



ELECTRIC POWER  
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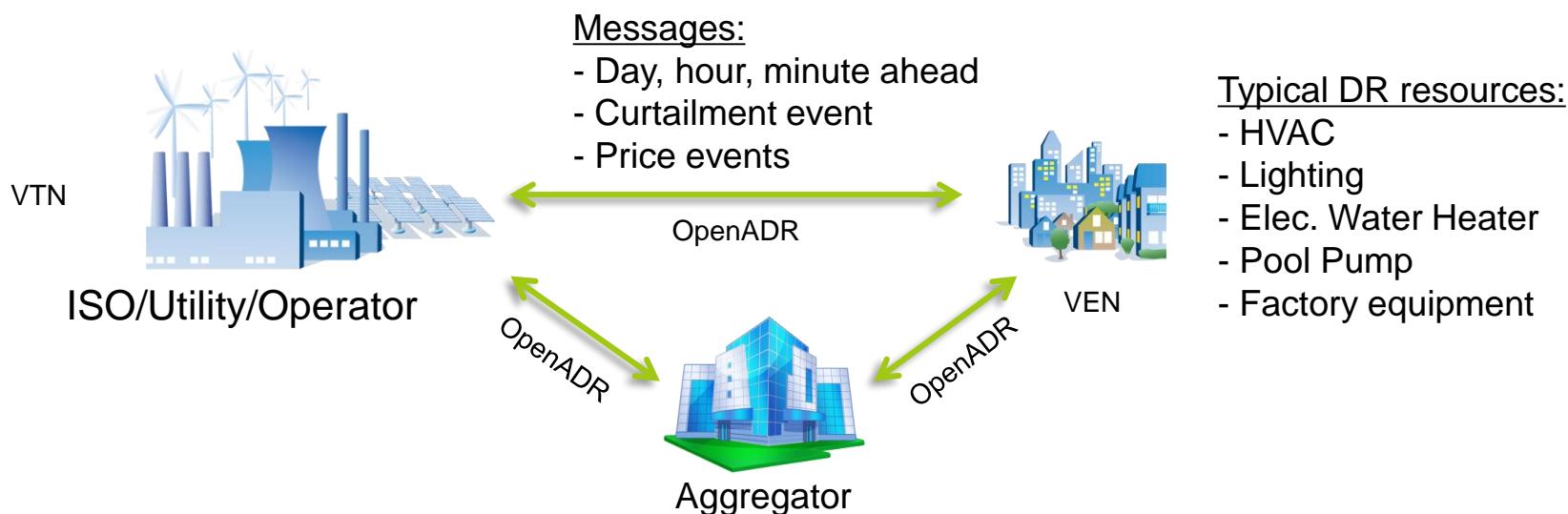


# Communications Standards Evaluation - OpenADR

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# Demand Response with OpenADR

- Original Demand Response (DR) is defined as “...action taken to reduce electricity demand in response to price, monetary incentives, or utility directives so as to maintain reliable electric service or avoid high electricity prices” (FERC 2007)



# Requirements Matrix

- Evaluated OpenADR based on the requirements matrix
- Challenge: Different viewpoints of the system and the implementations; different topologies

A	B	C	I	J	
Category	Subcategory	Information Operation	OpenADR		
Management	Registration (not enrollment)	Send Resource Registration Request (NAESBR 3.3)	x Registration Svc		
		Send Resource Registration Update (NAESBR 3.2)	x Registration Svc		
		Send Resource Registration Removal (NAESBR 3.4)	x Registration Svc		
		Send Device Registration Request (NAESBR 4.1)	x Out of band for specific devices. OADR uses Resource IDs. If a device has a VEN then devices are effectively registered but with limited information.		
		Send Device Registration Update (NAESBR 4.2)	x Out of band for specific devices	Resource itself enrolled but VEN is registered	
		Send Device Registration Removal (NAESBR 4.3)	x Out of band for specific devices	Could use reports?	
	Identification and	Initiate and/or respond to device discovery messages (CAR21 10.6)	Not supported. Registration includes profile support and transports.		
		Send group assignments and updates for devices (CAR21)	No attributes assigned to VEN. Manual process to create	Create arbitrary VEN Groupings out-of-band	
				VTN can target	

# Details of the evaluation

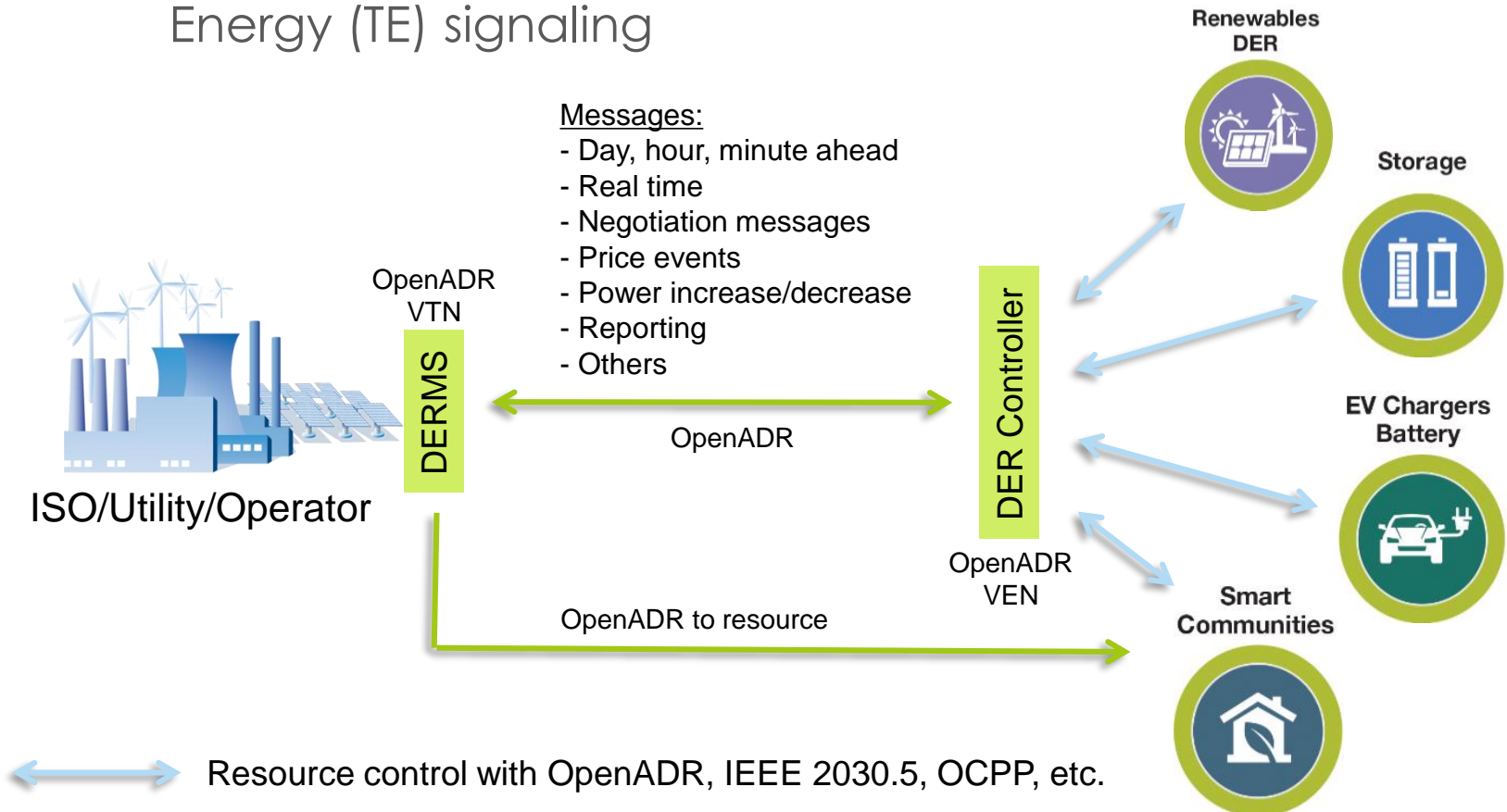
- Registration
  - OpenADR supports device (VEN) registration
  - Specific registration functions are out of band for OpenADR
- Grouping
  - OpenADR relies in the DRMS (or DERMS) to create meaningful groups and targets
- Software update
  - All OpenADR clients have web interfaces. Updates can be done through the VENs firmware
- Bids & Offers
  - OpenADR can use workarounds to provide the service. More specific functions are available in other EI services

# Details of the evaluation (2)

- Operational requirements
  - OpenADR can cover most of the operational requirements
  - May require additional service descriptions
  - Energy Availability Reports and Energy Status are not available
- Reporting
  - The OpenADR Report Service can cover most of the requirements
  - Will need to add report types

# DER Control with OpenADR

- OpenADR can help managing resources using classical DR messaging and enhanced DER and Transactive Energy (TE) signaling



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