Business Requirements Specification

Demand Response Location Registration Enhancement

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1. Introduction

1.1 Purpose

The purpose of this document is to capture and record a description of what the Users and Business Stakeholders of the project wish to obtain by providing high-level business requirements. This document establishes the basis for the agreement between the initiators and implementers of the project. The information in this document serves as input to determining the scope of Information Systems projects and to all Business Process Modeling and System Requirements Specifications efforts.

These requirements will serve as the initial set of business unit requirements for the appropriate software application/systems development effort. It is understood that additional requirements and systems analysis may produce "To Be" Business Process Models, System Requirements Specifications, and Use Cases to serve as the set of requirements documents used by the development teams to buy, modify, or build the necessary software and hardware systems. The Business Unit(s) involved in the project will have an opportunity to review and approve all requirements documentation produced.

2. Details of Business Need/Problem

2.1 Description

The Demand Response System (DRS) that is currently at the ISO does not provide the capability for Demand Response Providers (DRP) to enter locations and create registrations using an automated process. The number of service accounts, required to be created as locations in the DRS, that currently make up all residential and some non-residential demand response programs are in such volumes that they cannot be efficiently entered through the User Interface (UI) in a manual method. Also, any changes within the underlying locations will cause the registration to be terminated and re-registered. However, providing an Application Programming Interface (API) to load large volumes of locations will result in performance issues within the current DRS application as the current architecture will not support workflow management for large volumes of location information associated with all programs wanting to register and participate as a wholesale demand response resource.

Limitations with the location volumes does not typically affect the registration of Commercial & Industrial (C&I) programs as the numbers of locations in demand response programs designed for them are significantly lower than those programs consisting of residential or smaller commercial locations. However, there may be several Commercial programs that have hundreds and potentially thousands of service area accounts per Resource ID. Market Participants (MP) have requested that the ISO consider the number of locations that will need to be registered in the integration of all residential and non-residential programs and to provide options that allow for efficient registration processed for them.

High-level goals for this enhancement are –

1. Provide bulk upload/download of locations for market participants
2. Provide scalability to accommodate input of the volume of UDC accounts in residential and non-residential demand response programs
3. Maintain duplication check of a location within active registrations

3. Business Requirements

The sections below describe the Business Processes and the associated Business Requirements involved in the project. These may represent high level functional, non-functional, reporting and/or infrastructure requirements. These business requirements directly relate to the high level scope items determined for the project.

3.1 Acronyms

The following acronyms are used in this document.

Acronym	Description
DRS	Demand Response System
LRCV	Load Reduction Capacity Value
ALOC	Aggregate Location
LSE	Load Serving Entity
UDC	Utility Distribution Company
DRP	Demand Response Provider
PDR	Proxy Demand Response Resource
API	Application Programming Interface

3.2 Assumptions

The following assumptions are used in the business requirements in this document.

- Locations have a unique UDC Account Number
- Reference to DRS is a reference to the current DRS system at the ISO
- Reference to “DR solution” is a reference to the proposed enhanced functionality

3.3 Definitions

Phrase	Definition
Active Registration	A Registration is said to be an “Active Registration”, if the Registration status is either “Confirmed” or “Pending” in the current DRS system.
Active ALOC	An ALOC is said to be an “Active ALOC” if it is a part of an “Active Registration”.

3.4 Business Process: Demand Response Solution Requirements

3.4.1 Business Requirements

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ500	Using the DR solution, a user may perform four separate actions – ➢ Record a Location using web service API or UI ➢ Create an Aggregate Location (ALOC) using web service API or UI ➢ Create a Registration using the UI. ➢ Download capability for DRP, UDC and LSE to download list of associated (role-based) locations and ALOC(s) for a certain trade date(s).	Core	Metering BU	DR Solution
DRS-BRQ501	**LRCV of a location** (optional) – Using the DR solution, DRP may submit LRCV (optional) at the location level for informational purposes only as it is not used to determine or validate the LRCV of an ALOC or Registration. **Note:** Load Reduction Capacity Value (LRCV) is the total available kW load reduction	Core	Metering BU	DR Solution

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ502	**LRCV of an ALOC** – Using the DR solution, DRP is required to submit LRCV at the ALOC-level, defined as the LRCV of an aggregation of one or more locations. **Note:** Load Reduction Capacity Value (LRCV) is the total available kW load reduction	Core	Metering BU	DR Solution
DRS-BRQ503	It is the responsibility of the DRP to manage the LRCV at ALOC-level.	Core	Metering BU	DR Solution
DRS-BRQ504	In the DR solution, the LRCV of an ALOC shall NOT be derived by adding LRCVs (even when provided) for locations constituting the ALOC.	Core	Metering BU	DR Solution
DRS-BRQ505	**LRCV of a Registration in the DRS** – To determine the LRCV of a Registration in the DRS, the system shall sum the LRCVs of the constituent ALOCs. **Note:** Load Reduction Capacity Value (LRCV) is the total available kW load reduction	Core	Metering BU	DRS

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ506	When any change to an active ALOC is initiated by the DRP, the DR solution shall check if Registration LRCV equals Pmax of the Resource ID associated with the Registration in Master File. If the Registration LRCV does NOT equal Pmax of the Resource ID associated with the Registration in Master File, the DR solution shall reject the changes to the active ALOC. **Notes:** • This validation will be done synchronously and for a true condition, the system will generate an error on the UI, if entered using the UI. • If the data is submitted using the web service, the batch containing the invalid ALOC will be rejected and the reply message will contain the error stating which ALOC is invalid. • If the validation does not result in any error, the user will have the option to save the ALOC on the UI or will be auto saved in the API process and a success reply message will be sent back to the DRP.	Core	Metering BU	DR Solution
DRS-BRQ507	In the DR solution, Locations shall have associated effective start/end dates which would be required fields.	Core	Metering BU	DR Solution
DRS-BRQ508	In the DR solution, once recorded, Locations can be end-dated but not deleted.	Core	Metering BU	DR Solution
DRS-BRQ509	In the DR solution, Locations may be associated with an ALOC for a certain time period.	Core	Metering BU	DR Solution

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ510	An Aggregate Location (ALOC) can only consist of locations with identical – ➢ SubLAP ➢ LSE ➢ DRP ➢ UDC	Core	Metering BU	DR Solution
DRS-BRQ511	In the DR solution, an ALOC may consist of one or more locations.	Core	Metering BU	DR Solution
DRS-BRQ512	In the DR solution, a location has to be associated with an ALOC in order to participate in a Registration.	Core	Metering BU	DR Solution
DRS-BRQ513	In the DRS, a Registration can only consist of ALOCs with identical – ➢ SubLAP ➢ LSE ➢ DRP ➢ UDC	Core	Metering BU	DRS
DRS-BRQ514	In the DR solution, ALOCs shall be assigned a unique, system-generated identifier - ALOC ID.	Core	Metering BU	DR Solution

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ515	**Removing Locations from an active ALOC:** In the DR solution, removing location(s) from an active ALOC is permitted if – ➢ LRCV of the Registration associated with the ALOC does NOT change as a result of removing the location(s) and remains equal to Pmax of the associated Resource ID in Master File **Notes:** • It is acceptable that removal of location(s) may result in change to the LRCV of the ALOC that is a part of the active registration. • It is the responsibility of the DRP to manage the LRCV of the ALOC(s) resulting from removing location(s) from the ALOC. • If removing the location from an ALOC results in the change in Registration LRCV, then the existing registration needs to be end dated and a new registration with the new effective date needs to be created.	Core	Metering BU	DR Solution

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ516	**Adding Locations to an active ALOC:** In the DR solution, adding location(s) to an active ALOC is permitted if – ➢ LRCV of the Registration associated with the ALOC does NOT change as a result of adding the location(s) and remains equal to Pmax of the associated Resource ID in Master File • It is acceptable that addition of location(s) may result in change to the LRCV of the ALOC that is a part of the active registration. • It is the responsibility of the DRP to manage the LRCV of the ALOC(s) resulting from adding location(s) to the ALOC. • If adding the location(s) to an ALOC results in the change in Registration LRCV, then the existing registration needs to be end dated and a new registration with the new effective date needs to be created. ➢ Newly added locations pass duplicate check – DRS-BRQ200 ➢ Newly added locations pass the LSE, UDC review process which is initiated when a DRP submits a request to add new location(s) to an active ALOC. A High-Level LSE, UDC Review Process Flowchart is provided in Appendix A of this document.	Core	Metering BU	DR Solution

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ517	DRP shall NOT be able to add an ALOC to or remove an ALOC from an active registration without end-dating the current registration.	Core	Metering BU	DRS
DRS-BRQ518	Validation of minimum total LRCV requirements will be performed in the DRS when a registration is created or modified.	Core	Metering BU	DRS
DRS-BRQ519	The pseudo location convention will no longer be necessary with the ALOC concept. The Metering Business Practice Manual will be updated to reflect this change.	Core	Metering BU	DR Solution, DRS
DRS-BRQ520	ALOCs shall be made available as locations in the existing DRS application.	Core	Metering BU	DR Solution, DRS
DRS-BRQ521	The current capability to “create, edit and copy locations” in the DRS will be replaced by the functionality described in this document. The current location viewing functionality will remain for the purposes of viewing the ALOCs.	Core	Metering BU	DR Solution, DRS
DRS-BRQ522	The remaining registration functionality will continue to be the same as is done today. All other DRS functionality inclusive of current UI and API uses, will remain the same.	Core	Metering BU	DRS

3.5 Business Process: Validation Requirements

3.5.1 Business Requirements

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ200	**Duplicate Location Check – Location Level:** When a DRP attempts to record a new location with a unique UDC account number for an effective start/end date, ISO shall perform validation (duplicate check) and reject the submission, if a location with the same UDC account number already exists in the system for an overlapping effective start/end date. **Notes:** 1. This validation will be done synchronously and for a true condition, the system will generate an error on the UI, if entered using the UI. 2. If the data is submitted using the web service, the batch containing the duplicate location will be rejected and the reply message will contain the error stating which location is a duplicate. 3. If the validation does not result in any error, the user will have the option to save the locations on the UI or will be auto saved in the API process and a success reply message will be sent back to the DRP.	Core	Metering BU	DR Solution

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ001	**Duplicate Location Check – ALOC Level:** A location can only belong to at most one ALOC for any trade date. System shall perform a duplicate check to ensure a location can only belong to at most one ALOC for any given trade date. **Notes:** • This validation will be done synchronously and for a true condition, the system will generate an error on the UI, if entered using the UI. • If the data is submitted using the web service, the batch containing the duplicate location will be rejected and the reply message will contain the error stating which location is a duplicate. • If the validation does not result in any error, the user will have the option to save the locations on the UI or will be auto saved in the API process and a success reply message will be sent back to the DRP.	Core	Metering BU	DR Solution

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ002	System shall validate all locations under a Aggregate location must have the same associated **LSE**. **Notes:** 1. This validation will be done synchronously and for a true condition, the system will generate an error on the UI, if entered using the UI. 2. If the data is submitted using the web service, the batch containing the Aggregate location with locations associated with multiple LSEs will be rejected and the reply message will contain the error stating which locations have different LSE. 3. If the validation does not result in any error, the user will have the option to save the Aggregate location(s) on the UI or will be auto saved in the API process and a success reply message will be sent back to the DRP.	Core	Metering BU	DR Solution

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ003	System shall validate all locations under a Aggregate location must have the same associated **DRP**. **Notes:** 1. This validation will be done synchronously and for a true condition, the system will generate an error on the UI, if entered using the UI. 2. If the data is submitted using the web service, the batch containing the Aggregate location with locations associated with multiple DRPs will be rejected and the reply message will contain the error stating which locations have different DRP. 3. If the validation does not result in any error, the user will have the option to save the Aggregate location(s) on the UI or will be auto saved in the API process and a success reply message will be sent back to the DRP, which submitted the request.	Core	Metering BU	DR Solution

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ004	System shall validate all locations under a Aggregate location must have the same associated **SubLAP**. **Notes:** 1. This validation will be done synchronously and for a true condition, the system will generate an error on the UI, if entered using the UI. 2. If the data is submitted using the web service, the batch containing the Aggregate location with locations associated with multiple SubLAPs will be rejected and the reply message will contain the error stating which locations have different SubLAP. 3. If the validation does not result in any error, the user will have the option to save the Aggregate location(s) on the UI or will be auto saved in the API process and a success reply message will be sent back to the DRP.	Core	Metering BU	DR Solution

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Potential Application(s) Impacted
DRS-BRQ005	System shall validate all locations under a Aggregate location must have the same associated **UDC**. **Notes:** 1. This validation will be done synchronously and for a true condition, the system will generate an error on the UI, if entered using the UI. 2. If the data is submitted using the web service, the batch containing the Aggregate location with locations associated with multiple DRPs will be rejected and the reply message will contain the error stating which locations have different UDC. 3. If the validation does not result in any error, the user will have the option to save the Aggregate location(s) on the UI or will be auto saved in the API process and a success reply message will be sent back to the DRP, which submitted the request.	Core	Metering BU	DR Solution

3.6 Business Process: Mapping Aggregate Location Data to DRS Location Data

3.6.1 Business Requirements

<table>
<tr><th>ID#</th><th>Business Feature</th><th>Requirement Type</th><th>Potential Application(s) Impacted</th></tr>
<tr><td>DRS-BRQ006</td><td>Mapping Location Information:
System shall assign the following LocationInfo attributes to an Aggregate location –
<table>
<tr><th>DRS System Parameter</th><th>Aggregate Location Parameter</th></tr>
<tr><td>Location Name</td><td>Name of Aggregate Location provided by the DRP</td></tr>
<tr><td>UDC Account Number</td><td>System shall assign a system generated, unique “ALOC ID”</td></tr>
<tr><td>DRP</td><td>DRP of all locations under the Aggregate location (validated at the time of submission to be the same for all locations under the Aggregate location).</td></tr>
<tr><td>UDC</td><td>UDC of all locations under the Aggregate location (validated at the time of submission to be the same for all locations under the Aggregate location).</td></tr>
<tr><td>SubLAP</td><td>SubLAP of all locations under the Aggregate location (validated at the time of submission to be the same for all locations under the Aggregate location).</td></tr>
</table></td><td>Core</td><td>DRS</td></tr>
</table>

<table>
<tr><th>ID#</th><th>Business Feature</th><th>Requirement Type</th><th>Potential Application(s) Impacted</th></tr>
<tr><td>DRS-BRQ007</td><td>Mapping Site Information:
System shall assign the following SiteInfo attributes to a Aggregate location –

<table>
<tr><th>DRS System Parameter</th><th>Aggregate Location Parameter</th></tr>
<tr><td>Street Address</td><td>Leave Blank.</td></tr>
<tr><td>2nd Line Street Address</td><td>Leave Blank.</td></tr>
<tr><td>City</td><td>Leave Blank.</td></tr>
<tr><td>State</td><td>Leave Blank.</td></tr>
<tr><td>Zip Code</td><td>Leave Blank.</td></tr>
<tr><td>BUS PNode</td><td>Leave Blank.</td></tr>
</table>
</td><td>Core</td><td>DRS</td></tr>
</table>

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
DRS-BRQ008	**Mapping Profile Information:** System shall assign the following SiteInfo attributes to a Aggregate location –	Core	DRS

DRS System Parameter	Aggregate Location Parameter
Total Load Reduction	User-provided Load Reduction Capacity Value for the ALOC
HVAC	Leave Blank.
Backup Gen	Leave Blank.
Lighting	Leave Blank.
Refrigeration	Leave Blank.
Manufacturing	Leave Blank.
Water Heating	Leave Blank.
Other	Leave Blank.
Number of Sites Multiplier	Leave Blank.

4. Appendix A – High-level LSE, UDC Review Process Flowchart

This section provides a link to the LSE, UDC review process which is initiated when a DRP submits a request to add new location(s) to an active ALOC.

DRS-To Modify ALOCs-New LSE-UDC Review Process Flowchart

5. Appendix B – Diagrammatic Representation of the Relationship among Locations, Virtual Locations (VLOCs), Registrations and Resource IDs

This section provides a link to a diagrammatic representation of the relationship between Locations, ALOCs, Registrations and the Resource IDs in Master File.

DRS-Locations-ALOCs-Registrations-ResourceIDs