

The Role of Advanced Energy Communities

Mark McGranaghan

Vice President, Integrated Grid

EPRI

mmcgranaghan@epri.com

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Challenges in the Electricity Decarbonization

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Why Advanced Energy Communities?

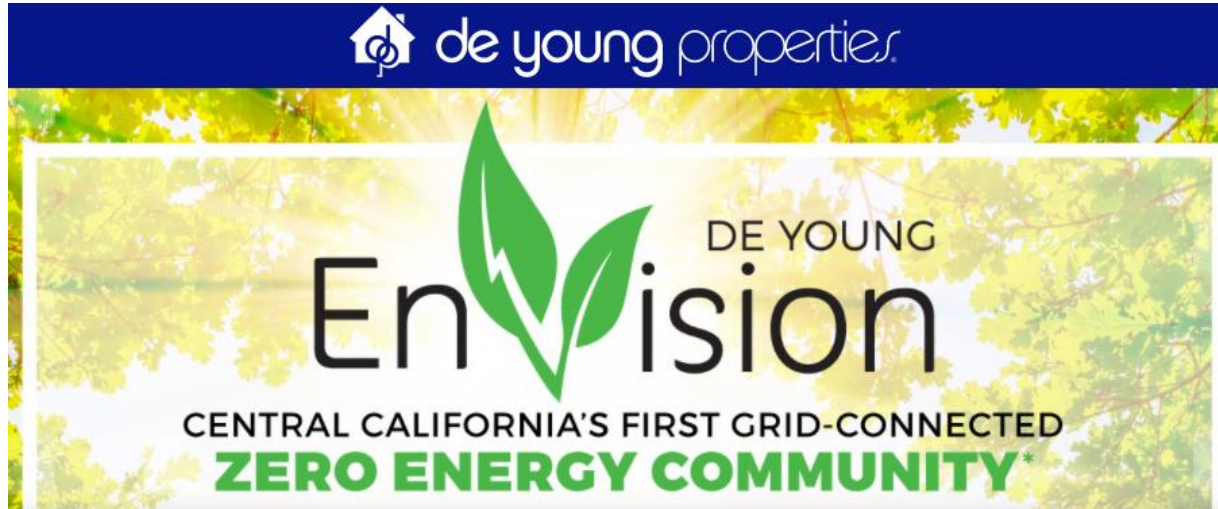
- Customer participation
- Energy efficiency
- Flexibility/grid integration
- **Decarbonization**
- Resiliency
- Economics



“Imagine the impact if there were thousands of these housing developments. Taken together with many other changes in how energy is consumed will have a profound impact on the electric business”

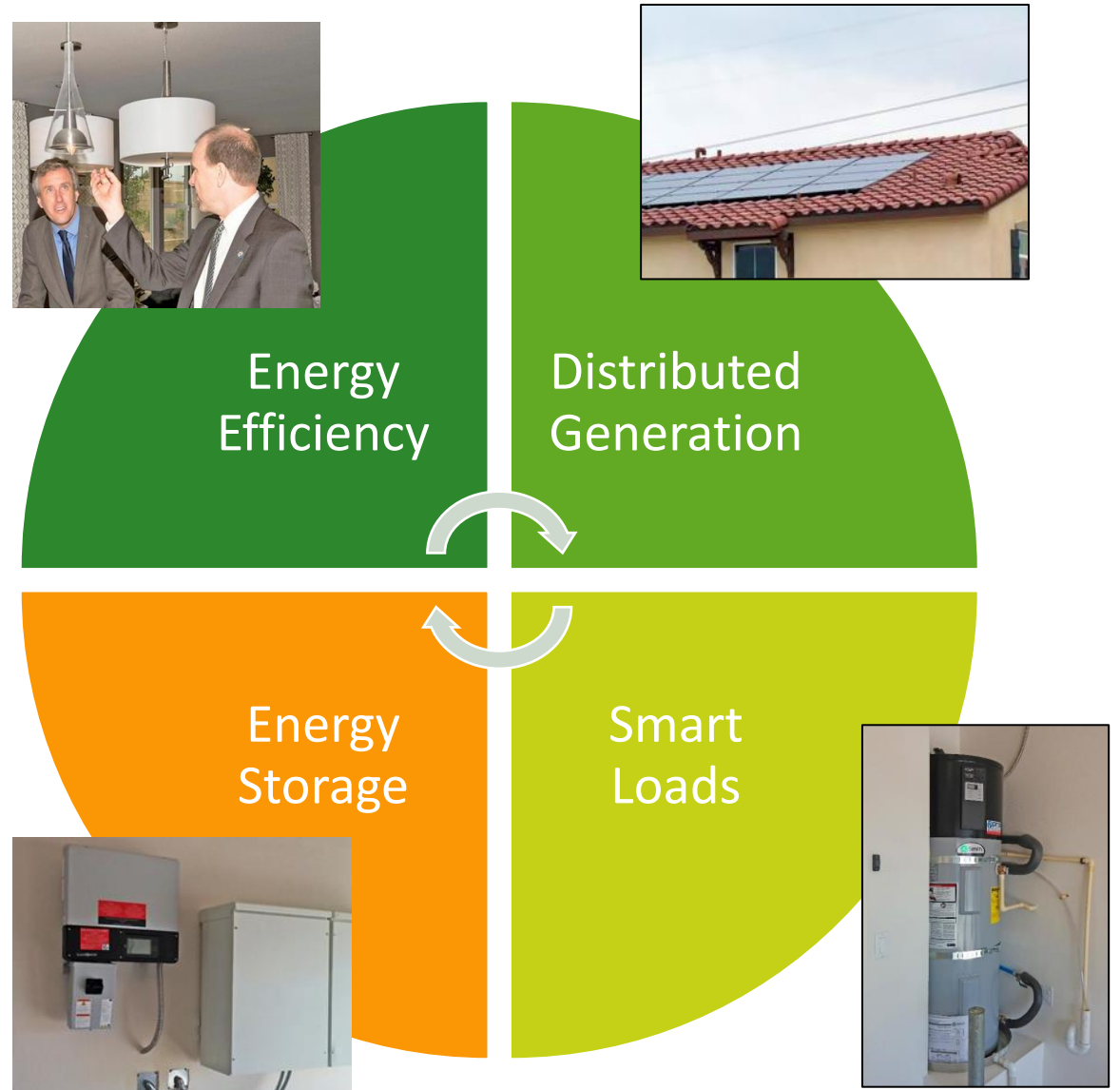
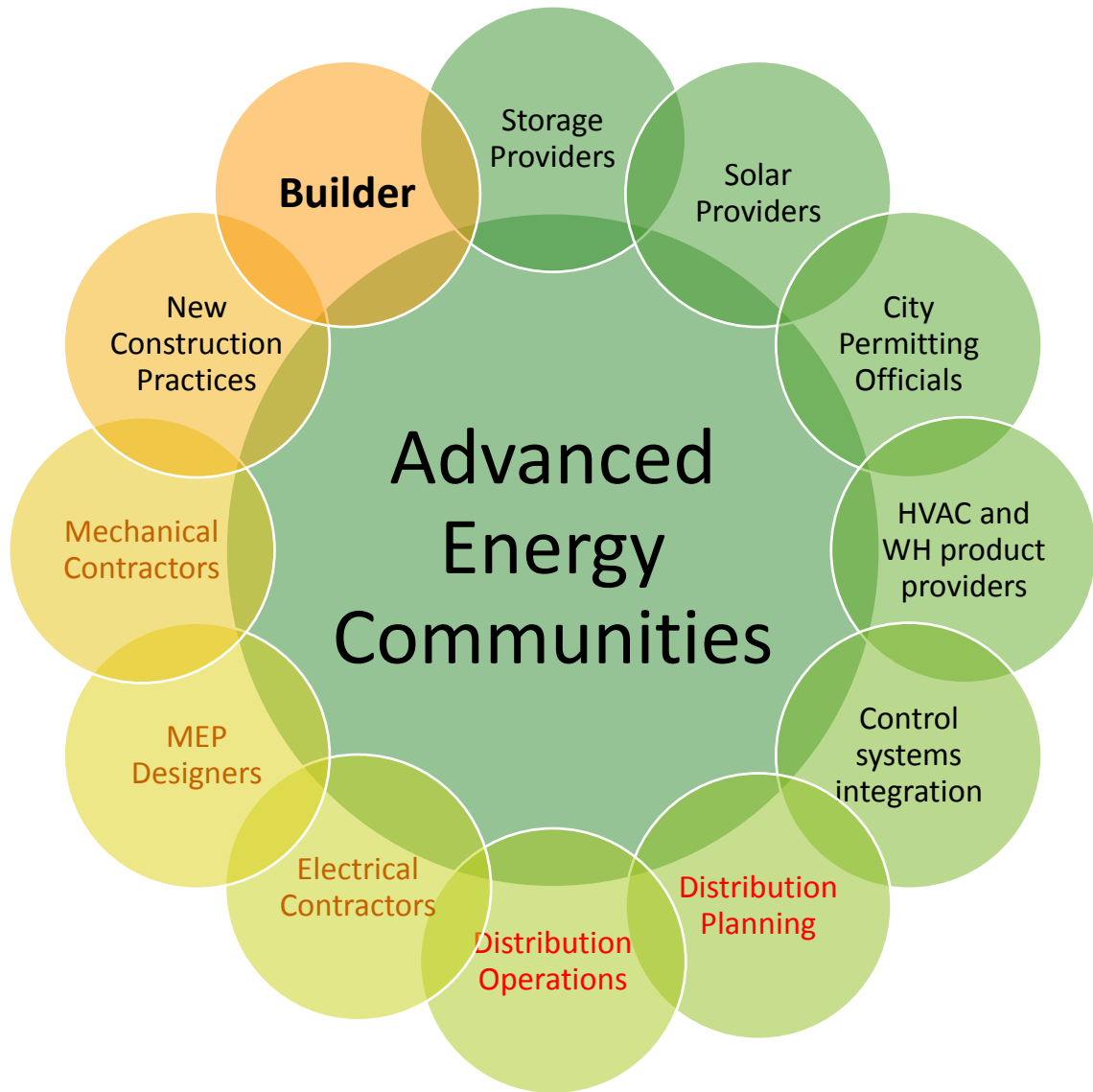
- Ted Craver, Edison International, 2016

Example – Zero Net Energy Communities (California)

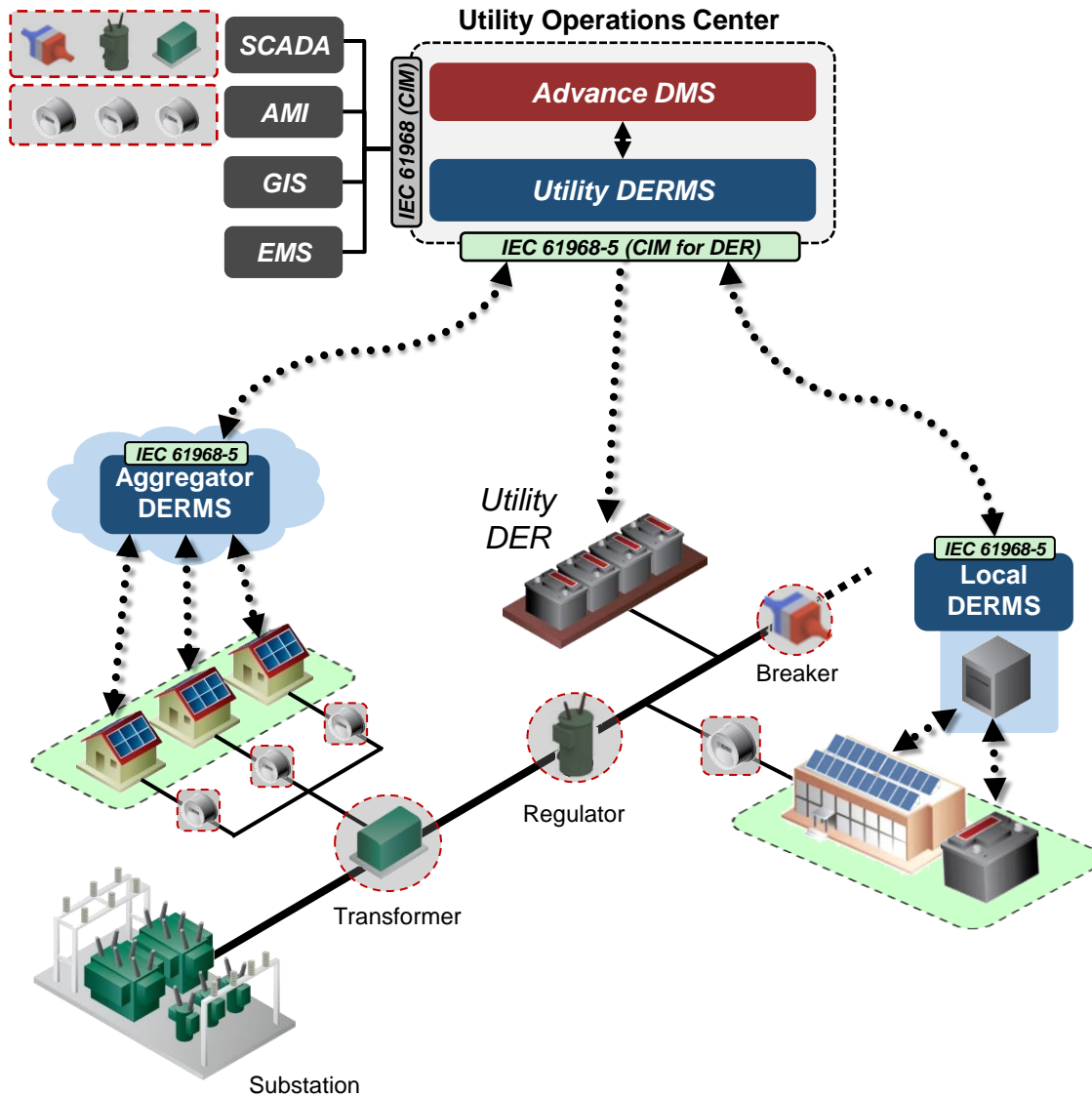


- **Community Scale integration of Solar, EE, DR, connected devices and EV**
- **Aiming for zero net carbon emissions**
- **Exploring community scale renewables, storage value, and market barriers**

Multi-stakeholder and technology coordination



Integration with TSO/DSO Planning and Operations

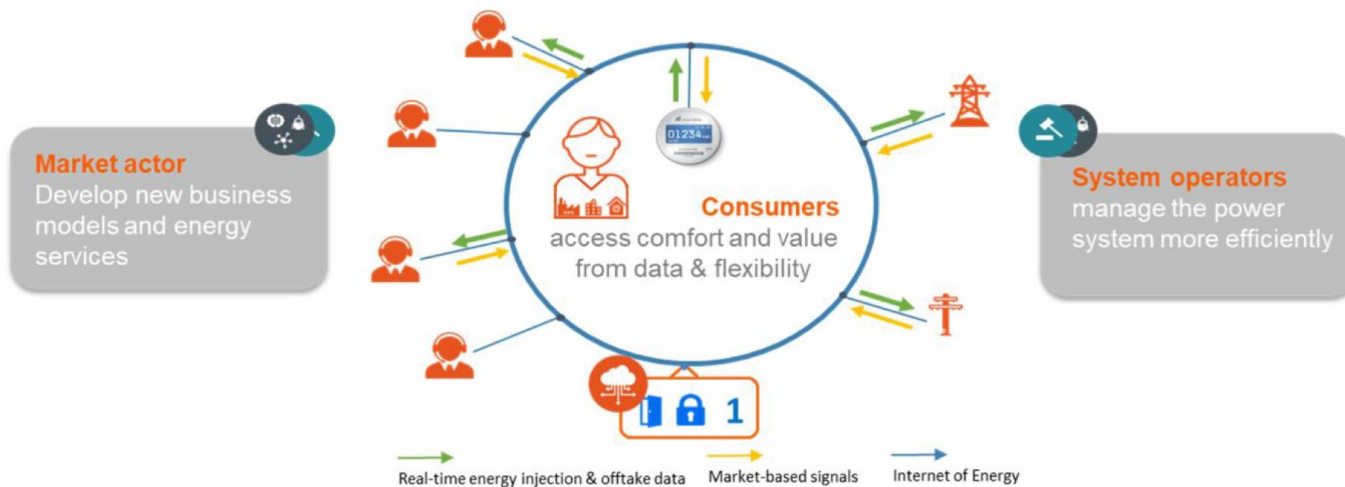


ADMS Functions	
SE / PF Engine	Load Forecast
Grid Needs / Constraints	User Interface
Operating Topology	Historian

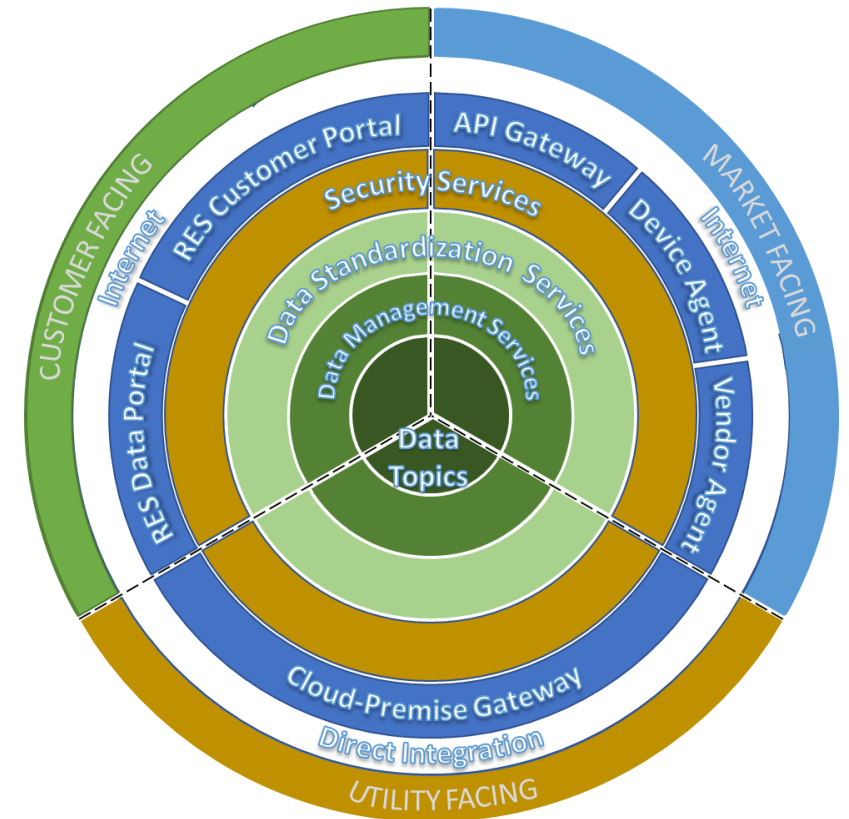
DERMS (All) Functions	
DER Output Estimation	
DER Output Forecast	
Aggregate	Simplify
Translate	Optimize

Developing the platforms to support advanced energy communities

Unlocking energy services at scale requires new interactions: IO.Energy



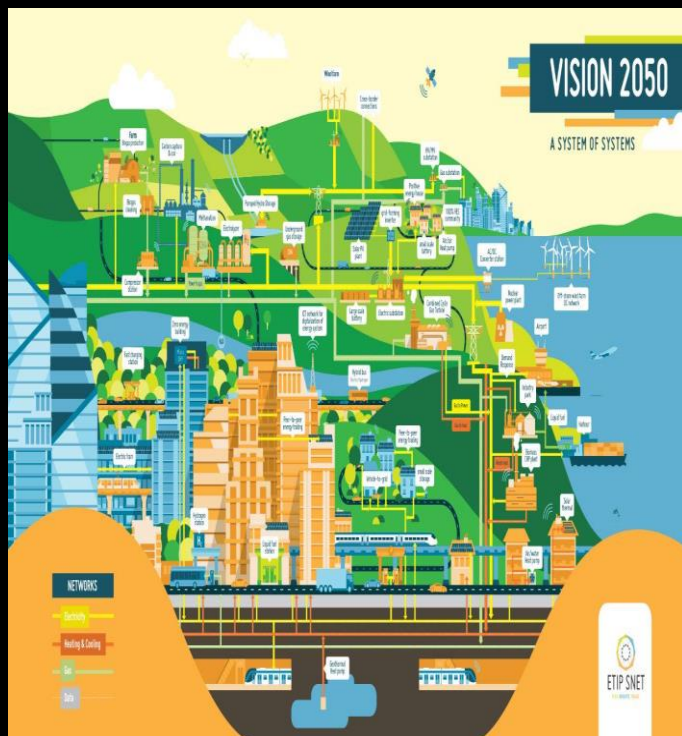
Residential Energy Services (RES) Platform – Southern Company





Local energy networks key aspect of Vision 2050

Published in June 2018



200 experts

Published in September 2018



Technical detailed (170 p)

Published in October 2018



Executive Summary (24 p)

60 experts

Learning from actual implementations

Alabama Power Smart Neighborhood (Birmingham)



ESB Networks – The Dingle Transition Initiative



Exelon Com Ed – Bronzeville Smart Community



Trent Basin Nottingham, UK

Tracking demonstrations - IGDemos.epri.com

Technologies Demonstrated

Projects included in this portal demonstrate a number of different technologies (sometimes multiple technologies). Feel free to browse the projects in any of the categories below:

- Advanced Metering
- Battery Storage
- Commercial Battery Storage
- Commercial Solar PV
- Common Information Model
- Community Battery Storage
- Community Solar PV
- Customer Integration
- Cybersecurity
- Distributed Resource Management System
- Distribution Management System
- Edge of Grid
- Electric Vehicle
- Home Energy Manager
- Long-term Forecasting
- Microgrid
- Operational Forecasting
- Residential Battery Storage
- Residential Solar PV
- Sensor Technology
- Smart Appliances
- Smart Inverter
- Solar PV
- Telecom
- Utility-scale Battery Storage
- Utility-scale Solar PV

Residential Battery Storage
Commercial Solar PV
Distribution Management System
Smart Appliances
Commercial Battery Storage
Smart Inverter
Community Solar PV
Community Battery Storage
Residential Solar PV
Microgrid
Utility

Common Information Model
Commercial Battery Storage

Distribu

Demonstration Project Map



Together...Shaping the Future of Electricity