

Demand Response – Enabling the Future for California's Energy Needs

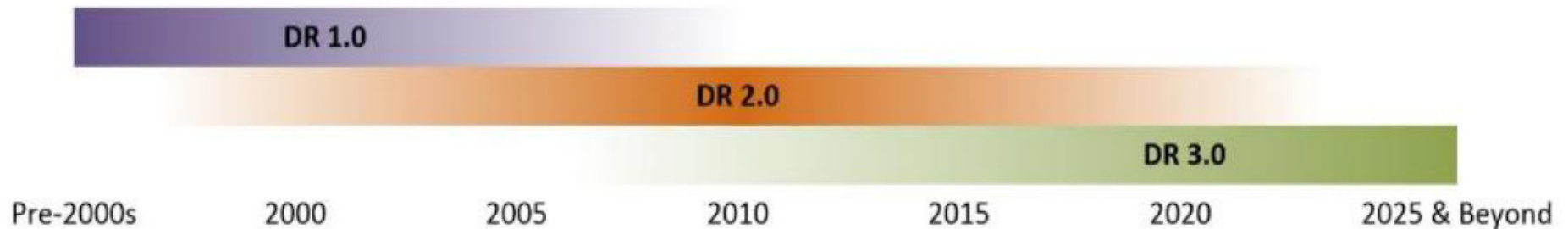
*Automated Demand Response-Enabled Solution
Development and Deployment for HVAC Distributors:
OpenADR Alliance Webinar*

Mark S. Martinez
Senior Portfolio Manager

mark.s.martinez@sce.com

October 8, 2020

The Evolution of Demand Response

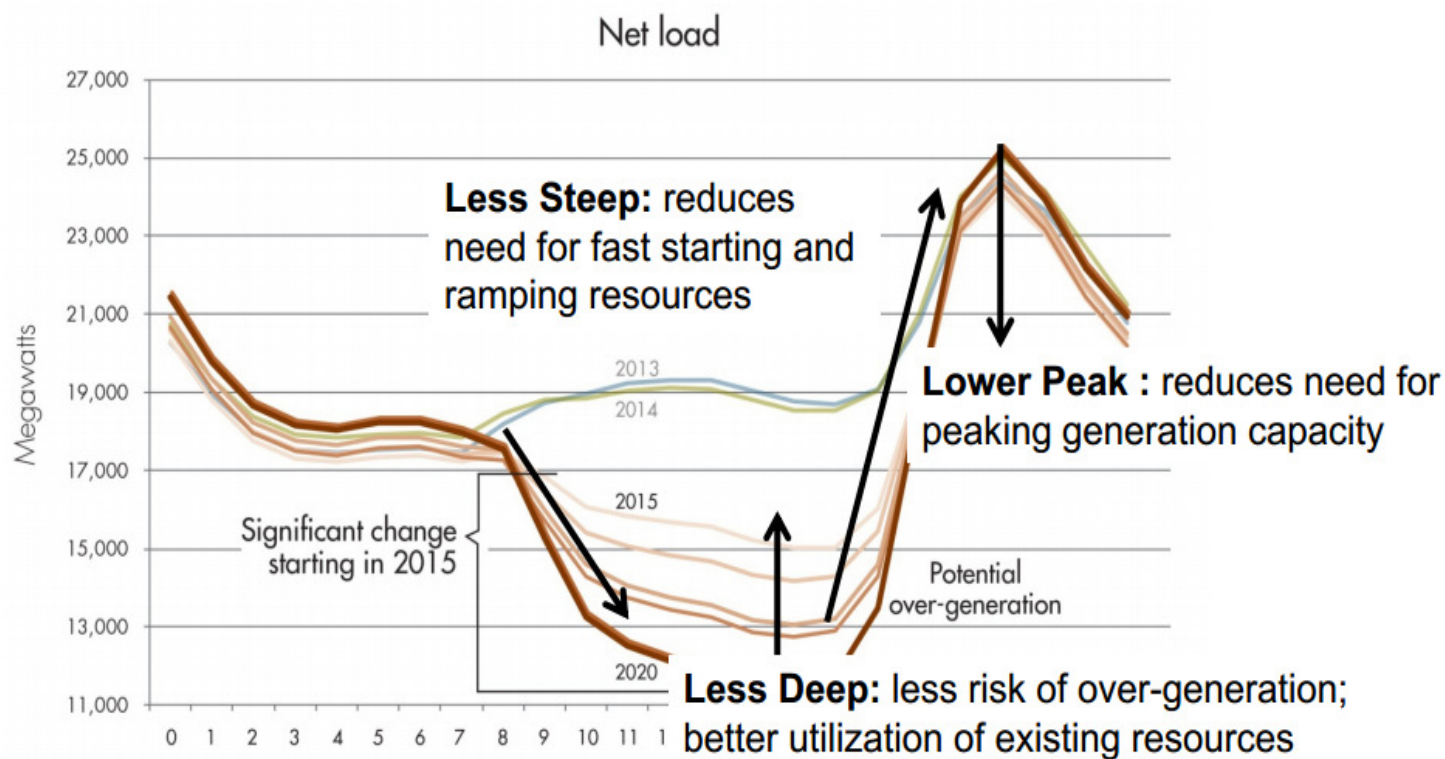


- Largely manual control
- Interruptible tariffs for large C&I
- 1-way Direct Load Control for Residential
- Used for Capacity Planning & Emergencies

- Introduced To Wholesale Markets
- Increased automation
- Increased Precision
- Eventually Ancillary Services
- Behavioral/voluntary Options
- Smarter Equipment
- 2-way communications

- Provide Multiple Grid Services
- Respond to Controls and/or Price Signals
- Distribution & Transmission Relief
- Introduction of Storage
- Migration to DER

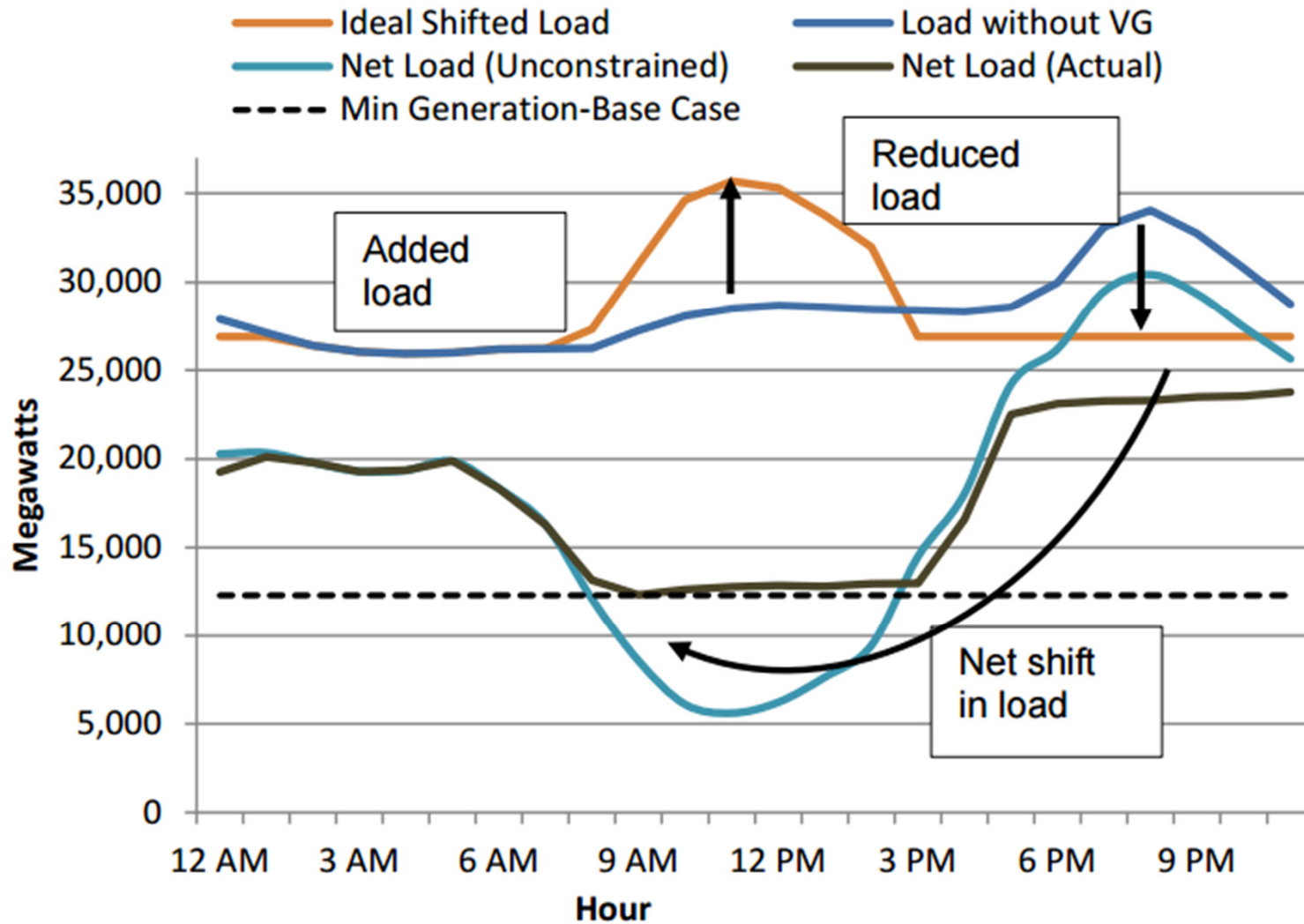
The Grid is Changing



Note, this curve is being updated, it is used here to represent how we should look at what we are trying to accomplish

- Manage the “Ramp” During Spring and Fall Days
- Improve Affordability of Electricity by reducing Costs
- Improve Grid Reliability at local levels
- Enable More Renewables on the Grid

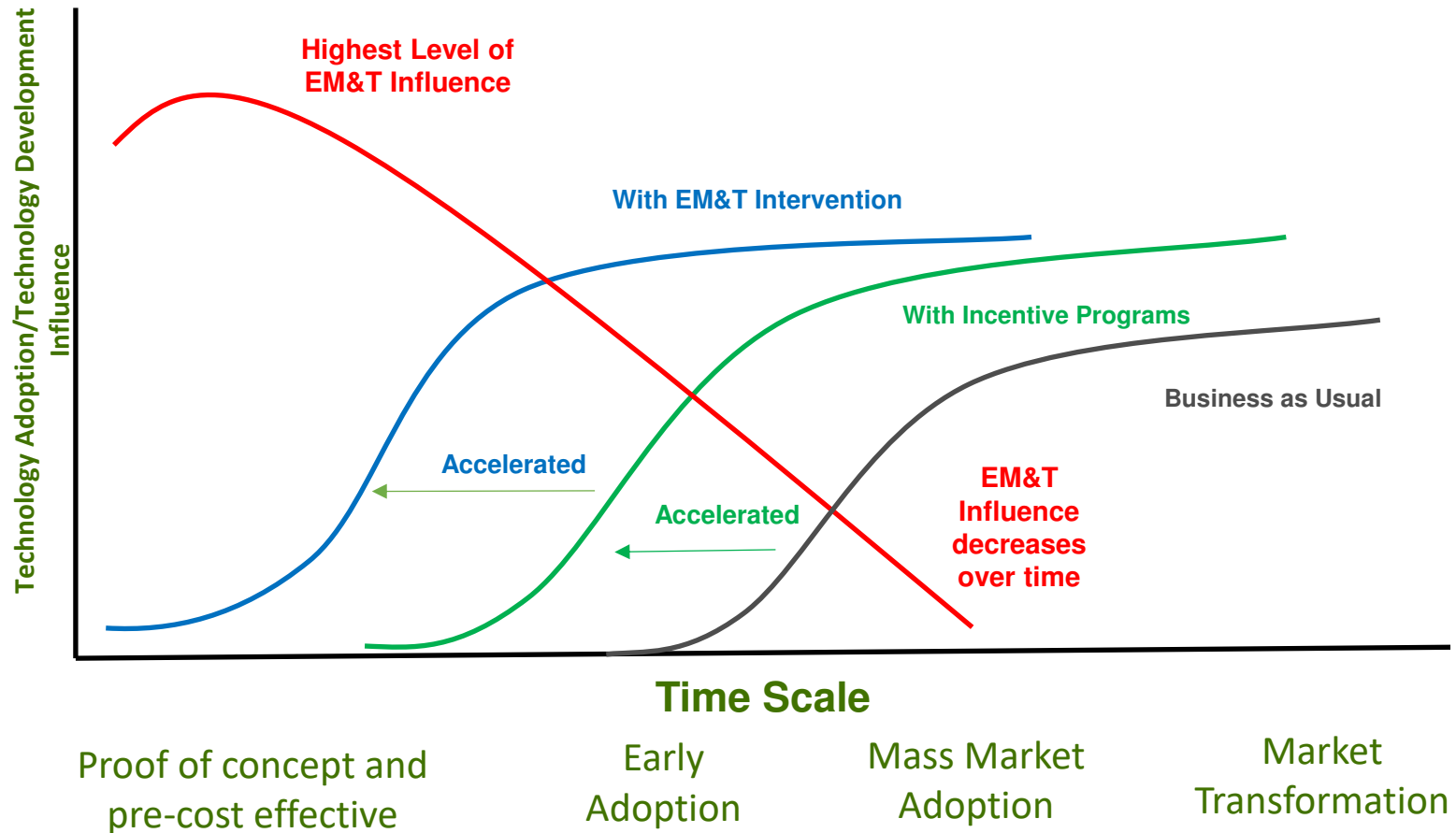
Shifting strategies will be needed



Emerging Markets and Technology (EM&T)

- Mission
 - *To identify, facilitate, and deliver* emerging, technology-driven **demand response** measures that enhance customer engagement of DR programs and tariffs
- Origination and Continuation
 - Initiated in 2005 to enhance the portfolio of DR programs
 - Authorized in the SCE DR Programs Proceeding
 - Current funding is \$14.6M through 2022
- Strategic Guidance and Focus
 - Discover new DR trends, benchmark with other IOUs and munies, and drive DR innovation in the SCE market
 - Communicate with stakeholders for technology transfer
 - Address OpenADR emerging technology opportunities for today's policies and vision of grid modernization

EM&T Early DR Market Influence



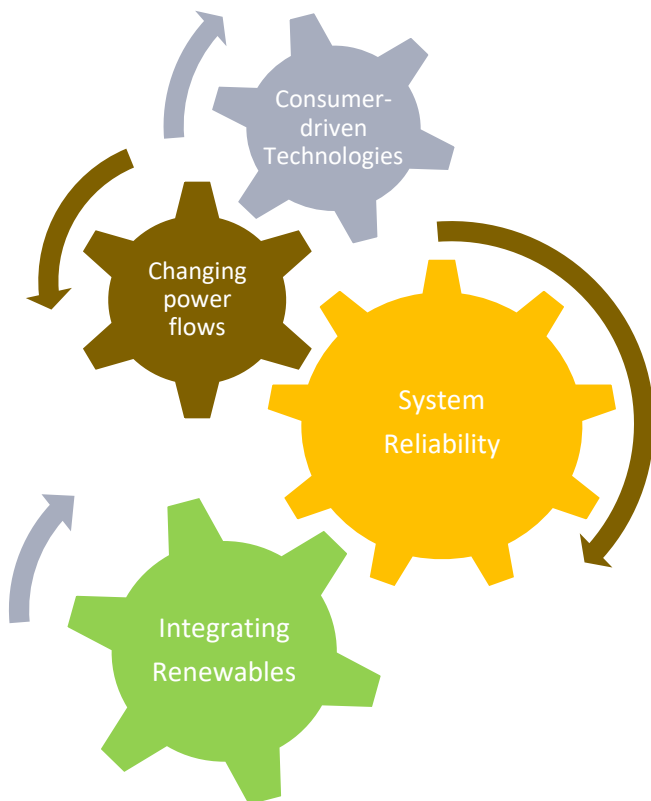
SCE's OpenADR Relationship

- Auto-DR Program (2007)
 - C&I Customers >200 kW
- Auto-DR Express (2012)
 - Some Smaller Commercial Customers 100 to 499 kW
- 3rd Party PCT (2013)
 - Residential Customers with a compatible smart thermostat
- Small Commercial Pilot (2015)
 - C&I Customers <200 kW



EM&T Program Commitment for 2020

Increasing Grid Needs



Evolving Role of EM&T

- ***“Next generation” demand response programs should meet the future needs of the grid, while balancing customer choices.***
- OpenADR enabled smart technologies can facilitate “fast, flexible, and smart DR”
- Load shifting can be a valuable tool for addressing over-generation challenges
- Working to remove market barriers and advance ADR development and deployment can be valuable tools to help stabilize the electric grid and meet state GHG goals.
- ***DR EM&T is committed to foster the advancement of DR emerging technologies to meet resource needs***