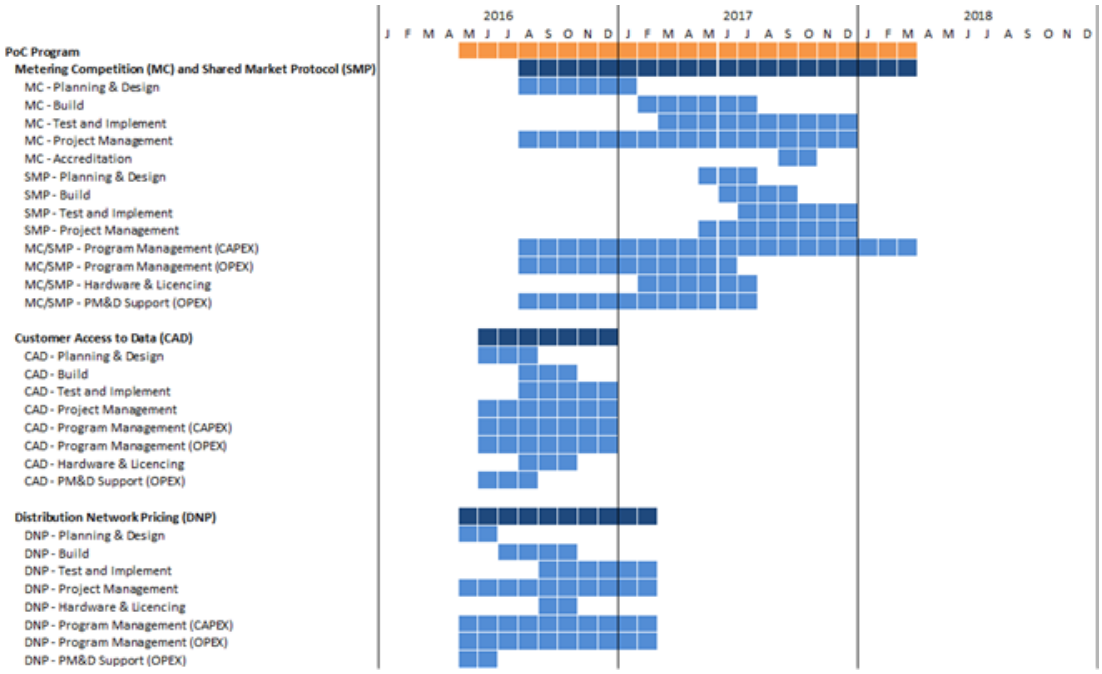
[2] http://www.aemc.gov.au/Rule-Changes/Multiple-Trading-Relationships

[3] In the case of the shared market protocol, we do not consider this can be separated from the metering contestability rule change.

3 Project management and program level assumptions

Jemena has produced a high level plan setting out the key timeframes for each element of the PoC program. This high level plan is based upon key assumptions underlying Jemena's proposed approach to delivering this project. Importantly, Jemena's resourcing estimates are based on the implementation timeframe set out in Figure 1 below.

Figure 1 Gantt Chart - PoC Program



Source: Jemena

DAE has reviewed Jemena's high level project plan and considers that the proposed timeframes are reasonable for delivering a program of this scope. Based on our experience with similar IT projects the timing and phasing of each milestone is consistent with our high level expectations for this project.

There are several important aspects of this timeframe. Jemena has combined the metering contestability and shared market protocol into one workstream with a single go-live date. This allows Jemena to achieve synergies in delivering these two related projects concurrently. Further, Jemena will be delivering major IT projects concurrently. We consider that in these circumstances a dedicated program management team is prudent to manage the delivery of all three projects.

4 Jemena's approach to estimating cost

Jemena has performed a high level assessment of the impact of the regulatory changes on Jemena's market (and related) systems. Jemena quantified which systems are impacted and the degree of the impact on the system was identified as being high medium or low. Based on this system impacts assessment, Jemena has assessed the likely effort required to implement the system changes. This is quantified in terms of the personnel required and the number of hours required by each position. DAE has reviewed the approach to formulating these estimates as well as the specific assumptions contained within these estimates.

We note that fully scoping the required changes to Jemena's IT systems is in itself a large and costly piece of work and Jemena has not yet produced documented requirements for the system changes. Indeed the production of this highly detailed documentation is a significant portion of the costs incurred in the design and planning stages of this project.

Jemena can only prepare its regulatory submission on the basis of the best information available at the time. Likewise, DAE's assessment of Jemena's proposal has focused on ensuring that Jemena's approach has been sound and that it reflects the best information available at this stage. Based on our assessment and experience with other similar IT projects, we consider that Jemena has undertaken a robust process and that its forecasts are reasonable given that it is in the early stages of this process.

4.1 Approach to cost forecasting

Jemena has structured its forecast project costs around five project categories that represent phases of an IT systems project (start up, planning and design, build, test and implement, and project management). Jemena has also included an allowance for licensing and hardware as well as applied an overall program management cost for the program of work. Each of these elements is set out below.

4.1.1 Program management costs

The key tasks in this program stream include the overall program management of the power of choice projects. This includes all reporting and contract management tasks needed to administer a project of this size. Jemena has proposed a dedicated program management team to oversee these projects. Jemena defined the key roles and key tasks that need to be undertaken by a program management team.

In formulating the cost forecast for the program management team, Jemena considered the number of projects that the team would need to deliver concurrently and the resources required to undertake the program management role. Jemena sized the resourcing requirements to match its assessment of the scope of this work.

DAE considers that a bottom-up approach to forecasting for the program management costs ensures the cost forecast is based on Jemena's assessment of the effort required to deliver these projects.

Table 3 Program Management – Key Personnel and Activities

Key Personnel	Key Tasks
• Business Analyst • Program Director • General Staff • Project Manager • Commercial Manager • Business Project Manager • Program Accountant • Audit Services • Legal Council (This table only identifies the necessary roles. The FTE estimate varies between roles as set out in the costing)	• Business Analysis • Program Management and Oversight • Industry Engagement (Backfill) • Reporting and Scheduling • Contract Management • Change Management (Communications internal / external) • Financial Management • Independent Auditing • Legal Council

Source: Jemena

4.1.2 Design and planning

The design and planning phase involves detailed scoping of the changes and specification of required solution. This phase will result in clear deliverables resulting from the build phase.

Jemena defined the key roles that need to be undertaken in the design and planning stages, as well as identified the key tasks that need to be undertaken in these stages. In formulating a cost forecast for each project, Jemena considered the systems that were impacted and the complexity of each system. Jemena sized the resourcing requirements to match these key criteria.

Jemena has based its forecasts on detailed knowledge of its systems and system complexity and accordingly, DAE considers that Jemena has applied a robust methodology for forecasting the costs involved in the design and planning phases. A bottom-up approach to forecasting these costs is appropriate in these circumstances as it ensures the cost forecast is based on Jemena's assessment of the effort required to deliver these projects.

Table 4 Design and Planning – Key Personnel and activities

Key Personnel	Key Tasks
• Business Analyst - Senior • Solution Designer • General Staff • Testing & Performance Manager (This table only identifies the necessary roles. The FTE estimate varies between roles as set out in the costing)	• Identify the BA Approach & BA Deliverables • Conduct Stakeholder Analysis • Prepare for Elicitation • Conduct Elicitation Activities • Document Elicitation Results • Confirm Elicitation Results • Organise Requirements • Prioritise Requirements

Key Personnel	Key Tasks
	• Specify and Model Requirements • Undertake gap analysis • Determine Assumptions and Constraints • Verify Requirements • Assess Organisational Readiness • Define Transition Requirements • Produce Functional Requirements • Produce Non-functional Requirements • Validate Requirements • User Interface & Report Design / Mockups

Source: Jemena

4.1.3 Build

This phase involves the primary coding of required changes. In this phase the programmers will implement all necessary changes or additional functionality.

Jemena defined the key roles that need to be undertaken in the build stage, Jemena has also identified the key tasks that need to be undertaken in this stage. In formulating a cost forecast for each project, Jemena considered the systems that were impacted and the complexity of each system. Jemena sized the resourcing requirements to match these key criteria.

Jemena has based its forecasts on detailed knowledge of its systems and system complexity and accordingly, DAE considers that Jemena has applied a robust methodology for forecasting the costs involved in the build phase. A bottom-up approach to forecasting these costs is appropriate in these circumstances as it ensures the cost forecast is based on Jemena's assessment of the effort required to deliver these projects.

Table 5 Build – Key Personnel and Activities

Key Personnel	Key Tasks
• Analyst Programmer - Senior • BAU Resource Backfill (This table only identifies the necessary roles. The FTE estimate varies between roles as set out in the costing)	• Implementation of functional requirements (defined in planning and design stage)

Source: Jemena

4.1.4 Test and Implement

Testing is a multi stage process, beginning with discrete testing of inputs and out puts (unit testing) and moving on to performance tests and finally end-to-end system tests. At each stage issues need to be rectified. Much of the testing is automated, to allow each test to be run each time a code change is committed. Building the test code automation is in itself a significant piece of work.

Implementation involves deploying the system into Jemena's production environment. It also involves the necessary documentation and training to ensure that Jemena's staff can operate the new system.

Jemena defined the key roles that need to be undertaken in the test and implement stages, Jemena has also identified the key tasks that need to be undertaken in this stage. In formulating a cost forecast for each project, Jemena considered the systems that were impacted and the complexity of each system. Jemena sized the resourcing requirements to match these key criteria.

Jemena has based its forecasts on detailed knowledge of its systems and system complexity and accordingly, DAE considers that Jemena has applied a robust methodology for forecasting the costs involved in the test and implement phases. A bottom-up approach to forecasting these costs is appropriate in these circumstances as it ensures the cost forecast is based on Jemena's assessment of the effort required to deliver these projects.

Table 6 Test – Key Personnel and activities

Key Personnel	Key Tasks
• Business Analyst - Senior • Test Automation Engineer • Tester General • Analyst Programmer - Senior • General Staff • Test Manager • Testing & Performance Manager (This table only identifies the necessary roles. The FTE estimate varies between roles as set out in the costing)	• Execute unit tests & document results • Unit test remediation • Develop system tests • Execute system tests & document results • System test remediation • Develop performance tests • Execute performance tests & document results • User acceptance test remediation • Develop production verification tests • Execute production verification tests & document results • Develop DR tests • Execute DR tests & document results • Document Test Summary Report • Testing oversight

Source: Jemena

Table 7 Implement – Key Personnel and activities

Key Personnel	Key Tasks
• Project Manager - Senior • General Staff • DBA • Wintel Engineer • Analyst Programmer – Senior (This table only identifies the necessary roles. The FTE estimate varies between roles as set out in the costing)	• Transition to production and project close • BAU Resource Backfill (Business process redesign and documentation / user guides / training) • Implementation activities / trial runs • Implementation activities / trial runs • Post go live support

Source: Jemena

4.1.5 Licencing and Hardware

Jemena's forecast licensing and hardware costs represent a cost of establishing transitory or permanent infrastructure environments for development, test and release. As is standard and prudent practice, Jemena will not be coding directly into its live IT environment. As such, during the build, test and implement phases the number of IT environments will increase and then after implementation generally reduce back down to current levels. We understand that some of the hardware platform is existing, but may need to add resources into the hardware stack like CPUs, Memory & SAN Disk. This may be physically adding devices or logically turning them on with licencing. Some of this is going to be short run, others will be long run as Jemena builds and transitions into new permanent environments. The licensing and hardware allowance covers the infrastructure needs including, services, licences, network, firewalls, appliances.

Jemena has based its forecast on the relativity to other projects of similar scale. DAE considers that this is a high level, but reasonable, approach to forecasting these costs. Based on DAE's experience with other IT projects, we consider this allowance for licensing and hardware reasonably reflects the capex that Jemena will need to incur.

Finally, Jemena has allocated these licensing and hardware costs to each project based on the relative cost of the project. This allocation approach is broadly reflective of the number of systems effected and length of time required to implement the changes and do DAE considers this is a reasonable approach to the allocating these licensing and hardware costs.

4.1.6 Labour Rates

DAE has reviewed the labour rates proposed for the various personnel required to implement these projects.

Resource costs are based largely on external contractor daily rates. It is understood that Jemena will use a subcontracted workforce to deliver this project. That is, they will be directly employed by Jemena on a short term basis. Whilst this is not as cheap as using permanent employees, it gives Jemena greater scope to increase/decrease its labour requirements as required. This approach is often cheaper over the longer term as it is not necessary to retain the peak workforce, where lack of work would make these resources unproductive. This approach is generally cheaper than a fully outsourced model, where higher labour rates are common and Jemena loses control of project delivers.

DAE has examined the proposed labour rates and based on its experience with other IT projects DAE considers they are consistent with general market expectations for these types of resources operating in the manner proposed by Jemena.

4.1.7 Opex

Jemena's business case includes a small amount of additional opex. This comprises of start-up costs for the project including the development of the mandate and business case. This also includes some external legal resources and independent auditing services. DAE is satisfied that these costs are reasonable and would be incurred in establishing this project.

We note that the AER generally applies the base step and trend approach to opex forecasting. Whilst we are satisfied that Jemena will incur this opex in undertaking these projects, we have not examined whether the AER's forecasting approach sufficiently accounts for these costs already.

4.2 Cost estimate conclusion

DAE considers that Jemena has undertaken a robust high level approach to cost forecasting. By producing bottom-up forecasts based on the number and complexity of the IT systems, Jemena has taken into account the anticipated effort required to deliver these projects. Jemena has also examined the costs of other benchmark projects to show the relative cost of this project compared to other similar IT projects.

In each of the sections below, DAE examines the specific assumptions that were used to derive the cost forecasts for each project.

5 Metering Contestability

The AEMC released its final determination and rule on expanding competition in metering and related services on 26 November 2015. The final rule introduces metering contestability into Victoria from 1 December 2017. Noting that the circumstances in Victoria differ from the other jurisdictions the final rules allow that:[4]

- At the commencement of the new Chapter 7 of the NER under the final rule (if made), the Victorian DNSPs will become the initial Metering Coordinator for the advanced meters they deployed under the AMI program and will continue in this role until another Metering Coordinator is appointed to the site by the retailer or a large customer, or those services cease to be classified by the AER as direct control services

- The current Victorian derogation will be extended so that it ends on the date the new Chapter 7 of the NER commences. After that date, the Victorian DNSPs will no longer be exclusively responsible for metering services for AMI meters

- If a new Metering Coordinator is appointed to replace the DNSP, an exit fee may be payable. Until 31 December 2020, the exit fee payable will be determined by the AER in accordance with the AMI Cost Recovery Order. After 2020, the AER will determine the level of any exit fee in accordance with the regulatory framework in Chapter 6 of the NER that applies to other jurisdictions

- As noted above, Victorian DNSPs will be able to retain and continue to use the meters they deployed under the AMI program as network devices, if they choose to do so as a result of being unable to reach an agreement with a new Metering Coordinator to access equivalent services through the new meter

- The national minimum services specification will take effect in Victoria when the new Chapter 7 of the NER commences.

Jemena will become the initial metering coordinator for its existing advanced meters under the new contestable metering framework. As articulated below, this will impose costs on Jemena as it necessitates that Jemena alter its internal systems and processes to comply with this new framework. Further, Jemena has to expand its systems to allow for a greater influx of contestable meters, which will be of different types and operated by third parties.

We note that in its draft decision, the AER expressed concerns that Jemena is seeking to recover from their monopoly customers the cost of upgrading IT systems required to compete with third party metering providers. We specifically examined this issue and consider that the identified costs are unavoidable for the regulated part of Jemena's business and that these costs are not related to establishing, or running a competitive

[4] FINAL RULE DETERMINATION National Electricity Amendment (Expanding competition in metering and related services) Rule 2015

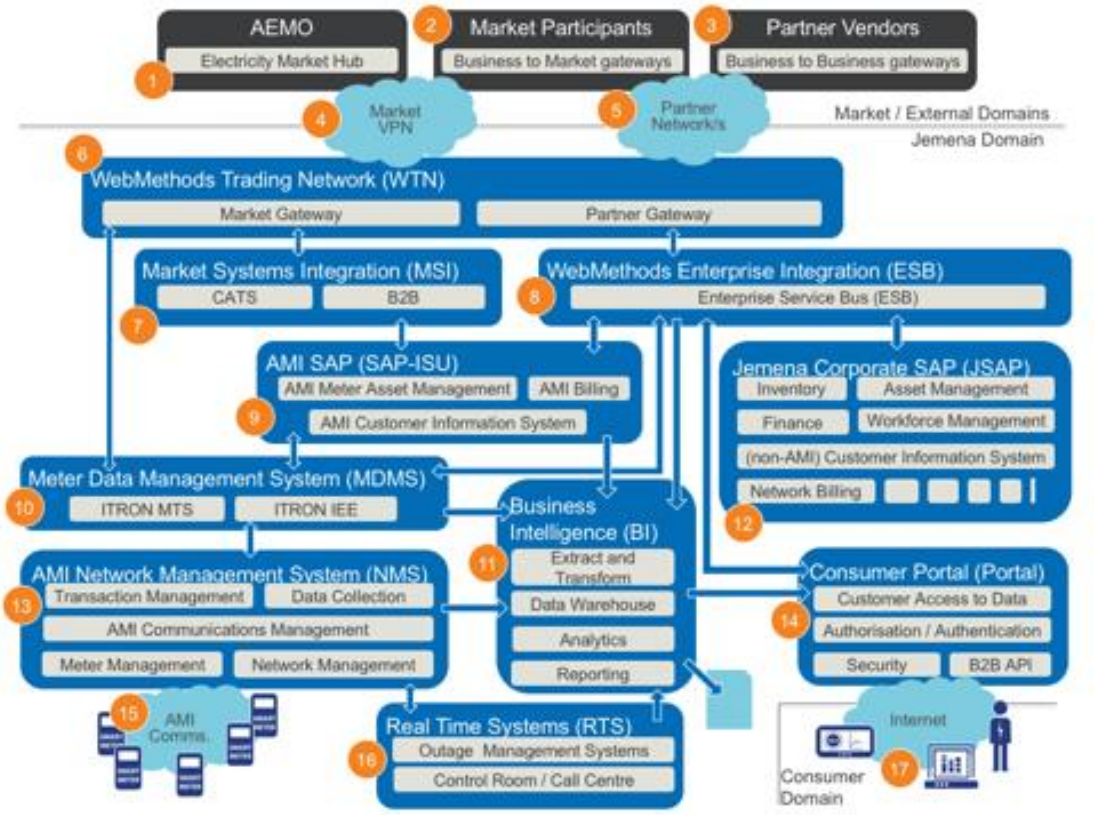
metering business. Should Jemena decide to set up a ring-fenced competitive metering business they would incur additional costs unrelated to this proposed expenditure.

As the proposed expenditure is necessary for Jemena to operate its regulated business within the changed regulatory environment, we consider that Jemena should be allowed to recover its efficient costs of complying with its new regulatory obligations.

5.1 Requirement for expenditure to introduce metering contestability

DAE has examined Jemena's high level business architecture and notes that is contains numerous interconnected systems. Each system may send and receive data to or from multiple sources and these systems are dependent on complex business logic to ensure the automated processing of business functions. This complexity is appropriate and unavoidable for a network business like Jemena. However, it means that the reconfiguration of Jemena's IT systems and processes is complicated by various interdependencies. Figure 2 shows simplified logical system architecture for Jemena's market systems.

Figure 2 Jemena - Market Systems Logical Architecture



Source: Jemena

Jemena has identified that the following systems will be impacted by the introduction of metering contestability:

- Market Integration System (system number 7)
- AMI SAP (system number 9)
- Meter Data Management System (system number 10)
- Business Intelligence (system number 11)
- JSAP (system number 12)
- Customer Portal (system number 14).

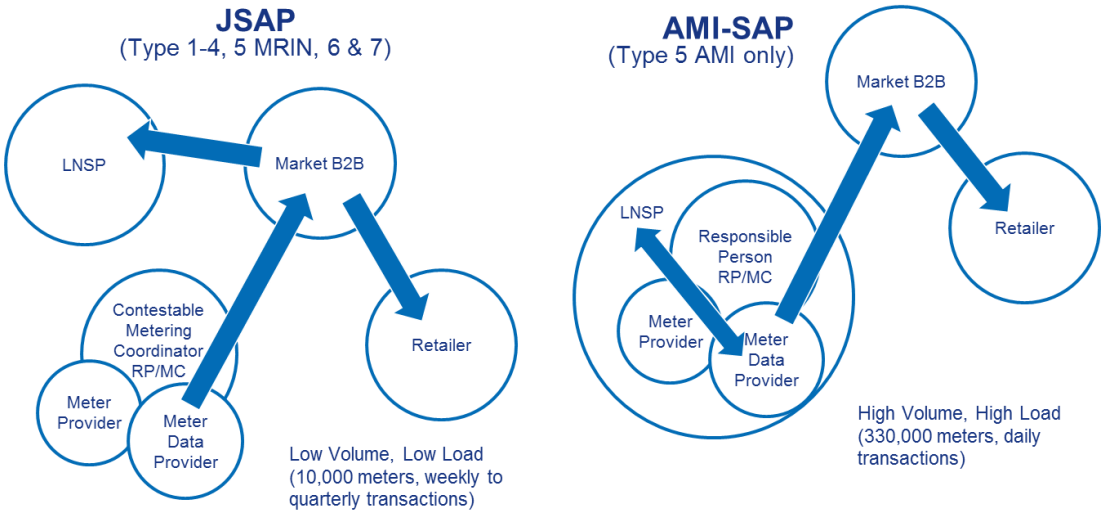
The anticipated impact on each of these systems has been outlined below.

5.1.1 AMI-SAP and JSAP

Jemena currently operates two SAP systems, which are referred to as JSAP and AMI-SAP. Both of these SAP systems deal with a subset of Jemena's metering population and will need to be reconfigured to meet the new rule requirements. JSAP contains Jemena's existing contestable and other non AMI meters (meter types 1, 2, 3, 4, 6 and 7) and AMI-SAP which contains all of Jemena's AMI meters which are currently classified as type 5 meters.[5] The two SAP systems are configured to deal with different process flows as shown in Figure 3 below. These arise due to the differences in the requirements for dealing with data from third part providers (JSAP) or from within Jemena's systems (AMI-SAP).

[5] Functionally they are very similar to type 4 meters and will be re-classified as type 4 meters following the expiration of the Victorian derogation. However, as explained below these will be retained in AMI-SAP because they will continue to be operated by Jemena.

Figure 3 – Jemena - SAP process flow



Source: Jemena

JSAP

JSAP is Jemena's corporate SAP system and also processes the business logic for Jemena's type 1-4, 6 and 7 meters. Meter types 1-4 are already contestable and are operated by third party meter providers.[6] As such, JSAP is set up with a similar workflow to that required by the new approach to metering contestability. That is:

- Meter data is collected by third part meter data operators
- Jemena and retailers will receive this data through standardised B2B systems.

As discussed below, it is anticipated that it will be more efficient to move new contestable meters onto JSAP (due to the similarities in process flow) than to reconfigure AMI-SAP to meet this requirement.

However, despite these similarities in process flow, DAE accepts that some changes to JSAP will be required to achieve compliance with the new metering contestability rules. This is largely driven by the introduction of the new minimum service specification, and integrating the new minimum service specification into JSAP will require some reconfiguration. Table 8 below shows a high level summary of the different functionality and features of the existing meters in JSAP and the new meters. As can be seen in the table, there is not a one for one parity between the feature sets, and as such, some changes to the JSAP system will be necessary to incorporate the new meters.

[6] There are only a small number of type 6 and 7 meters in Jemena's network.

Table 8 Metering Competition – Meter Features

Meter Type Group	Functionality (not exhaustive)	Example distinguishing features
Type 4 Old	• Accuracy +/- 1.5% • 30 min interval • import & export • remote reading.	• Baseline functionality of legacy type 4 meter ahead of the commencement of competition. • Remote reading is as per next scheduled read date, typically weekly or monthly. Meter Data flow direction from MC to Market to Local Network Service Provider (LNSP).
Type 4 New	• Accuracy +/- 1.5% • 30 min interval • import & export • remote reading • remote disconnect • meter ping	• Minimum service specification increases remote and advanced functional requirements over and above of Type 4 Old to include remote and advanced • Remote connect & disconnect. • Remote meter ping (real time) • Retailer can initiate a remote disconnect and notify the LNSP. MC must provide meter enquiry (ping) capability in near real time Meter Data flow direction from MC to Market to LNSP and bidirectional B2B transactional data flows
Type 5 AMI (reclassified as type 4 when the Victorian derogation ends)	• Accuracy +/- 1.5% • 30 min interval • import & export • remote reading • remote disconnect • meter ping • outage detection • auto disconnect • load control • HAN services	– Minimum service specification is highly prescriptive of functional and service level requirements over and above of Type 4 Old and Type 4 New – Remote connect & disconnect with auto disconnect. – Last gasp outage detection (real time) – Remote meter ping (real time) – Load control supply capacity control, emergency supply capacity control – ZigBee HAN binding and messaging services – LNSP actions remote disconnects and notifies the market. Meter Data flow direction from LNSP to market, advanced transactions internal application to application and bidirectional to market, customer and 3rd parties.

Source: Jemena

In summary, the key changes are that the new type 4 meters include additional functionality compared to the old type 4 meters, including remote connect/disconnect and meter ping.

AMI-SAP

Jemena's second SAP system is referred to as AMI-SAP. AMI-SAP contains all of Jemena's AMI meters (approximately 98% of all meters). As shown in Figure 3, the workflow and business logic in AMI-SAP is different from that required under metering contestability, particularly in the direction that data flows. AMI-SAP is built around the LNSP (Jemena) being the originator of metering data and providing that data to external third parties. This underlying design was appropriate for AMI-SAP as it was implemented to deal with the roll-out of AMI meters. However, AMI-SAP does not appropriately deal with the introduction of metering contestability in the way the rule change has been drafted. As such, reconfiguration of AMI-SAP to handle metering contestability would be a significant system redesign. As discussed in the options analysis below Jemena has decided that re-configuring AMI-SAP to handle contestable meters is not the preferred option.

However, AMI-SAP still requires some reconfiguration to handle the existing AMI meters under the new framework. This is driven by the reclassification of the AMI meters from type 5 under the Victorian Derogation to type 4 under the NER.

Under the NER, the type 4 and type 5 validation, substitution and estimate rules are not consistent. We note that functionally, Jemena's AMI meters can operate as type 4 meters and the change in classification changes the manner in which Jemena must operate these meters. Adopting the type 4 validation, substitution and estimate rules for Jemena's AMI meter population will result in a substantial change and will require reconfiguring AMI-SAP

SAP Reconfiguration

DAE is satisfied that these two SAP systems will need to be reconfigured to facilitate metering contestability. This need for reconfiguration is driven by changes in the treatment of meters and metering data under the new framework and has flow-on impacts to connected IT systems. The different options for reconfiguring the SAP systems are discussed further below (in Section 5.2).

5.1.2 Meter Data Management System

The meter data management system (MDMS) receives data from the AMI meters, processes it and provides it to a variety of other systems. As noted above, the introduction of metering contestability will require that all existing type 5 meters are reclassified as type 4 meters. Different data validation rules and market procedures are required for different meter types and hence the MDMS will need to be reconfigured to comply with the new requirements.

5.1.3 Market Integration System

The Market Integration System (MSI) provides an integration function between the market gateway and market systems with straight through and near real time processing capability. Market transactions and B2B requests are initially processed by MSI through predefined automated process workflows.

Market systems logic is impacted by the market changes with new procedures, reversing data flows, and changing source systems for the bulk of the Jemena meter population.

Rather than Jemena being the originator for most meter data, there will be a change in approach, where third part meter data providers become the originating source with a growing population of JEN's meter data. Because MSI sits in the middle of these processes, it needs to be re-configured to accommodate any changes.

DAE is satisfied that changes to this system will be required to implement the change in data flows under metering contestability.

5.1.4 Business Intelligence

The Business Intelligence solution is a 'big data' analytics platform for management of customers, market and metering systems. The Business Intelligence system is central to verification of revenue and network billing and is used to reconcile the outbound billing being prepared by the MDMS and SAP-ISU. Most of Jemena's market systems have exported data transformed and stored in a central data warehouse – this is processed through the Business Intelligence system. As such, the Business Intelligence solution is necessary for Jemena in meeting its obligations in a timely and accurate manner.

The output of this system will remain largely unchanged. However, the source systems for data will change and this will require re-configuration of the business intelligence system to incorporate and changes in the source data.

DAE is satisfied that changing the source data will require system changes to implement the change in data flows required by the metering contestability framework.

5.1.5 Customer Portal

The Customer Portal is a web base graphical user interface portal for customer access to data and analytics. The portal is integrated into the market systems environment and provides a self-service interactive consumer interface to energy data. We note that there is some expenditure on the customer portal in the metering contestability project as well as a separate CAD project which is largely focused on the CAD system. This is not a double counting of expense or a duplication of effort. We note that the timing of the two projects' go live is some 12 months apart. This expenditure on the customer portal reflect aligning the customer portal with changes caused by the metering contestability project. It is not possible to make these changes prior to the metering contestability changes being made and it is not feasible to hold the CAD project up until this work is completed.

5.2 Options Analysis

Jemena examined four options for implementing the changes to its IT systems which are required to comply with the new rules framework. Jemena has a strategic choice to make in the manner in which it reconfigures it SAP systems and as such the options analysis focuses on the implications of its approach to the SAP systems. Regardless of the manner in which the SAP systems are reconfigured, there will be a number of consequential changes to connected systems to ensure continued interoperability.

Jemena considers that option 3, which maintains two SAP systems (with new meters handled within the JSAP system) is the best option available. DAE has reviewed the options examined by Jemena and agrees that option 3 is the most prudent and efficient option.

Table 9 Metering Competition - Summary of options analysis

Option		Compliance	Cost	Risk to critical business functions	Other Considerations
1.	Do Nothing	No	None	High – Unable to comply with the new rules	
2.	Reconfigure Existing Systems and consolidate Jemena metering to one instance of SAP	Yes	$23.3 million	High – Consolidating all processes onto a single system raises unacceptable business risks at this time.	
3.	Reconfigure Existing System (new type 4 in JSAP)	Yes	$14.6 million	Low – This requires less extensive changes and continues to operate relatively unchanged	Provides a possible path to consolidate onto a single SAP system in the future.
4.	Reconfigure Existing Systems (new type 4 in AMI-SAP)	Yes	Not costed (DAE expect that it would be similar to option 3)	Low – Similar to option 3.	Does not provide a path for future consolidation

5.2.1 Option 1 - Do Nothing

Jemena considered this option and does not consider it an appropriate solution. In reaching that conclusion Jemena stated that:[7]

> *Jemena has an obligation to comply with the rule changes and the systems will not accommodate the future regulatory, technical and operational Environment. Declining to adopt market change would result in major non-conformance and the inability to collect revenue for new tariffs*

DAE agrees that doing nothing is not an option that Jemena can pursue, as it will result in Jemena not complying with its new regulatory obligations. We note that these changes relate to how Jemena's regulated business must handle its existing meters and the connection of new contestable meters to its network. These changes do not relate to Jemena competing in the competitive market.

[7] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

Table 8 above, sets out differences in the treatment of meters under the metering contestability changes. As a result of these changes Jemena needs to reconfigure its systems otherwise:

- Jemena would not comply with the validation procedures relating to the reclassified AMI type 5 meters to type 4 meters within the AMI-SAP system
- Jemena would not be able to comply with the requirements of new type 4 meters within the JSAP system.

DAE does not consider that non-compliance is a prudent and efficient approach to dealing with the changed rules.

5.2.2 Option 2 - Reconfigure Existing Systems and consolidate Jemena metering to one instance of SAP

This option involves consolidating Jemena onto a single corporate SAP platform that handles all of Jemena's meter data as well as billing and customer requirements. Jemena examined this option and does not consider it to be the most prudent and efficient option. In reaching that conclusion, Jemena stated that:[8]

> *However technical performance limitations make such a consolidation unviable in the time frame of the metering contestability rule change. AMI-SAP is a stand alone instance of SAP with the high volumes of daily workflows, introducing this intensity of processing into JSAP would require a threefold scaling of the JSAP environment and result in no material infrastructure or licence savings.*
>
> *Metering Competition Consolidation is not recommended due to the technical risk, highest cost option and lack of identified ongoing operational savings.*

DAE notes that consolidating into a single enterprise SAP does not appear to have material cost savings. Whilst it might reduce the number of SAP systems, the overall hardware and licencing requirements remain unchanged. We understand that Jemena is currently running 3 instances of SAP across its 2 SAP platforms and to maintain sufficient performance across a single SAP platform, Jemena would have similar hardware requirements and would still need to run 3 SAP instances. As such, there is no material hardware or licensing changes from consolidation onto a single SAP system.

Jemena is currently replacing CIS+ (its billing platform within JSAP) with Industry Solution for Utilities (ISU), which is a utilities specific module for SAP. This is a major program of work, which is part of Jemena's normal system lifecycle management, will be completed in May 2016. Any consolidation of SAP environments would not be possible until this project has been completed. As such, there is material risk that consolidation into a single platform can be achieved in the required timeframes.

[8] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

5.2.3 Option 3 – Reconfigure Existing System (new type 4 in JSAP)

This approach involves undertaking the minimum reconfiguration necessary to achieve compliance. It will retain the two existing SAP systems and new contestable type 4 meters will be handled through JSAP. This is Jemena's recommended approach and in selecting this approach, Jemena stated:[9]

> *Incumbent market systems are fit for purpose and scalable to accommodate the future market state, reconfiguring existing systems to accommodate new meter classifications, reclassifications of existing AMI meters and re-accreditation is the lowest total cost option for compliance to the Metering Competition rule change.*

New contestable meters will be incorporated into the JSAP system. This is prudent because JSAP contains the existing contestable meters and so functionally JSAP is configured to handle this data flow. JSAP however is not currently built to deal with the level of data generated by AMI meters. In the short term, this will not pose a problem, due to the small amount of additional meters being handled by third part metering coordinators. Longer term, scaling up of JSAP will be required.

As described above, there are differences between the existing meter services and the new contestable meter services and that this requires some re-configuration of JSAP to handle the new meter services. Whilst this approach minimises the changes required, Jemena cannot avoid the need to reconfigure its SAP systems. There will be changes required to AMI-SAP to achieve compliance with the new rules, particularly relating to the treatment of AMI meters re-classified as type 4 meters. However, we note that retaining only AMI meters in AMI-SAP will result in the AMI-SAP system becoming redundant over time as all meters are replaced and handled by competitive third parties. An end of life solution for AMI-SAP will need to be devised in a later regulatory period.

DAE agrees that this is the most appropriate approach to reconfiguring Jemena's system. DAE considers it minimises the scope of changes required to each SAP system whilst achieving compliance with the new rules. Further, it provides a path to consolidation onto a single SAP system in the future.

5.2.4 Option 4 – Reconfigure Existing Systems (new type 4 in AMI-SAP)

This approach involves undertaking the minimum reconfiguration necessary to achieve compliance. It will retain the two existing SAP systems and new contestable type 4 meters will be handled through AMI-SAP. Jemena examined this option and does not consider it appropriate. In reaching that conclusion, Jemena stated that:[10]

> *Technical complexity and level of effort was assessed to be comparable although AMI-SAP implementation has lesser long term continuity prospects compared to JSAP.*

[9] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

[10] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

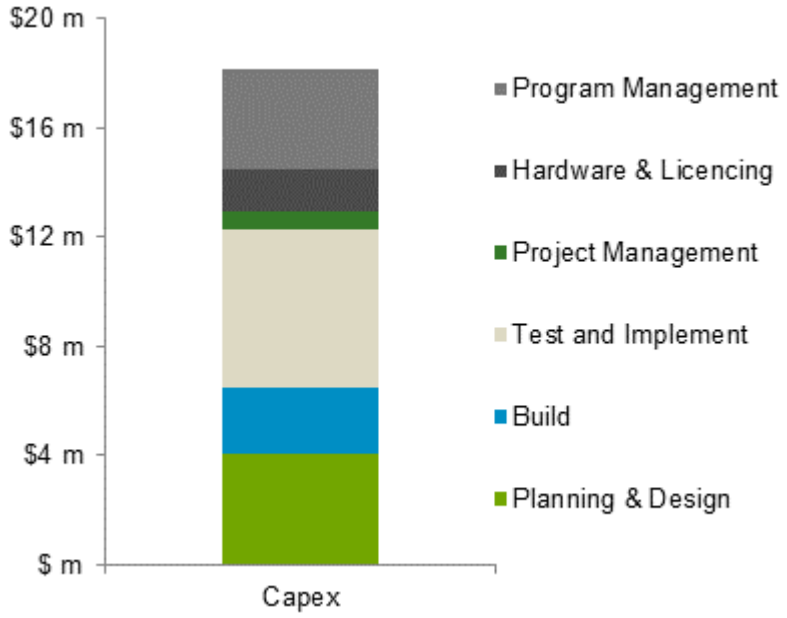
We agree that the complexity and level of effort would be broadly similar to option 3 and that both achieve compliance with the rules. However, we note that Jemena's preferred solution (option 3) results in a long term transition to a single SAP system as the number of meters in AMI-SAP will trend to 0 over time. Option 4 does not have a clear path for converging to a preferred solution and may require Jemena to maintain two solutions indefinitely (or would require a large integration project at a later date to consolidate the SAP systems). DAE agrees with Jemena that this should not be the preferred solution.

5.3 Costing

Jemena has selected option 3 as the best option available and DAE agrees with this assessment. Option 3 involves maintaining two separate SAP systems (JSAP and AMI-SAP) and reconfiguring them as necessary to accommodate the changes for metering contestability. Jemena proposes $18.1 million in capex to implement metering contestability. Jemena's overall approach to costing is discussed in detail in section 4 and DAE considers that Jemena's overall approach to costing is prudent. DAE also examined the specific assumptions underlying the cost forecast for the metering contestability project.

DAE considers that Jemena's resource assumptions for each phase of this project are reflective of the effort required to undertake this project.

Figure 4 Metering Contestability – Cost Stack ($ million, nominal)



Source: Jemena

5.3.1 Planning and design

Jemena has based its personnel forecasts on the number of systems that have been impacted (8 systems in total) and the effort required to develop a detailed solution for each system. DAE considers that three experts per system is a reasonable level of resourcing to designing the detailed solution for each IT system.

This phase also includes resourcing for the development of the test strategy. Further there is an allowance for support from internal resources to assist in identifying process issues and ensuring the final solution will be fit for purpose. This based on allocating 1 FTE per system. Based on our experience with other IT projects, DAE considers this level of resourcing is reasonable.

Table 10 Metering Contestability – Resource Summary

MC Phase	Activity	Resource	Qty	Term (months)
Analyse & Design	Business requirements / process and analysis	Business Analyst - Senior	8.0	4.00
Analyse & Design	User Interface & report design / mock-up's	Business Analyst - Senior	8.0	4.00
Analyse & Design	Detailed solution design	Solution Designer	8.0	4.00
Analyse & Design	BAU Resource Backfill	General Staff	8.0	6.00
Analyse & Design	Produce test strategy	Testing & Performance Manager	2.0	4.00

Source: Jemena

5.3.2 Build

Jemena has forecast the number of programming resources required to code the solution for each system. The number of resources is based on an assessment of the complexity of the system and impact of the changes on the operation of that system. Jemena has forecast that more complex systems will require two programmers to implement the changed functionality (we note there are two SAP platforms requiring 4 programmers in total).

This phase also includes an allowance for support from internal resources to assist the programmers in ensuring the solution meets the needs of the business. This is based on allocating 1 FTE per system. Based on our experience with other IT projects, DAE considers this level of resourcing is reasonable.

Table 11 Metering Contestability – Resource Summary

MC Phase	Activity	Resource	Qty	Term (months)
Build	SAP	Developer	4.0	6.0
Build	Meter Data Management System (MDMS)	Developer	2.0	6.0
Build	WebMethods Enterprise Integration (ESB)	Analyst Programmer - Senior	2.0	6.0
Build	Market Systems Integration (MSI)	Analyst Programmer - Senior	1.0	6.0

MC Phase	Activity	Resource	Qty	Term (months)
Build	New Connections	Analyst Programmer - Senior	1.0	6.0
Build	Business Intelligence (BI)	Analyst Programmer - Senior	2.0	6.0
Build	Consumer Portal (Portal)	Analyst Programmer - Senior	1.0	6.0
Build	BAU Resource Backfill	General Staff	8.0	2.0

Source: Jemena

5.3.3 Test

Jemena has forecast the number of programming resources required to perform testing and remediate the code as a result of the testing. Jemena also forecast the number of resources required to build and implement the test cases. The forecast resources are based on the number of systems that need to be tested and expected intensity of the work. As this is a large team, Jemena has forecast the need for additional oversight in the form of test managers.

This phase also include user acceptance testing and so requires a significant input from Jemena's internal resources. These resources will ensure that the solution works within Jemena's business systems.

Based on our experience with other IT projects, DAE considers the level of resourcing forecast for testing the solution is reasonable. This is a critical element of an IT project and fixing defects in code, quality assurance and scenario testing are a significant and time consuming parts of the development process.

Table 12 Metering Contestability – Resource Summary

MC Phase	Activity	Resource	Qty	Term (months)
Test	Produce test plans, scenarios and cases	Business Analyst - Senior	8.0	3.00
Test	Develop unit test automation	Test Automation Engineer	4.0	4.00
Test	Execute tests & document results	Tester General	16.0	5.00
Test	Test remediation	Analyst Programmer - Senior	12.0	3.00
Test	BAU Resource Backfill (UAT)	General Staff	8.0	2.00
Test	Document Test Summary Report	Test Manager	2.0	9.00
Test	Testing oversight	Testing & Performance	1.0	9.00

MC Phase	Activity	Resource	Qty	Term (months)
		Manager		

Source: Jemena

5.3.4 Implement

Jemena forecast the resources required to implement the revised solution. This includes 'go-live' related activities such as trial runs on production hardware.

The other key component of this element is the redesigning of business processes, documentation (user guides) and training. The number of resources is based on the number of systems that need to be tested and expected intensity of the work in preparing these revised processes.

Based on our experience with other IT projects, DAE considers the level of resourcing forecast for the implementation phase is reasonable.

Table 13 Metering Contestability – Resource Summary

MC Phase	Activity	Resource	Qty	Term (months)
Implement	Transition to production and project close	Project Manager - Senior	1.0	1.00
Implement	BAU Resource Backfill (Business process redesign and documentation / user guides / training)	General Staff	8.0	3.00
Implement	Implementation activities / trial runs	Database analyst (DBA)	2.0	1.00
Implement	Implementation activities / trial runs	Wintel Engineer	3.0	1.00
Implement	Post go live support	Analyst Programmer - Senior	4.0	1.00

Source: Jemena

5.3.5 Project Management

Project management includes the resources required to oversee the delivery of the metering contestability project. These rolls will involve the day to day management of all aspects of the project delivery.

Based on our experience with other IT projects, DAE considers the level of resourcing forecast for project management is reasonable.

Table 14 Metering Contestability – Resource Summary

MC Phase	Activity	Resource	Qty	Term (months)
Project Management	Metering Competition (MC)	Project Manager - Senior	1.0	13.0
Project Management	Team Leads BA - Planning & Design	Project Manager	2.0	4.0

Source: Jemena

5.3.6 Opex

Jemena's business case includes a small amount of additional opex. This comprises of start-up costs for the project including the development of the mandate and business case. This also includes some external legal resources and independent auditing services.

Jemena also forecasts costs for being accredited as a type 4 meter provider by AEMO. Jemena does not currently operate type 4 meters (they are operated by third party meter providers). However, when the existing type 5 meters are reclassified as type 4 meters, Jemena will need to be appropriately accredited.

While DAE is satisfied that these costs would be incurred in undertaking this project. We note that the AER generally applies the base step and trend approach to opex forecasting. We have not examined whether the AER's forecasting approach sufficiently accounts for these costs already.

5.4 Metering Contestability - Conclusion

Having examined the proposed expenditure DAE is satisfied that:

1. Jemena is required to reconfigure its IT systems to allow for the introduction of metering contestability. As such, this expenditure would be incurred by a prudent service provider acting to fulfil its regulatory obligations

2. Jemena has undertaken a robust approach to forecasting required expenditure. This has been based on an understanding of the scope of the changes required to its systems and the amount of resources required to undertake these changes. As such, we consider Jemena's proposed expenditure reflects the efficient costs of complying with the new metering contestability obligations.

6 Shared Market Protocol

On 8 October 2015 the Australian Energy Market Commission (AEMC) published its final advice on the implementation of a shared market protocol.

A shared market protocol would define the language or format for the communications sent between businesses seeking access to the services available from smart meters. Having a default standard for communication is expected to promote competition in the market for advanced metering services by reducing barriers to entry for new energy service companies while not inhibiting innovation in the method of communications. The SMP final rule determination is anticipated in May 2016 with an AEMC recommended minimal implementation of new functions for December 2017.

DAE notes that the rule change on the SMP has not been finalised. The final rule determination will set out the final form of the shared market protocol. However, the need to implement the shared market protocol flows directly from the metering contestability rule change. As stated by the AEMC:[11]

> *It will be necessary for AEMO and the IEC to develop, or update, a number of procedures. These procedures will need to cover the matters set out in Table 5.2 below. The final rule requires the IEC to make an IEC recommendation to change the B2B procedures by 1 August 2016, and AEMO is required to publish final procedures by 1 September 2016.*

It is DAE's understanding that whilst the final form of the shared market protocol has not been finalised, it is a requirement for the IEC to recommend changes to the current B2B procedures to allow for the implementation of metering contestability. We understand that at a minimum, this will involve supporting the services set out in the minimum services specification. We further understand that it is not possible for Jemena to comply with the minimum services specification for contestable meters without implementing B2B procedures that facilitate providing these functions. As such, we consider the need to implement the shared market protocol flows directly from the AEMC's metering contestability rule change of 26 November.[12]

6.1 Requirement for expenditure

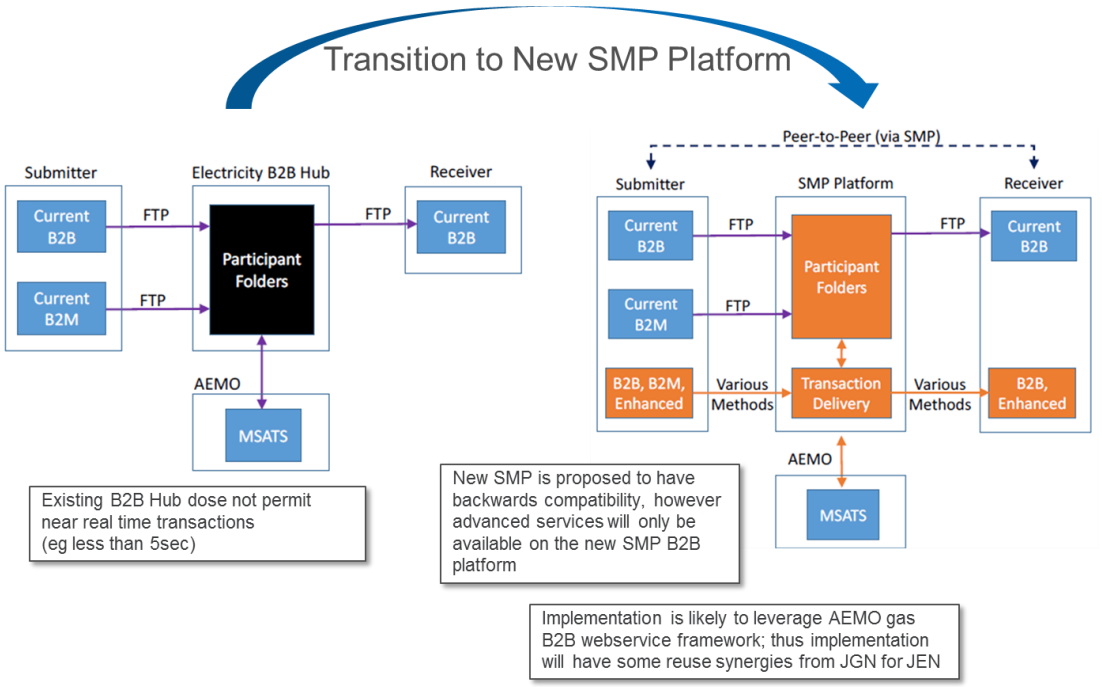
The implementation of the changed B2B systems requires that Jemena reconfigure a number of market facing systems in order to be able to send and receive data in the required formats. This also requires changes to the systems that interface with these market facing systems. All existing B2B and new SMP advanced functions need to be integrated into the trading network interfaces; the MSI logic and automation; and the Enterprise Service Bus. Figure 5 below shows the functional changes to the existing B2B

[11] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

[12] National Electricity Amendment (Expanding competition in metering and related services) Rule 2015 No.12

systems and Jemena will need to reconfigure its systems to integrate with these new systems.

Figure 5 SMP Platform changes



Source: Jemena

6.2 Options Analysis

Jemena examined four options for implementing the required changes to its IT systems. Jemena considers that option 1, which involves a full implementation of the shared market protocol on day 1, is the best option available. DAE has reviewed the options examined by Jemena and agrees that option 1 is a prudent and efficient approach.

Table 15 Shared Market Protocol - Summary of options analysis

Option	Compliance	Cost	Risk to critical business functions
1. Opt out	No	None	High – Jemena loses access to advanced metering function on contestable meters
2. Minimum Implementation	Yes	Not costed – Initial implementation is similar to full implementation. Additional costs would be incurred to add functionality	Minimum service specification achieved. Cannot perform additional advanced functions.

Option	Compliance	Cost	Risk to critical business functions
		later	
3. Full Implementation with day 1 availability	Yes	$3.1 million	
4. Defer Implementation	Yes – after implementation	Higher than day 1 availability. This is due to the loss of synergies with the introduction of metering contestability.	Medium - Jemena would lose required functionality for contestable meters. Initially there is only a small number, so can be managed in the short term.

6.2.1 Option 1 – Opt out

This approach involves not implementing the shared market protocol in any form. Jemena examined this option and does not consider it a viable option. In reaching that conclusion, Jemena stated that:[13]

> *This option was discarded as any new contestable smart meter and its advanced functions like ping (Meter inquiry) will not be network accessible without an SMP. As volumes of constable meters grow Jemena will lose its network management capability presently in service and providing network benefits.*

Choosing to opt-out would cause Jemena to lose access to advanced functions like meter inquiry for all new contestable meters. This is functionality is currently provided by Jemena's AMI meters. Losing this functionality across a growing portion of Jemena's metering base would be materially detrimental to Jemena's existing service offering. This would result in consumers losing the benefits provided by the Victorian AMI program.

In any event, whilst opt-out may be a viable option for some market participants, it does not appear that a DNSP can opt out whilst still meeting its obligations to provide the minimum service specification. The metering installation inquiry service is defined as:

> *the remote retrieval of information from, and related to, a specified metering installation and the provision of such information to the requesting party. Table S7.5.1.1 of the NER final rule sets out the seven types of information that the metering installation must (as a minimum) be capable of providing. These include: supply status; voltage; current; power; frequency; average voltage and current; and events that have been recorded in the meter log including information on alarms. The parties that are able to request a remote metering installation inquiry service are the LNSP and the FRMP, and any person to whom a small customer has given its prior consent under clause 7.15.4(b)(3) of the NER final rule.*[14]

Jemena will be unable to perform this function for contestable meters without implementing this requirement of through to SMP. As such, DAE agrees with Jemena that opting out of implementing the SMP is not a viable option.

[13] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

[14] AEMC Shared Market Protocol Final Determination, pg. 310

6.2.2 Option 2 – Minimum Implementation

This approach involves a minimum implementation of the shared market protocol. Jemena examined this option and does not consider it a viable option. In reaching that conclusion, Jemena stated that:[15]

> *Shared Market protocol could be implemented with a minimal set of functions and only those used at the time of its release. Jemena is an advocate for greater SMP functionality and adopting a minimum entry position will not permit Jemena to leverage services like HAN binding for Vic AMI via the SMP. This option is discarded as it leaves Jemena functionally incomplete and unable to access or offer advanced services.*

DAE considers that the minimum implementation would allow Jemena to meet its obligations under the minimum service specification.

However, there is unlikely to be any cost saving from delaying the implementation of additional functionality. While undertaking this project, the marginal cost of implementing each additional function is small. Given the costs involved in scoping and delivering any additional functionality as a later and separate project, it is likely that later implementing additional functionality will result be an expensive project commensurate with the cost of this existing project. As there is not anticipated saving from performing a reduced implementation, DAE agrees that this is not the optimal implementation solution.

6.2.3 Option 3 – Full Implementation with day 1 availability

This approach involves a full implementation of the shared market protocol on day 1. Jemena examined this option and considered it the best available option. In reaching that conclusion, Jemena stated that:[16]

> *This option provides a near real time baseline communication capability for all new market meters and service required to efficiently operate the network.*

DAE agrees that this is the preferred solution. As noted above, there is no anticipated saving from a partial implementation of the SMP. As such, a full implementation allows Jemena to capture all benefits provided by the shared market protocol.

6.2.4 Option 4 – Defer Implementation

This approach involves a full implementation of the shared market protocol, but aiming for a later implementation date. Jemena examined this option and does not consider it a viable option. In reaching that conclusion, Jemena stated that:[17]

[15] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

[16] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

[17] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

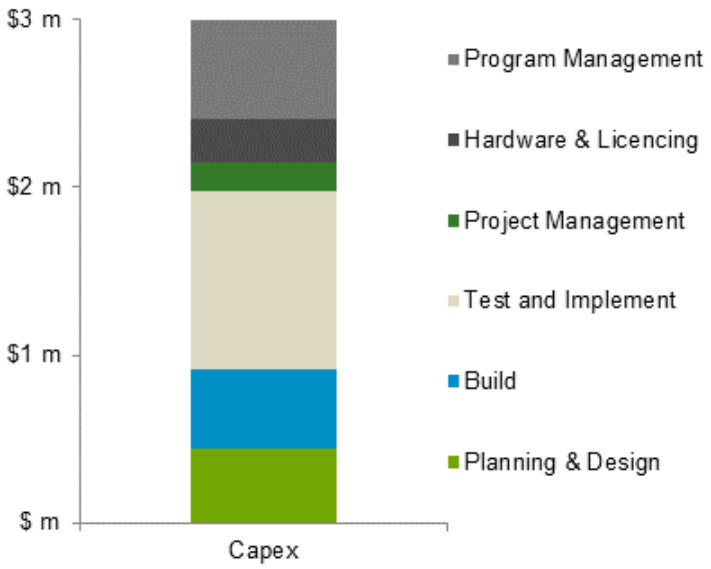
Implementation of an SMP instance for Jemena at a later date would result in an initial shortfall in capability and opportunity to participate in industry wide testing. No cost savings is identified nor advantage in taking a later release date.

DAE agrees with Jemena's assessment. Jemena has identified some synergies and cost savings from progressing the implementation of the SMP concurrently with the system changes required to introduce metering contestability. Due to these cost savings, we see no justification for aiming for a later implementation date.

6.3 Costing

Jemena has selected option 3 as the best option available and DAE agrees with this assessment. Option 3 involves a full implementation of the shared market protocol on day 1. Jemena proposes $3.1 million in capex to implement the shared market protocol, within its IT systems. Jemena's overall approach to costing is discussed in detail in section 3 and DAE considers that Jemena's overall approach to costing is prudent. DAE also examined the specific assumptions underlying the cost forecast for the metering contestability project. DAE considers that Jemena's resource assumptions for each phase of this project are reflective of the effort required to undertake this project.

Figure 6 Shared Market Protocol – Cost Stack ($ million, nominal)



Source: Jemena

6.3.1 Planning and design

Jemena has based its personnel forecasts on the number of systems that have been impacted (3 systems in total) and the effort required to develop a detailed solution for each system. We note that less resources per system are required compared to the metering contestability project. This is because:

- The changes are expected to be smaller in scope

- There is no user interface and so this function is not needed for this project
- Expected learnings that can be leveraged from the in-house knowledge of the Jemena Gas Network B2B gateway and MSI.

This phase also includes resourcing for the development of the test strategy. Further, there is an allowance for support from internal resources to assist in identifying process issues and ensuring the final solution will be fit for purpose.

Based on our experience with other IT projects, DAE considers this level of resourcing is reasonable.

Table 16 Shared Market Protocol – Resource Summary

Analyse & Design	Detailed solution design	Solution Designer	Qty	Term (months)
Analyse & Design	Business requirements / process and analysis	Business Analyst - Senior	3.0	3.00
Analyse & Design	User Interface & report design / mock-up's	Business Analyst - Senior	-	-
Analyse & Design	Detailed solution design	Solution Designer	1.0	3.00
Analyse & Design	BAU Resource Backfill	General Staff	1.0	3.00
Analyse & Design	Produce test strategy	Testing & Performance Manager	1.0	1.00

Source: Jemena

6.3.2 Build

Jemena forecast the number of programming resources required to code the solution for each system. The number of resources is based on an assessment of the complexity of the system and impact of the changes on the operation of that system. Jemena has forecast that more complex systems will require two programmers to implement the changed functionality

This phase also includes an allowance for support from internal resources to assist the programmers in ensuring the solution meets the needs of the business.

Based on our experience with other IT projects, DAE considers this level of resourcing is reasonable.

Table 17 Shared Market Protocol – Resource Summary

Analyse & Design	Detailed solution design	Solution Designer	Qty	Term (months)
Build	WebMethods Enterprise	Analyst Programmer -	2.0	4.0

Analyse & Design	Detailed solution design	Solution Designer	Qty	Term (months)
	Integration (ESB)	Senior		
Build	Market Systems Integration (MSI)	Analyst Programmer - Senior	1.0	4.0
Build	BAU Resource Backfill	General Staff	6.0	1.5

Source: Jemena

6.3.3 Test

Jemena forecast the number of programming resources required to perform testing and remediate the code as a result of the testing. They also forecast the number of resources required to build and implement the test cases. As this is a smaller team compared to the metering contestability project, less oversight in the form of test managers is also necessary. The number of resources is based on the number of systems that need to be tested and expected intensity of the work.

Based on our experience with other IT projects, DAE considers the level of resourcing forecast for testing the solution is reasonable.

Table 18 Shared Market Protocol – Resource Summary

Analyse & Design	Detailed solution design	Solution Designer	Qty	Term (months)
Test	Produce test plans, scenarios and cases	Business Analyst - Senior	3.0	3.00
Test	Develop unit test automation	Test Automation Engineer	2.0	3.00
Test	Execute tests & document results	Tester General	4.0	2.00
Test	Test remediation	Analyst Programmer - Senior	2.0	3.00
	BAU Resource Backfill (UAT)	General Staff	2.0	3.00
Test	Document Test Summary Report	Test Manager	1.0	3.00
Test	Testing oversight	Testing & Performance Manager	-	-

Source: Jemena

6.3.4 Implement

Jemena forecast the resources required to implement the revised solution. This includes 'go-live' related activities such as trial runs on production hardware.

The other key component of this element is the redesigning of business processes, documentation (user guides) and training. The number of resources is based on the number of systems that need to be tested and expected intensity of the work in preparing these revised processes.

Based on our experience with other IT projects, DAE considers the level of resourcing forecast for the implementation phase is reasonable.

Table 19 Shared Market Protocol – Resource Summary

Analyse & Design	Detailed solution design	Solution Designer	Qty	Term (months)
Implement	Transition to production and project close	Project Manager - Senior	1.0	1.00
Implement	BAU Resource Backfill (Business process redesign and documentation / user guides / training)	General Staff	2.0	1.00
Implement	Implementation activities / trial runs	DBA	-	-
Implement	Implementation activities / trial runs	Wintel Engineer	1.0	0.50
Implement	Post go live support	Analyst Programmer - Senior	1.0	1.00

Source: Jemena

6.3.5 Project Management

Project management includes the resources required to oversee the delivery of the metering contestability project. These roles will involve the day to day management of all aspects of the project delivery. Because Jemena has scheduled this work concurrently with the metering contestability changes, only minimal dedicated resources are required.

Based on our experience with other IT projects, DAE considers the level of resourcing forecast for project management is reasonable.

Table 20 Shared Market Protocol – Resource Summary

Analyse & Design	Detailed solution design	Solution Designer	Qty	Term (months)
Project Management	Team Lead	Project Manager	1.0	6.0
Project Management	Project Manager	Project Manager - Senior	-	6.0

Source: Jemena

6.3.6 Opex

Jemena's business case includes a small amount of additional opex. This comprises of start-up costs for the project including the development of the mandate and business case. This also includes some external legal resources and independent auditing services.

While DAE is satisfied that these costs would be incurred in undertaking this project. We note that the AER generally applies the base step and trend approach to opex forecasting. We have not examined whether the AER's forecasting approach sufficiently accounts for these costs already.

6.4 Shared Market Protocol - Conclusion

Having examined the proposed expenditure DAE is satisfied that:

1. Jemena is required to reconfigure its IT systems to access the shared market protocol. This will allow Jemena to meet the minimum service specification for contestable meters. As such, this expenditure would be incurred by a prudent service provider acting to fulfil its regulatory obligations

2. Jemena has undertaken a robust approach to forecasting its forecast expenditure. This has been based on an understanding of the scope of the changes required to its systems and the amount of resources required to undertake these changes. As such, we consider Jemena's proposed expenditure reflects the efficient costs of complying with the new obligations.

7 Customer Access to Data

On 6 November 2014, the AEMC made new rules to make it easier for consumers to obtain information about their electricity consumption from distribution network companies and retailers in an easy-to-understand, affordable and timely way.

The new rules:

- allow customers to obtain their electricity consumption data from their distributor as well as their retailer
- allow other parties authorised by customers to request access to electricity consumption data from retailers and distributors
- requires retailers and distributors to comply with minimum requirements relating to the format, time frames and costs when a customer, or a party authorised by that customer, requests electricity consumption data.

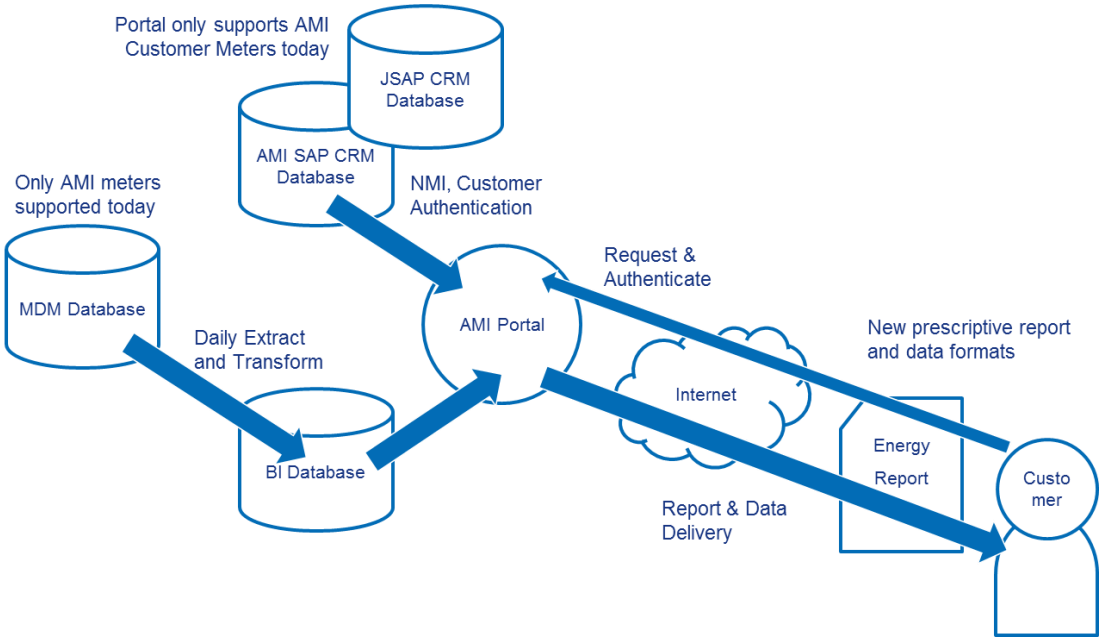
The new rules commenced on 1 December 2014 and implementation of the new procedures is due by 1 March 2016.

7.1 Requirement for expenditure

Providing access to data by third parities and complying with the minimum requirements relating to format/timeframe will impose an additional cost on Jemena. Particularly, Jemena will need to reconfigure its IT systems to produce the required data in an automated manner. We note that Jemena already makes much of this information available from its AMI meters and, as such, this capability already exists in the AMI-SAP system. The AMI-SAP system will require some reconfiguration to produce the data in the now mandated format (previously Jemena was free to present information in the manner it considered appropriate).

Jemena now has an additional requirement to make data available for all meters. This capability is not currently available in the JSAP system and so is not provided for type 1, 2, 3, 4, 6 and 7 meters. Figure 7 below sets out the necessary process flows from the two systems to the customer and additional capability will need to be incorporated into JSAP to allow Jemena to implement this process. Jemena has noted that the current process to replace CIS+ in JSAP constrains its ability to deliver a fully automated and self-service solution in the required timeframe. As such, Jemena proposes an interim manual process to supplement the existing portal solution for the customers that request meter data in the prescribed format which is not satisfied with the existing portal service. This measure will allow for compliance ahead of a comprehensive self-service solution.

Figure 7 Customer access to data – Process Flow



Source: Jemena

7.2 Options Analysis

Jemena examined four options for implementing the required changes to its IT systems. Jemena considers that option 4, which redevelops the AMI portal to support all customer meter and billing types for a full self-service interface after the go live date of 1 March 2016 and implement an interim workaround for exception management for meters handled within the JSAP system. DAE has reviewed the options examined by Jemena and agrees that option 4 is the most prudent and efficient option.

Table 21 Customer Access to Data - Summary of options analysis

Option	Compliance	Cost	Risk to critical business functions
1. Minimal Solution for only AMI Meters	No	Not Costed – Cheapest Solution	Simple to implement – but not compliant
2. Minimal solution with manual workaround process	Yes – but will risk non compliance if demand for manual workaround exceeds capacity.	Not Costed – Low upfront cost, but ongoing opex impact.	Simple to implement.
3. Automated Process for all customers before March 2016	Yes	Not Costed – Unachievable within timeframes	Unachievable within timeframes

Option	Compliance	Cost	Risk to critical business functions
4. Automated Process for all customers after March 2016 with interim work around	Yes	$1.9 million	AMI solution is simple to implement. Automation of residual meters can be thoroughly tested before implementation

7.2.1 Option 1 – Minimal solution for only AMI Meters

This approach involves undertaking the minimum reconfiguration necessary to provide AMI data in the now mandated format. Jemena examined this option and does not consider it appropriate. In reaching that conclusion, Jemena stated that:[18]

> *Customer access to data is principally served from the Electricity Outlook (AMI Portal) portal today but limited to AMI only customers. This option considers a minor upgrade of the AMI portal to provide data in new prescribed formats but only for AMI customers.*
>
> *This option would achieve compliance for 98% of Jemena's meters (AMI meters) but would not achieve compliance for the 2% of the remaining meter population (which account for 50% of the network load). Further this would be exacerbated with every new connection of a contestable meter also being non-compliant. This option was discarded as it does not adequately comply with the AEMO CAD procedures..*

DAE agrees that this approach does not achieve compliance across all meters and therefore is not a viable option for Jemena to pursue.

7.2.2 Option 2 – Minimal Solution with manual workaround process

This approach involves undertaking the minimum reconfiguration necessary to provide AMI data in the now mandated format. It also involves an ongoing manual workaround for non AMI meters with no plan for future automation of this process. Jemena examined this option and does not consider it appropriate. In reaching that conclusion, Jemena stated that:[19]

> *This option considers the potential to support CAD request through manual interaction with systems by building reports that can be run by a meter data management analyst and exported to the customer. Such a process would serve exception customers that are not satisfied with the AMI portal outputs. Such a solution would only accommodate a small number of requests and not readily scale up to the future CAD forecasts. As customer agents and brokers are known to be preparing for leveraging CAD high volumes of transactions are anticipated and a manual workaround process would be unsustainable.*

[18] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

[19] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

We note that Jemena proposes to handle all new type 4 meters within JSAP and so this will contain a greater proportion of its meters over time. Eventually JSAP will contain all of Jemena's meters and a manual solution will become increasingly unworkable over time.[20] As such, we consider that long term compliance with the rules will require an automated solution rather than relying upon a manual workaround.

7.2.3 Option 3 – Automated Process for all customers before March 2016

This approach involves fully automating the CAD process prior to March 2016. Jemena examined this option and does not consider it appropriate. In reaching that conclusion, Jemena stated that:[21]

> *Due to the dependencies of the present market system changes in flight a stable baseline environment will not be available to develop CAD until June 2016. This option cannot be technically delivered before the compliance date.*

We note the interdependency with the CIS+ replacement process and that Jemena does not consider this approach is feasible in the timeframe required. DAE agrees with this assessment.

7.2.4 Option 4 – Automated Process for all customers after March 2016 with interim work around

This approach involves undertaking the minimum reconfiguration necessary to provide AMI data in the now mandated format. It also involves an ongoing manual workaround for non-AMI meters until a fully automated system can be rolled out. Jemena examined this option and considers that it is the preferred solution. In reaching that conclusion, Jemena stated that:[22]

> *This option provides full interim compliance with an interim operational impact. The scale of initial requests will determine the level of interim impact.*
>
> *This option is recommended as it meets the compliance, efficiency and customer engagement objectives for Jemena.*

DAE agrees with Jemena's assessment that this option is the preferred solution. DAE considers it a prudent approach to managing the need to implement a scalable long term solution to providing the required data to customers, whilst recognising that immediate implementation is not likely to be possible. Planning for an interim period with a manual workaround allows Jemena to meet its obligations in the short term.

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[20] We anticipate a sufficient volume of requests across Jemena's entire customer database to make a manual process an unworkable solution.

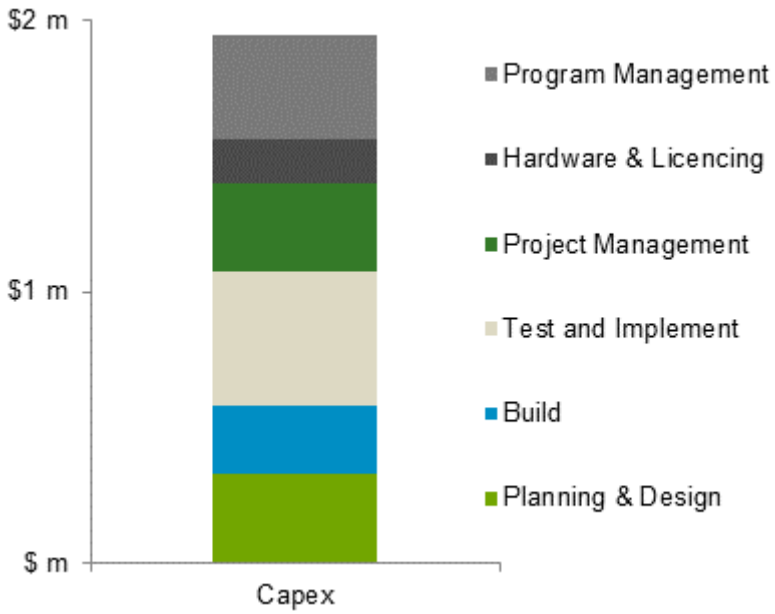
[21] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

[22] Jemena Electricity Networks (Vic) Ltd Power of Choice Business Case - Phase 1

7.3 Costing

Jemena has selected option 4 as the best option available and DAE agrees with this assessment. Option 4 involves undertaking the minimum reconfiguration necessary to provide AMI data in the now mandated format and a manual workaround for non AMI meters until a fully automated system can be rolled. Jemena proposes $2.0 million in capex to meet its obligation to provide customer access to data. Jemena's overall approach to costing is discussed in detail in section 3 and DAE considers that Jemena's overall approach to costing is prudent. DAE also examined the specific assumptions underlying the cost forecast for the metering contestability project. DAE considers that Jemena's resource assumptions for each phase of this project are reflective of the effort required to undertake this project.

Figure 8 Customer Access to Data – Cost Stack ($ million, nominal)



Source: Jemena

7.3.1 Planning and design

Jemena has based its personnel forecasts on the number of systems that have been impacted (3 systems in total) and the effort required to develop a detailed solution for each system. We note that less resources per system are required when compared to the metering contestability project. This is because the changes are expected to be smaller in scope.

This phase also includes resourcing for the development of the test strategy. Further there is an allowance for support from internal resources to assist in identifying process issues and ensuring the final solution will be fit for purpose.

Based on our experience with other IT projects, DAE considers this level of resourcing is reasonable.

Table 22 Customer Access to Data – Resource Summary

CAD Phase	Activity	Resource	Qty	Term (months)
Analyse & Design	Business requirements / process and analysis	Business Analyst - Senior	1.0	2.00
Analyse & Design	User Interface, Application Interface, & report design / mock-ups	Business Analyst - Senior	2.0	2.00
Analyse & Design	Detailed solution design	Solution Designer	1.0	2.00
Analyse & Design	BAU Resource Backfill	General Staff	1.0	3.00
Analyse & Design	Produce test strategy	Testing & Performance Manager	1.0	1.00

Source: Jemena

7.3.2 Build

Jemena forecast the number of programming resources required to code the solution for each system. The number of resources is based on an assessment of the complexity of the system and impact of the changes on the operation of that system. Jemena has forecast that more complex systems will require two programmers to implement the changed functionality.

This phase also includes an allowance for support from internal resources to assist the programmers in ensuring the solution meets the needs of the business.

Based on our experience with other IT projects, DAE considers this level of resourcing is reasonable.

Table 23 Customer Access to Data – Resource Summary

CAD Phase	Activity	Resource	Qty	Term (months)
Build	Business Intelligence (BI)	Analyst Programmer - Senior	1.0	3.0
Build	Consumer Portal (Portal)	Analyst Programmer - Senior	2.0	2.0
Build	BAU Resource Backfill	General Staff	1.0	2.0
Build	Extract Transform Load (ETL)	Analyst Programmer - Senior	1.0	2.0

Source: Jemena

7.3.3 Test

Jemena forecast the number of programming resources required to perform testing and remediate the code as a result of the testing. They also forecast the number of resources required to build and implement the test cases. As this is a smaller team compared to the metering contestability project, less oversight in the form of test managers is also necessary.

Based on our experience with other IT projects, DAE considers the level of resourcing forecast for testing the solution is reasonable.

Table 24 Customer Access to Data – Resource Summary

CAD Phase	Activity	Resource	Qty	Term (months)
Test	Produce test plans, scenarios and cases	Business Analyst - Senior	1.0	2.00
Test	Develop unit test automation	Test Automation Engineer	1.0	2.00
Test	Execute tests & document results	Tester General	1.0	2.00
Test	Test remediation	Analyst Programmer - Senior	2.0	2.00
Test	BAU Resource Backfill (UAT)	General Staff	1.0	2.00
Test	Document Test Summary Report	Test Manager	1.0	2.00
Test	Testing oversight	Testing & Performance Manager	-	-

Source: Jemena

7.3.4 Implement

Jemena forecast the resources required to implement the revised solution. This includes 'go-live' related activities such as trial runs on production hardware.

The other key component of this element is the redesigning of business processes, documentation (user guides) and training. The number of resources is based on the number of systems that need to be tested and expected intensity of the work in preparing these revised processes.

Based on our experience with other IT projects, DAE considers the level of resourcing forecast for the implementation phase is reasonable.

Table 25 Customer Access to Data – Resource Summary

CAD Phase	Activity	Resource	Qty	Term (months)
Implement	Transition to production and project close	Project Manager - Senior	1.0	1.00
Implement	BAU Resource Backfill (Business process redesign and documentation / user guides / training)	General Staff	1.0	1.00
Implement	Implementation activities / trial runs	DBA	1.0	1.00

Source: Jemena

7.3.5 Project Management

Jemena has not forecast any specific project management costs. Due to the smaller size of this project these functions can be adequately covered by the program management team. DAE considers this is reasonable.

7.3.6 Opex

Jemena's business case includes a small amount of additional opex. This comprises of start-up costs for the project including the development of the mandate and business case. This also includes some external legal resources and independent auditing services.

While DAE is satisfied that these costs would be incurred in undertaking this project. We note that the AER generally applies the base step and trend approach to opex forecasting. We have not examined whether the AER's forecasting approach sufficiently accounts for these costs already.

7.4 Customer Access to Data - Conclusion

Having examined the proposed expenditure DAE is satisfied that:

1. Jemena is required to reconfigure its IT systems to provider customer access to data for its contestable meters. Without this expenditure a manual workaround is necessary and this will become unsustainable as the number of contestable meters grows. As such, this expenditure would be incurred by a prudent service provider acting to fulfil its regulatory obligations.

2. Jemena has undertaken a robust approach to forecasting its forecast expenditure. This has been based on an understanding of the scope of the changes required to its systems and the amount of resources required to undertake these changes. As such, we consider Jemena's proposed expenditure reflects the efficient costs of complying with the new obligations.

8 Distribution Network Pricing

On 27 November 2014, the AEMC made a new rule to require network businesses to set prices that reflect the efficient cost of providing network services to individual consumers. This will allow consumers to make more informed decisions about their use of electricity.

The rule establishes a new pricing objective and new pricing principles for distribution businesses that will require that network prices reflect the efficient costs of providing network services. This will allow consumers to compare the value they place on using the network against the costs caused by their use of it. Consumers who choose to respond to network prices by reducing their consumption in higher cost periods will be rewarded through lower network charges.

The rule also contains new processes and timeframes for setting network prices. This will require distribution businesses to consult with consumers and retailers to develop a tariff structure statement that outlines the price structures that they will apply for the regulatory period. This statement will be approved by the AER as part of the five-year regulatory reset process. The businesses will also publish annually an indicative pricing schedule to provide consumers and retailers with the most up to date information on likely price levels throughout the regulatory period. This new process will lead to increased certainty, transparency and timeliness with respect to network pricing for consumers.

8.1 Requirement for expenditure

Jemena has submitted its tariff structure statement (TSS) to the AER as part of the 2016-20 EDPR submission. Jemena developed its TSS in consultation with its customers and has proposed to introduce demand charges for residential customers. The structure of the proposed demand based tariffs are not presently supported by the Jemena's systems. Specifically, it is not currently designed to bill customers based on a demand measure (Jemena has proposed several different demand measures). If the AER approves Jemena's pricing proposal then introduction of new charging parameters will require the reconfiguration of Jemena's billing systems to implement the changed charging parameters.

8.2 Options Analysis

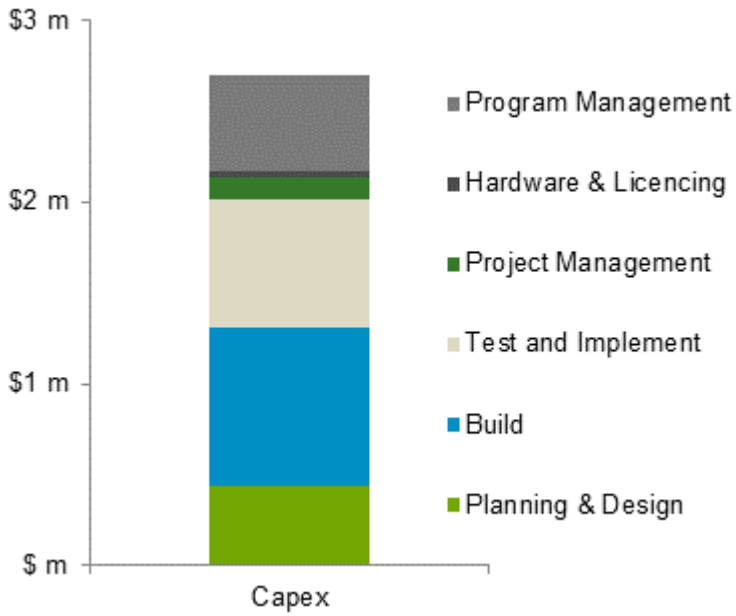
Jemena examined two options, the 'do nothing' option and reconfiguring the existing system. In the event that the AER approves Jemena's pricing proposal, then under the 'do nothing' option Jemena will not be able to implement the changed charging parameter within its billing systems. As such, a decision by the AER to approve the Jemena's pricing proposal necessitates that the AER also approve expenditure to reconfigure Jemena's billing systems to implement the demand charges.

However, if the AER does not approve Jemena's pricing proposal then no expenditure will be required. As such, the need to do this work is dependent on the AER's decision.

8.3 Costing

Jemena has proposed expenditure based on the AER accepting its demand based tariffs and Jemena needing to reconfigure its systems to implement them. Jemena proposes $2.7 million in capex to implement demand charges. Jemena's overall approach to costing is discussed in detail in section 4 and DAE considers that Jemena's overall approach to costing is prudent. DAE also examined the specific assumptions underlying the cost forecast for the metering contestability project. DAE considers that Jemena's resource assumptions for each phase of this project are reflective of the effort required to undertake this project.

Figure 9 Distribution Network Pricing – Cost Stack ($ million, nominal)



Source: Jemena

8.3.1 Planning and design

Jemena has based its personnel forecasts on the systems that have been impacted and the effort required to develop a detailed solution for each system. This phase also includes resourcing for the development of the test strategy.

Based on our experience with other IT projects, DAE considers this level of resourcing is reasonable.

Table 26 Distribution Network Pricing – Resource Summary[23]

DMP Phase	Activity	Resource	Days Effort
Planning & Design	Project Management	Project Manager	156
Planning & Design	Business Analysis	Business Analyst - Senior	20
Planning & Design	Solutions Design	Solution Designer	20

Source: Jemena

8.3.2 Build

Jemena forecast the number of programming resources required to code the solution for each system. The number of resources is based on an assessment of the complexity of the system and impact of the changes on the operation of that system.

Based on our experience with other IT projects, DAE considers this level of resourcing is reasonable.

Table 27 Distribution Network Pricing – Resource Summary

DMP Phase	Activity	Resource	Days Effort
Build	SAP-ISU - Residential	Developer	205
Build	SAP-ISU – Small Business	Developer	65
Build	SAP-ISU – Large Business	Developer	40
Build	iTron IEE/MTS - Create/modify new billing determinant	Analyst Programmer - Senior	25
Build	iTron IEE/MTS - Create/modify rates	Analyst Programmer - Senior	47
Build	iTron IEE/MTS - Create/modify TOW schedule	Analyst Programmer - Senior	25
Build	iTron IEE/MTS - Create new rolling demand component (based on peak rather than all time).	Analyst Programmer - Senior	40

Source: Jemena

[23] We note DNP costs estimate is expressed in total days effort rather than in the format used by the other projects. Jemena advised that the DNP project was initial developed in isolation and in advance of all other PoC work streams.

8.3.3 Test and implement

Jemena forecast the number of programming resources required to perform testing and remediate the code as a result of the testing. This also includes implementing the system. They also forecast the number of resources required to build and implement the test cases.

Based on our experience with other IT projects, DAE considers this level of resourcing is reasonable.

Table 28 Distribution Network Pricing – Resource Summary

DMP Phase	Activity	Resource	Days Effort
Test and Implement	Change Management	Wintel Engineer	5
Test and Implement	Test Management	Testing & Performance Manager	5
Test and Implement	Cutover & Transition	Wintel Engineer	10
Test and Implement	Allowed nominal days for flip switch & support activities	Wintel Engineer	10
Test and Implement	Business Intelligence (BI)	Analyst Programmer - Senior	20
Test and Implement	Customer Energy Portal	Analyst Programmer - Senior	60
Test and Implement	MVRS/MV90	Analyst Programmer - Senior	88
Test and Implement	Test Manager	Testing Manager	5
Test and Implement	E2E Technical Test	Testing Manager	50
Test and Implement	UAT Test and Test Cases	General Staff	95

Source: Jemena

8.3.4 Opex

Jemena's business case includes a small amount of additional opex. This comprises of start-up costs for the project including the development of the mandate and business case. This also includes some external legal resources and independent auditing services.

While DAE is satisfied that these costs would be incurred in undertaking this project. We note that the AER generally applies the base step and trend approach to opex forecasting. We have not examined whether the AER's forecasting approach sufficiently accounts for these costs already.

8.4 Distribution Network Pricing - Conclusion

Having examined the proposed expenditure DAE is satisfied that:

1. Jemena is required to reconfigure its IT systems to allow for the introduction of demand tariffs – Operating on the presumption that the AER approves Jemena's demand tariffs

2. Jemena has undertaken a robust approach to forecasting its forecast expenditure. This has been based on an understanding of the scope of the changes required to its systems and the amount of resources required to undertake these changes. As such, we consider Jemena's proposed expenditure reflects the efficient costs of complying with the new obligations.

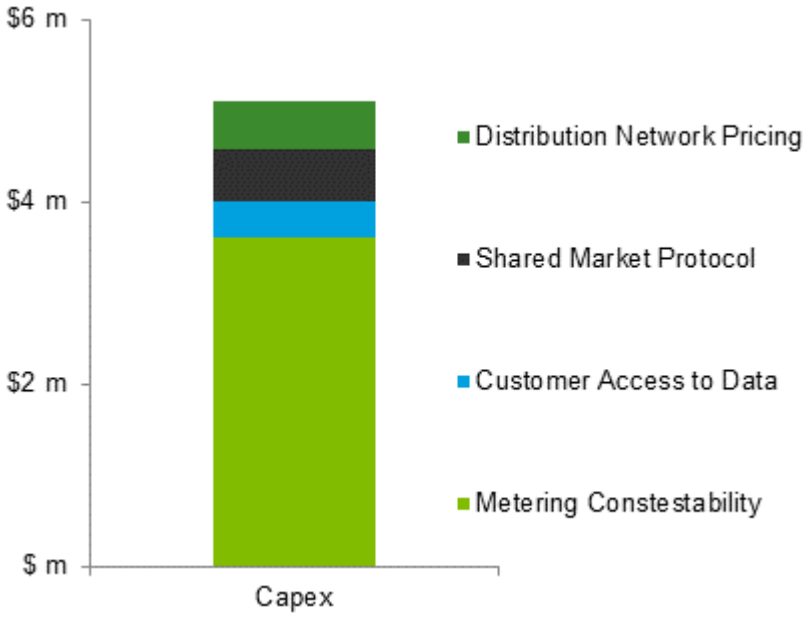
9 Program Management Costs

Jemena will be undertaking several major IT projects concurrently and accordingly has proposed a program management team to oversee the delivery of these projects. Jemena considers that the program management team is required for the forecast 24 month duration of the PoC capital works program. The project management team guides each project from the requirements of the rule change into tangible capital projects.

DAE has examined the need for a program management team and considers that it is prudent to operate a dedicated project management team to oversee this program. DAE notes that implementing the PoC changes will involve significant resources and effort across 8 interconnected IT systems. This is a complex and mission critical IT project and DAE considers that it is prudent and efficient to provide sufficient resources to deliver this project. Establishing a program management team provides clear internal accountability for the overall delivery of this program of works.

The costs have been calculated on the resources necessary to oversee a project of this size and include a senior program director to oversee the delivery of the program. The cost of the program management has been allocated to each project on the basis of the cost of each project. Figure 10 shows the allocation of program costs to the different projects. The cost of each project reflects the complexity and resources needed to complete the project and so this is a reasonable way to allocate program management costs.

Figure 10 Program management costs – Allocation to projects ($ million, nominal)



Source: Jemena

Table 29 sets out Jemena's proposed resourcing requirements for the program management team. DAE has examined the proposed resources and considers that this forecast reasonably reflects the efficient costs, given the scope of the projects.

Table 29 Shared Market Protocol – Resource Summary

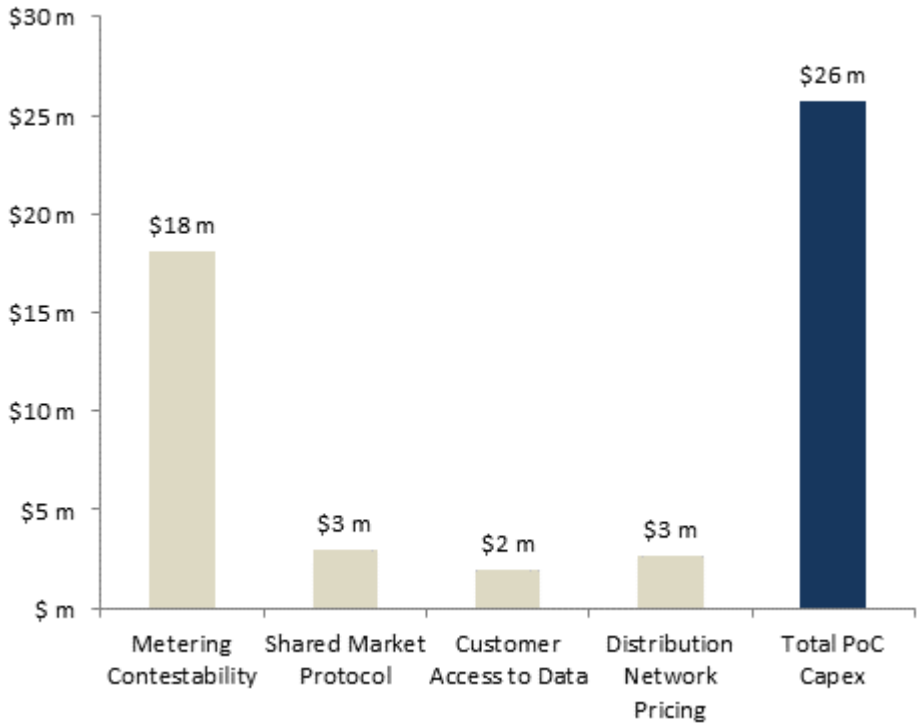
PGM Phase	Activity	Resource	Qty	Term (months)
All	Business Analysis	Business Analyst	1.00	24.0
All	Program Management and Oversight	Program Director	1.00	24.0
All	Industry Engagement (Backfill)	General Staff	2.00	24.0
All	Reporting and Scheduling	Project Manager	1.00	24.0
All	Contract Management	Commercial Manager	0.50	24.0
All	Change Management (Communications internal / external)	Business Project Manager	1.00	22.0
All	Financial Management	Program Accountant	1.00	24.0

Source: Jemena

10 Total Power of Choice costs

The total Capex required to comply with the new Power of Choice regulatory obligations is presented below.

Figure 11 Power of Choice – Capex ($ million, nominal)

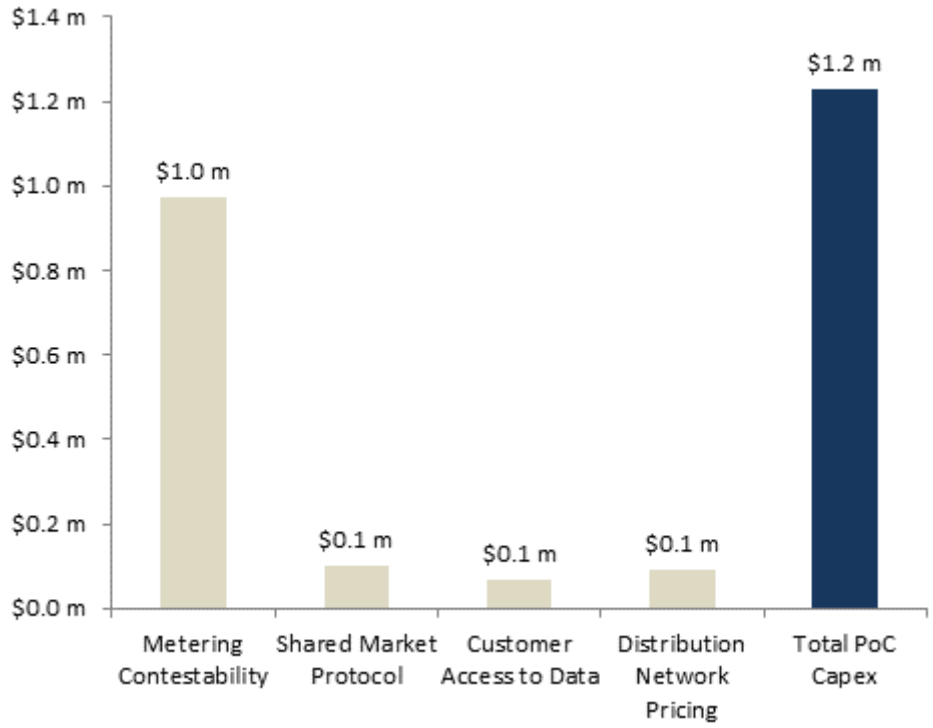


Source: Jemena

Total Capex is estimated at $25.76 m.

The total Opex required to comply with the new Power of Choice regulatory obligations is presented below.

Figure 12 Power of Choice – Opex ($ million, nominal)



Source: Jemena

Total Opex is estimated at $1.23 m.

Limitation of our work

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Contact us

Deloitte Access Economics
ACN: 149 633 116

550 Bourke St
Melbourne Victoria 3000

Tel: +61 2 6175 2000
Fax: +61 2 6175 2001

www.deloitteaccesseconomics.com.au

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