



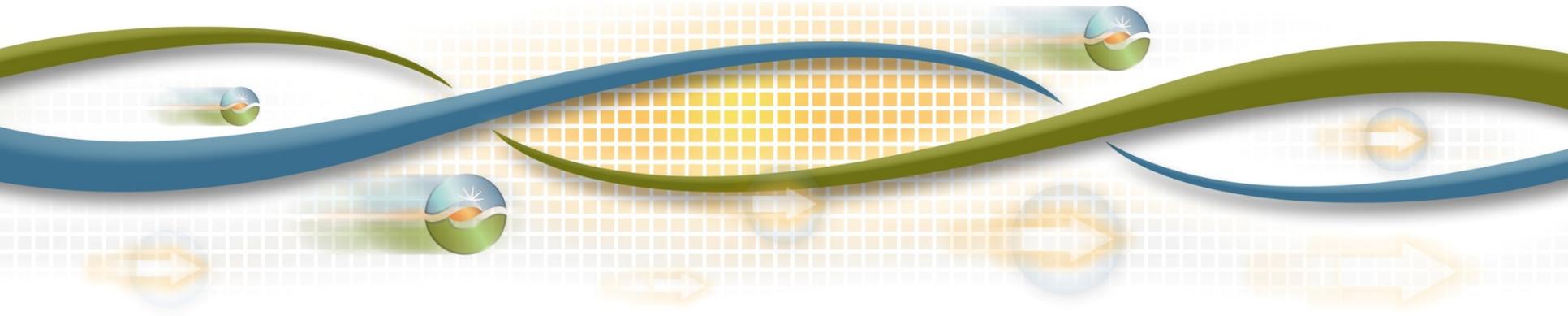
California ISO
Shaping a Renewed Future

Supply Resource Demand Response Integration Working Group
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Demand Response System Roadmap

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ISO Demand Response System (DRS)

Agenda

- Scope
- Challenges
- Long-Term Vision
- High-Level Roadmap
- API Needs
- Locations API Deep Dive

ISO Demand Response System (DRS)

The demand response system was developed to support wholesale demand response participation:

- Location Management
- Registration Management
- Meter Data Management
- Baseline Calculation
- Performance Calculation
- Compliance
- Settlement

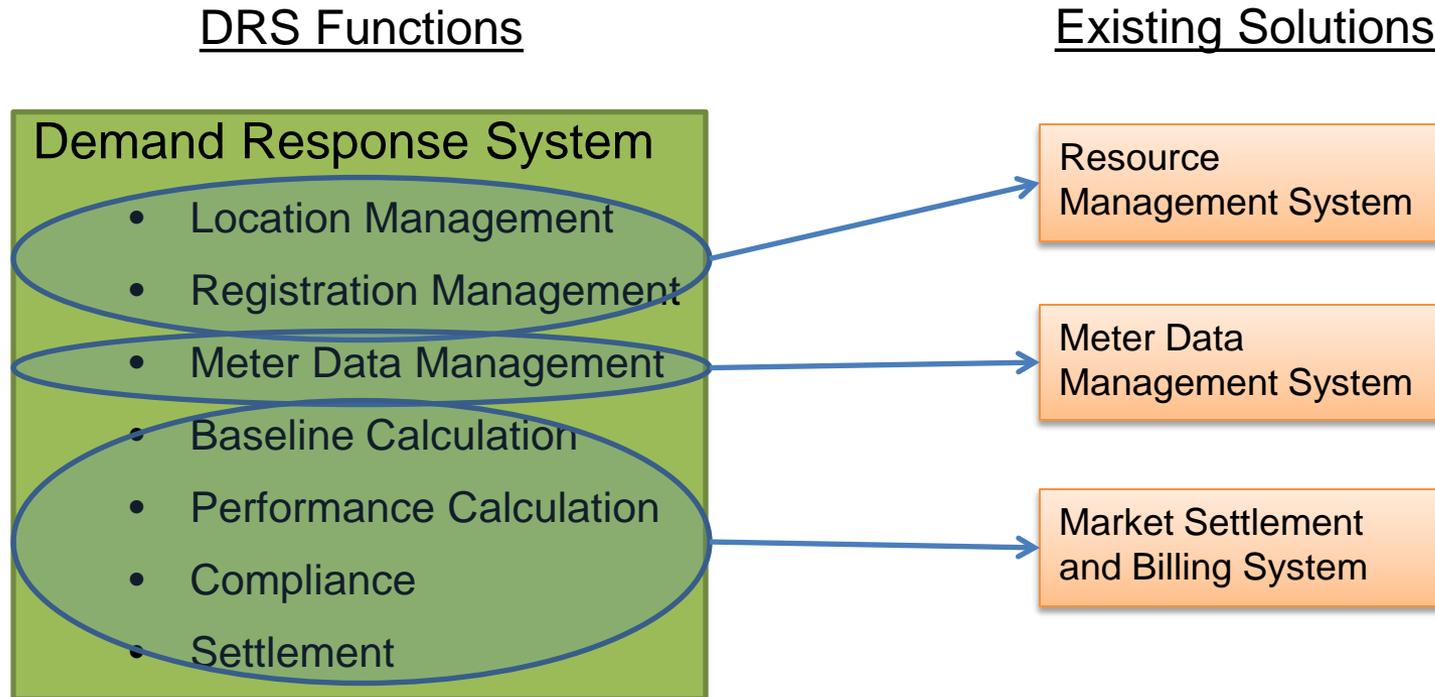
DRS Challenges

Architecture, System Qualities and Capabilities

- Enhancements requested to enable increased participation and satisfaction
 - Lack of Application Programming Interfaces (APIs) is a barrier to integrating programs with wholesale markets
 - Participants want to integrate all residential and non-residential programs consisting of thousands of accounts (locations)
- Existing DRS does not currently meet these needs
- Existing DRS duplicates existing course-grain functions already implemented at ISO

DRS Long-Term Vision

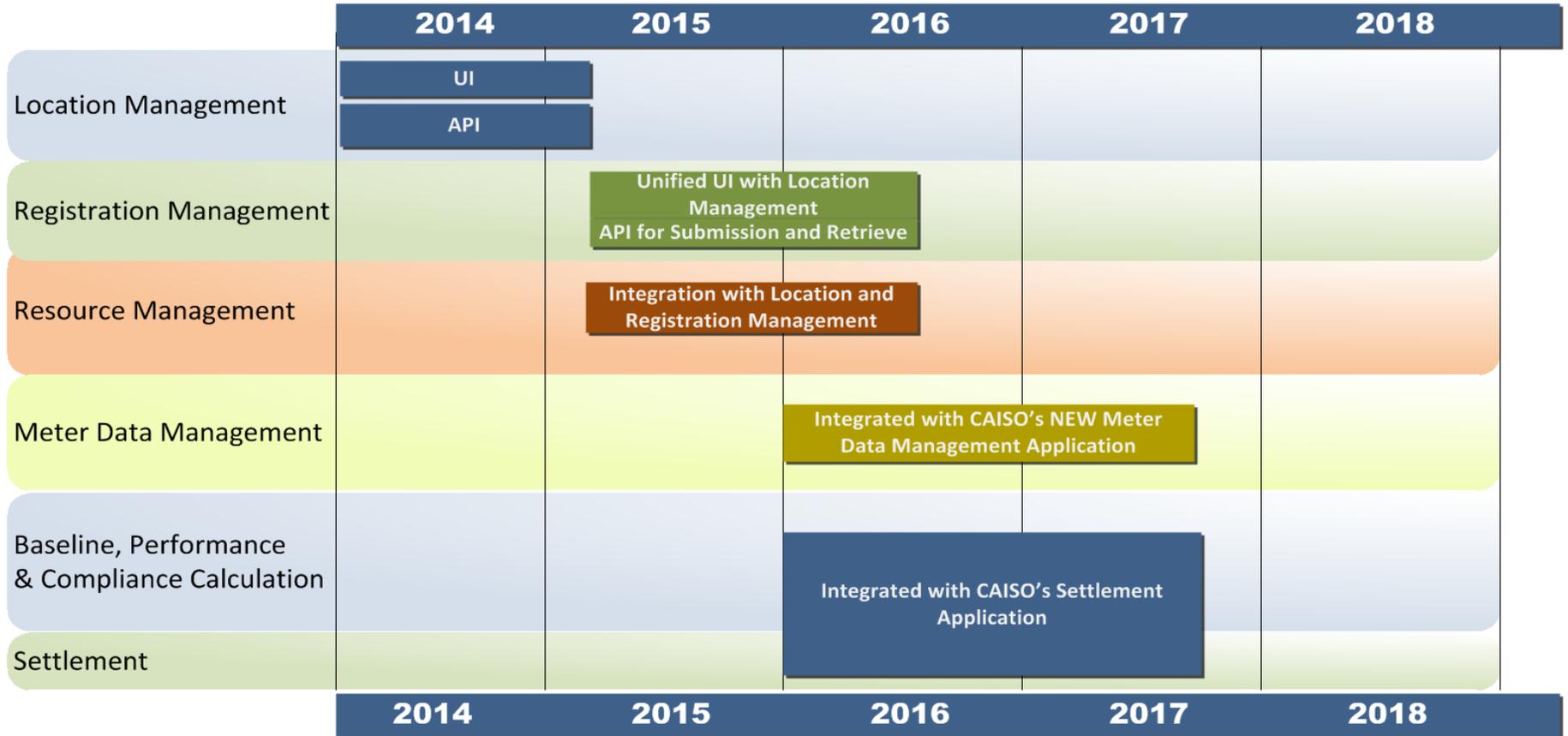
- Rationalize application portfolio to gain reuse, flexibility and scalability
- Provide additional capabilities
 - Standardized APIs
 - Unified user interfaces and APIs where possible



DRS High-Level Roadmap



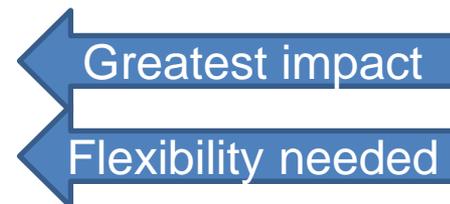
Demand Response - External Technology Roadmap



DRS API Roadmap

Identified API's needed for automated submission and retrieval

- Locations – Create, Modify, Terminate
- Registrations – Create, Modify, Terminate
- Baseline Calculation Data – Retrieve
- Performance Data – Retrieve



Short Term: 2014 Year-End

- Enabling Locations Management: Provide UI and APIs for location management supporting the required volume
 - Initiate Resource Management System to support DR locations
 - Align short-term enhancements with architectural goals

DRS Location Management Improvements

Objective: Enabling external customers bulk upload and download of location data for processing of demand response resource registrations.

High Level Goals:

- Bulk upload/download of locations for market participants
- Business processes simplification and automation
 - process timelines maintained or reduced
- Scalability to accommodate input of the volume of locations identified
- Additional flexibility in creating new and modifying existing registrations
- Maintain duplication check of locations within active registrations

Business Requirements Specification (BRS)

7/11/14 – BRS Initial draft published

Web Service data requirements published

7/24/14 - Customer participation call

8/05/14 - Stakeholder comments received and reviewed

9/1/14 BRS revised draft published

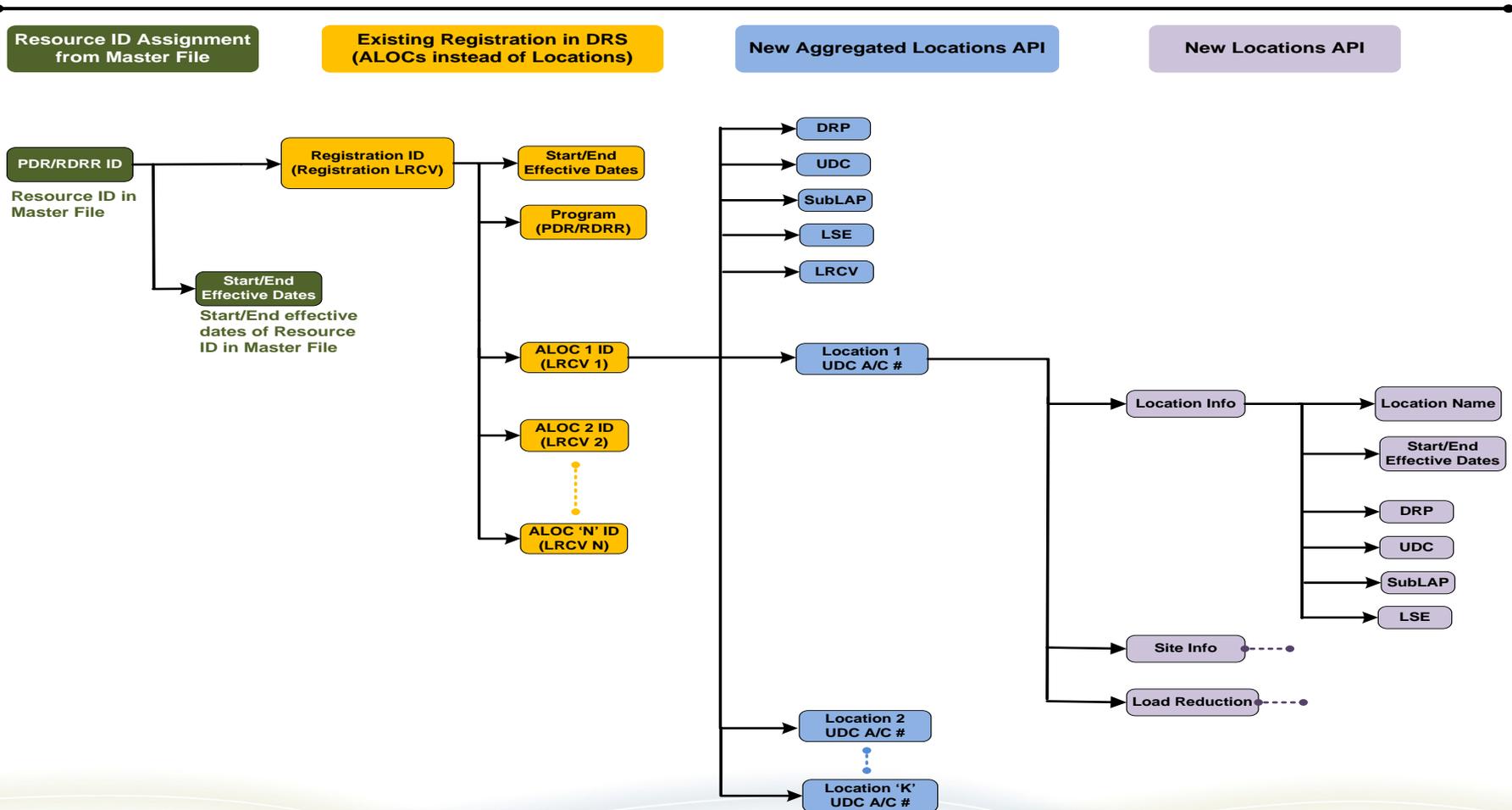
- Incorporates stakeholder comments
 - Removed residential/non-residential identifier
 - Added clarification on location duplication checks
 - Provided additional LSE/UDC review and notification process
- Link to Independent Release Implementation Page for BRS posting
<http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=4DB9EE7B-7ECF-42E4-BE8F-0817538FD920>

Overview of BRS concepts and functionality to achieve objective and goals

- ALOC (Aggregated location)
 - ALOC consists of one or more locations
- Managing Locations (additions, deletions, and moving locations from ALOCs)
- LSE/UDC alert for removal and review for addition of a location to ALOCs
- Duplication check at location and ALOC
- Associating ALOC to Registration

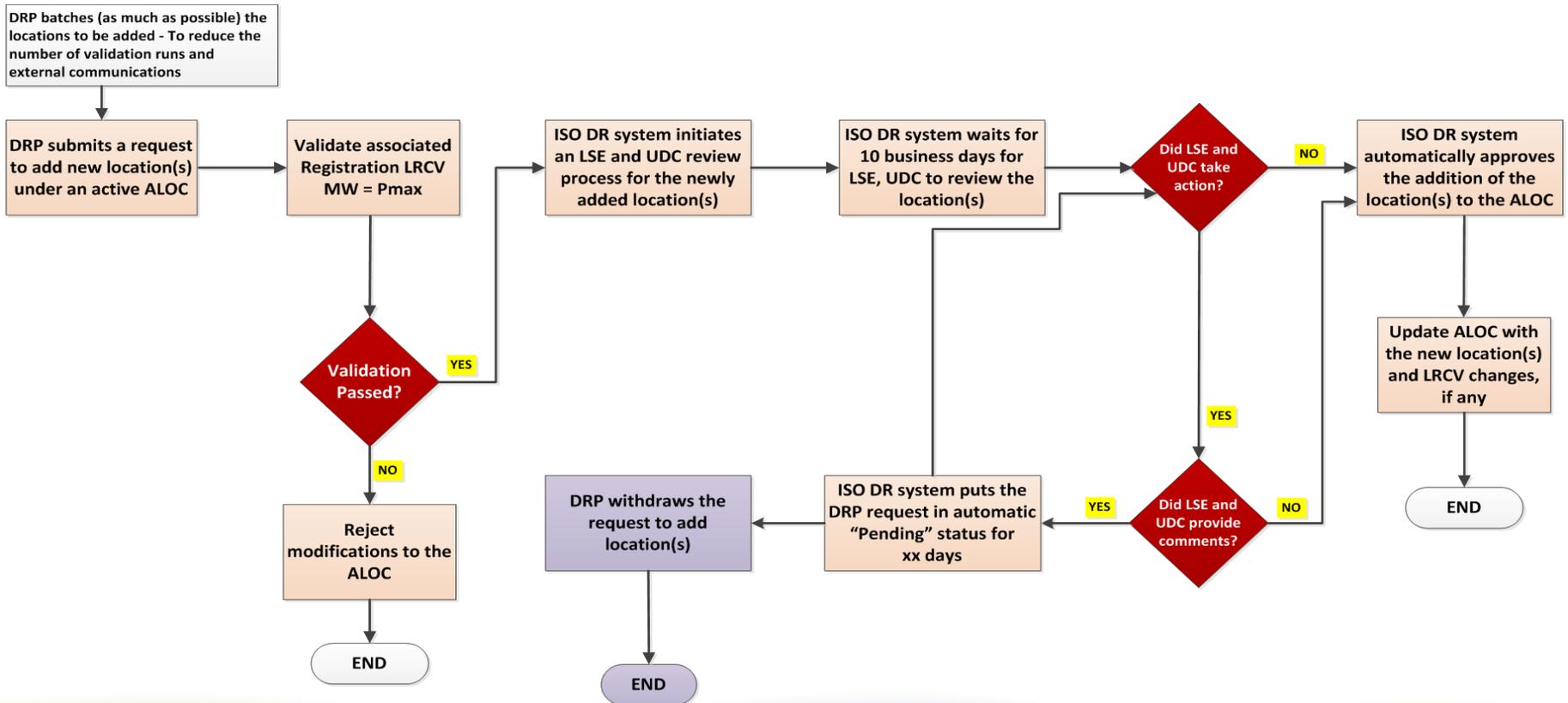
Locations, ALOCs, Registrations and Resource IDs relationship

CAISO Demand Response Locations, Aggregated Locations (ALOCs), Registrations and Resource IDs



Flexibility to add locations in a VLOC without terminating a confirmed registration while providing LSE/UDC review

High-Level LSE, UDC Review Process Flowchart
Initiated when a DRP submits a request to add new location(s) to an active ALOC



Next Steps

- Revised BRS published
- Revised Technical Specifications published
- Market Simulation