UNITED ENERGY

Project Justification - Demand Management IT Platform

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Document Review

This document has been reviewed by the following parties prior to approval:

Reviewer Name	Role	Date
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Document Approval

Approval of the Project Justification for the Demand Management IT Platform project is provided by the signatories shown below.

Changes to this document will be coordinated and approved by the undersigned or their designated representatives via project change management.

The undersigned acknowledge they have reviewed and approved this document.

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1. Project Description

The Demand Management IT Platform project provides the IT capabilities to enable the deployment of demand management as a cost effective alternative to traditional network investment.

On 20 August 2015, the AEMC made its Final Determination on National Electricity Amendment (Demand Management Incentive Scheme) Rule 2015 which encourages distribution businesses to make efficient decisions with respect to network investment such that consumers' demand for electricity is met at the lowest total system cost. This determination further supports the justification for this project however the project does not depend on this determination for its justification. This project is justified on the basis of deferring and replacing traditional network investment with non-network options.

During the 2011-2015 regulatory period United Energy has invested in trials and implemented demand management through the Demand Management Innovation Allowance and the Demand-Side Engagement regulatory framework process. United Energy has now over 800 customers and demand management service providers engaged in demand management. Over the next regulatory period it is planned to implement demand management at scale in constrained areas of the network.

Without a Demand Management IT platform it is not feasible to implement Demand Management at scale and gain the benefit of deployment of non-network options to defer and replace traditional network investment.

This project provides the enabling tool for increased levels of demand management, hence allowing the deferring of capital investment in traditional network augmentation. It is expected that having the capability to dispatch widespread demand management will avoid network augmentation capital that has an annualised value up to $0.3M within the 2016-2020 regulatory control period increasing up to $3M per annum within the 2021-2025 regulatory control period.

The Demand Management IT platform also provides a tool for the collation of information to meet the AEMO demand side information reporting requirements and the connection point forecasts for transmission planning and for management and receipt of data under the wholesale DRM mechanism.

2. Objectives/Purpose

The purpose of this project is to provide capabilities to enable demand management to be deployed as a cost effective alternative to traditional network investment at volume. The implementation of demand management is also consistent with the AEMC Power of Choice reforms as it enables lower cost solutions through increased demand side participation.

This project delivers systems and processes that enable demand response to be managed from identification of relevant connection points through to event execution and serves as the foundation capability that will be utilised by other United Energy demand management initiatives such as PJ25 – AEMO Demand Management Reporting and PJ18 – Demand Response Mechanism.

Consistent with the vision to become The Intelligent Utility, United Energy has a proven track record of utilising effective network management technology to become one of the most efficient distribution businesses in Australia. Following earlier investments in a Distribution Management System, the Demand Management IT platform provides the capability to cost effectively manage network devices required to implement demand management within United Energy's network.

Capital Expenditure Criteria	Justification
Cost that a prudent operator would require to achieve the objectives	As a prudent operator United Energy, is preparing for wide deployment of non-network options to meet customer demand for SCS. United Energy has trialled the use of demand management and determined cost effective deployment of non-network options, at scale, will require automation of critical processes. Demand management IT platforms are now mature technology that have been deployed widely in other countries. Commercially available solutions are preferred to in-house development.
Realistic expectation of demand and cost inputs required to achieve the objectives	United Energy has estimated the proportion of future demand that could potentially be met by non-network options. This is considered by United Energy to be a realistic forecast. To manage non-network options without automation would render non-network options as uneconomic.

3.2. UE Strategic Themes Alignment

The Demand Management IT Platform serves as the foundational capability to support United Energy's demand management initiatives including supporting the Power of Choice reforms. This capability will enable United Energy to deploy demand side participation and other non-network options to increase efficiency of the existing distribution network and reduce or delay traditional network investments.

4. Options

The following options have been considered to implement the Demand Management project:

4.1. Option 0: Do Nothing

Adopting the "Do Nothing" option would result in United Energy not changing its systems and processes to enable deployment of non-network options as alternatives to traditional network investment. Under this scenario, United Energy would not be able to implement wide spread demand management, but be limited to continue running small scale programmes manually.

4.2. Option 1: Modify Existing Systems

United Energy's existing customer, market and metering systems were recently implemented and modified to support the requirements of the Victorian AMI roll out. The requirements to implement demand management are highly specialised and significant modification of existing systems will be required to support demand management requirements.

5.2. Benefits Summary

This project is justified by deferring capital investment in traditional network augmentation. It is expected that having the capability to dispatch widespread demand management will avoid network augmentation capital that has an annualised value up to $0.3M within the 2016-2020 regulatory control period increasing up to $3M per annum within the 2021-2025 regulatory control period.

The Demand Management IT Platform project also provides a key foundation to support the Power of Choice reforms. These reforms are expected to improve the efficiency of network investment that will ultimately result in lower prices for consumers than would otherwise be the case through greater Demand Side Participation.

6. Proposed Solution

It is proposed to select Option 2, deployment of a specialised demand response management system integrated with United Energy's market and network management systems to support the deployment of demand management as a cost effective alternative to traditional network investment. This is also consistent with the Power of Choice reforms related to network led demand response. Option 2 is considered to be the least cost and lowest risk solution that provides the necessary capabilities. Cloud solutions are available to meet the specialised functional and may from part of this solution.

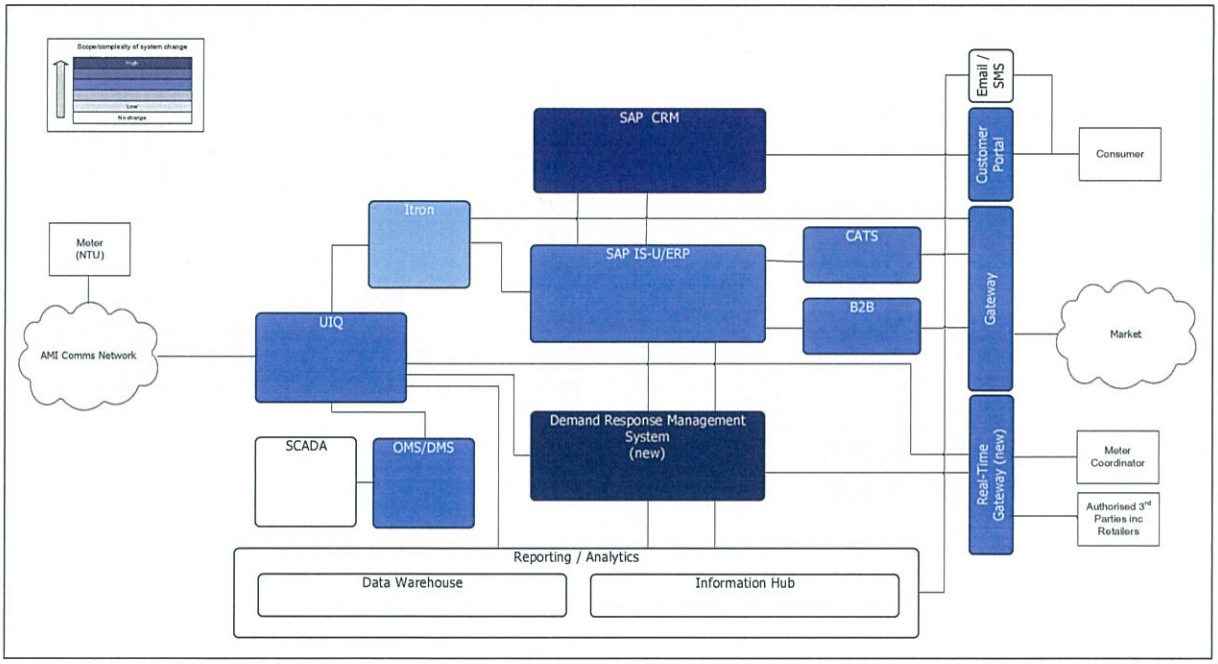
Option 0 was not selected as this option does not meet the requirements and would result in United Energy being unable to offer demand response as an alternative to traditional network investment at volume. United Energy is obliged under its licence to adhere to the National Electricity Rules. As participation in demand response schemes increase manual management is not feasible.

Option 1 was not selected as this is expected to be a higher cost and higher risk than Option 2. The proposed capabilities required are new and substantially different to those currently implemented at United Energy therefore it is expected that existing systems could not be modified to support the new capabilities at a lower cost than the addition of a specialised demand response management system.

6.2. Solution Overview

The proposed solution implements a new demand response management system to deliver the required capabilities. This is mature technology that has been successfully deployed in other electricity markets. This system will be integrated with United Energy's existing customer, market and metering systems. In addition to the new system changes will be required to United Energy's Customer (SAP ISU & CRM) to enable customer to enrol and contracts to be recorded, Customer Portal to support customer registrations and notifications and Meter Management System (UIQ) to support communications to customer devices.

Demand response forecasting will be available to AEMO to meet United Energy's regulatory obligation to provide this information. This capability has been separately costed in the AEMO reporting project justification.



6.3. Assumptions

The solution proposal assumes the following:

- Detailed requirements are not available at this stage. It has been assumed that, based on currently known requirements, the capabilities for establishing a management system to support the Demand Management Incentive Scheme will require a new system integrated with existing market and network management systems.
- Estimates are based on synergies with other regulatory initiatives. For example changes to the contract management system and the capabilities to support AEMO reporting.
- Assuming a relatively simple "tariff" structure to incentivise consumers to participate.
- Assume basic capabilities implemented to initially support up to 10,000 consumers.

7. Outputs

The project will deliver the following:

- Implementation of a new demand response management system.
- Implementation of processes to support United Energy's demand management program.

8. Project Capital Costs

Cost Category	Amount $M	Source / Explanation
Labour	4.10	Labour includes resources required for the full project implementation. It includes resources to carry out the complete system development and requisite Business and IT change management initiatives.
Hardware (application specific)	0.41	Assume that additional hardware is required.
Software	0.5	Additional software is required.
Security	0.04	Minor upgrade to security required.
PMO	0.35	Program Management Office and IT Capital Overheads
TOTAL	**5.4**	

This is the forecast capex requirement to support demand management activities in the 2016-2020 regulatory control period and included in the IT capex budget.

Estimates are based on assessment of impacts on systems to be modified to meet the required functionality. Requirements for the estimates are derived from the AEMC Power of Choice review.

9. Operating Cost Impact

As this project introduces new systems, it is will increase IT operational costs. These operational costs will cover licence maintenance fees and additional application support costs and are estimated at $0.7M per annum. Refer to United Energy's EDPR Opex Proposal - Opex step change 1d for details.

11. Appendices

11.1. Appendix A - Requirements

The table below lists the high level requirements for this project.

Req't ID	Description
PJ26-01	**Develop processes and capabilities to support demand response programs directly through consumers or through third party aggregators. The capabilities need to include the typical consumer campaign activities such as:** **- Targeting** **- Communications (email, print, SMS, social media)** **- Tracking of campaign progress**
PJ26-02	**Enrol/Sign up consumers or third party aggregators to a demand response program.**
PJ26-03	**Maintain a contract for each consumers or third party aggregator as per demand response program.**
	Demand Management Devices (where UE has direct control of a load)
PJ26-04	**On-going asset management of devices that will be used for direct control of demand, such as:** **- Procurement** **- Inventory Management** **- Warehousing** **- Testing**
PJ26-05	**Installation of any devices that will be used for direct control of demand.**
PJ26-06	**Planned maintenance and fault remediation of devices.**
PJ26-07	**Manage appointments for maintenance or fault remediation.**
PJ26-08	**Develop forecasting models that are aligned with UE's baseline methodology calculation.**
PJ26-09	**Create DR events and support the capability to send and receive notifications**
PJ26-09.01	• Notify participants directly or through third party aggregators.
PJ26-09.02	• Support the capability for customers to opt-in / opt-out of a direct control event (Opt-out is explicit).
PJ26-09.03	• Support the capability for customers to opt-in / opt-out of a supply capacity limiting event (Opt-in is explicit)
PJ26-09.04	• Send alerts to supply capacity limiting participants approaching demand threshold.
PJ26-09.05	• Allow non-participating parties the option to receive DR event notification, currently A/C manufacturers.
PJ26-10	**Directly manage consumer load using a priority based sequence (including UE and customer owned devices).**
PJ26-11	**Integrate with third party aggregators to facilitate timely notification of demand response event.**
PJ26-12	**Monitor Customer Event Participation.**
PJ26-12.01	• Customer participation in a DR event is validated through reconciling metering data during the event against the baseline for that customer.

11.3. Appendix C - References

Power of choice review – giving consumers options in the way they use electricity

http://www.aemc.gov.au/getattachment/2b566f4a-3c27-4b9d-9ddb-1652a691d469/Final-report.aspx

Demand Management Incentive Scheme, Final Determination, 20 August 2015

http://aemc.gov.au/getattachment/f866b41b-753b-471c-91cf-4f558ca130b2/Final-rule-determination.aspx

Demand Management Incentive Scheme, Final Rule, 20 August 2015

http://aemc.gov.au/getattachment/cb33e202-039e-4eef-9d38-6749e649d3cf/Final-rule.aspx

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