



The Smart Grid: Technologies and Policies for effective management of electric transportation

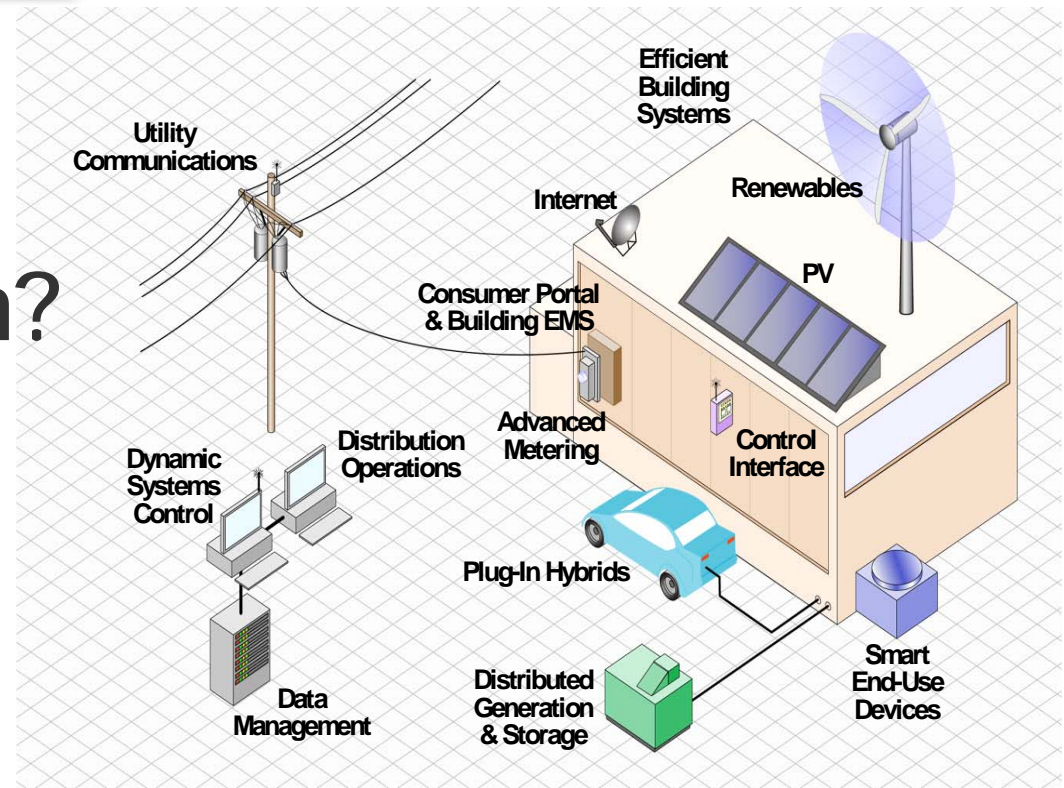
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What is the "Smart Grid"?

- Who's Definition?
- Define by basic components
 - Intelligent Devices
 - 2 – Way Communication
 - New Business Processes





Smart Grid Components

- **Intelligent Devices**
 - Plug-In Vehicles – the ultimate “Smart Appliance”
 - EVSE – the “Smart Plug” for the “Smart Appliance”

- **2 – Way Communication**
 - The Backbone of the Smart Grid
 - PEVs & EVSEs – The first devices designed to be fully connected



Smart Grid Components

- **Business Processes/Systems**

- The most critical – but most overlooked – component of the Smart Grid
- **The true “smart” in the “smart grid”**
- A key critical Success Factor for PEVs
- Perhaps the most at risk component of SG – especially with regards to PEVs



Smart Grid / PEV Success Factors

- Customer programs to achieve smart-charging
 - Achieve Utility benefits
 - Meet customer needs

- Customer satisfaction in initial set-up and on-going service
 - Most focus is on 1st Purchase
 - Need to think about:
 - Moving, re-selling, 2nd vehicle, Customer Svc Calls, etc.



Smart Grid / PEV Risk Areas

- **Physical Infrastructure**

- Grid impacts

- Energy (kWh): < 10%
- Power (kW): ?
- First impact will be distribution transformers

- Manageable: 100 years of planning

- 40's – 50's: Kitchen/laundry electrification
- 60's – 80's: Central Air Conditioning
- 90's – 00's: Computers, data centers, office equip



Smart Grid / PEV Risk Areas

- **Business “Infrastructure”**
 - Limited comparisons to the past
 - Stationary / Predictable vs. Mobile / Variable
 - Proposed new models vs. Regulatory Requirements
- **Biggest Risks are Policy, not Technical**
 - Early mandates related to business processes could add significant costs and create barriers to adoption
 - Need flexibility to let the market evolve



EDTA 2020 Session Topic

How the Smart Grid helped launch Plug-In
Vehicles

OR

How Plug-In Vehicles helped launch the
Smart Grid?