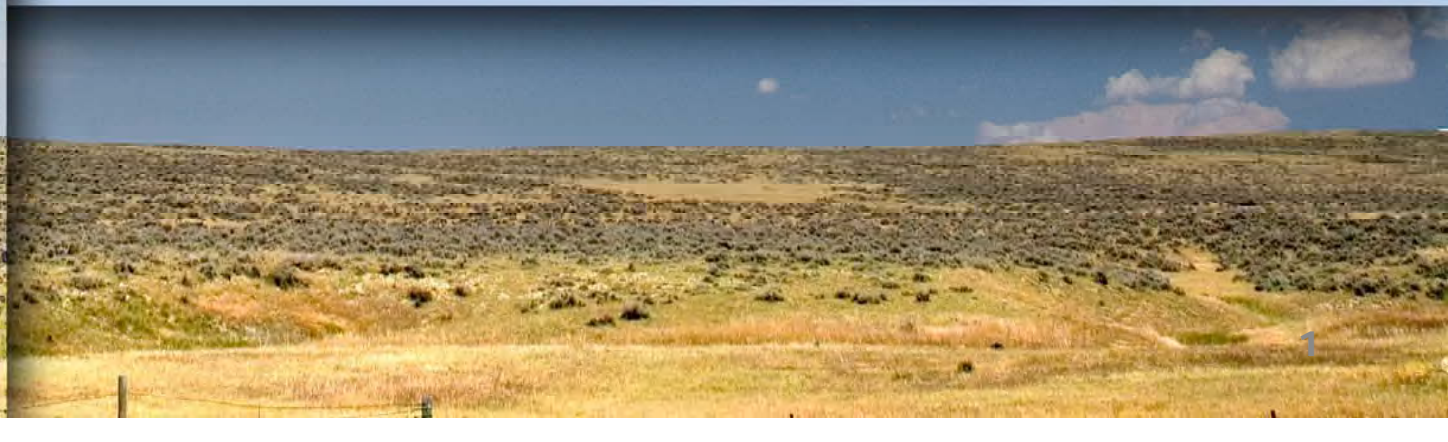




Tri-State Resource Planning:

Colorado Energy Policy

Tom Plant, Director
Governor's Energy Office



Colorado Policy Landscape

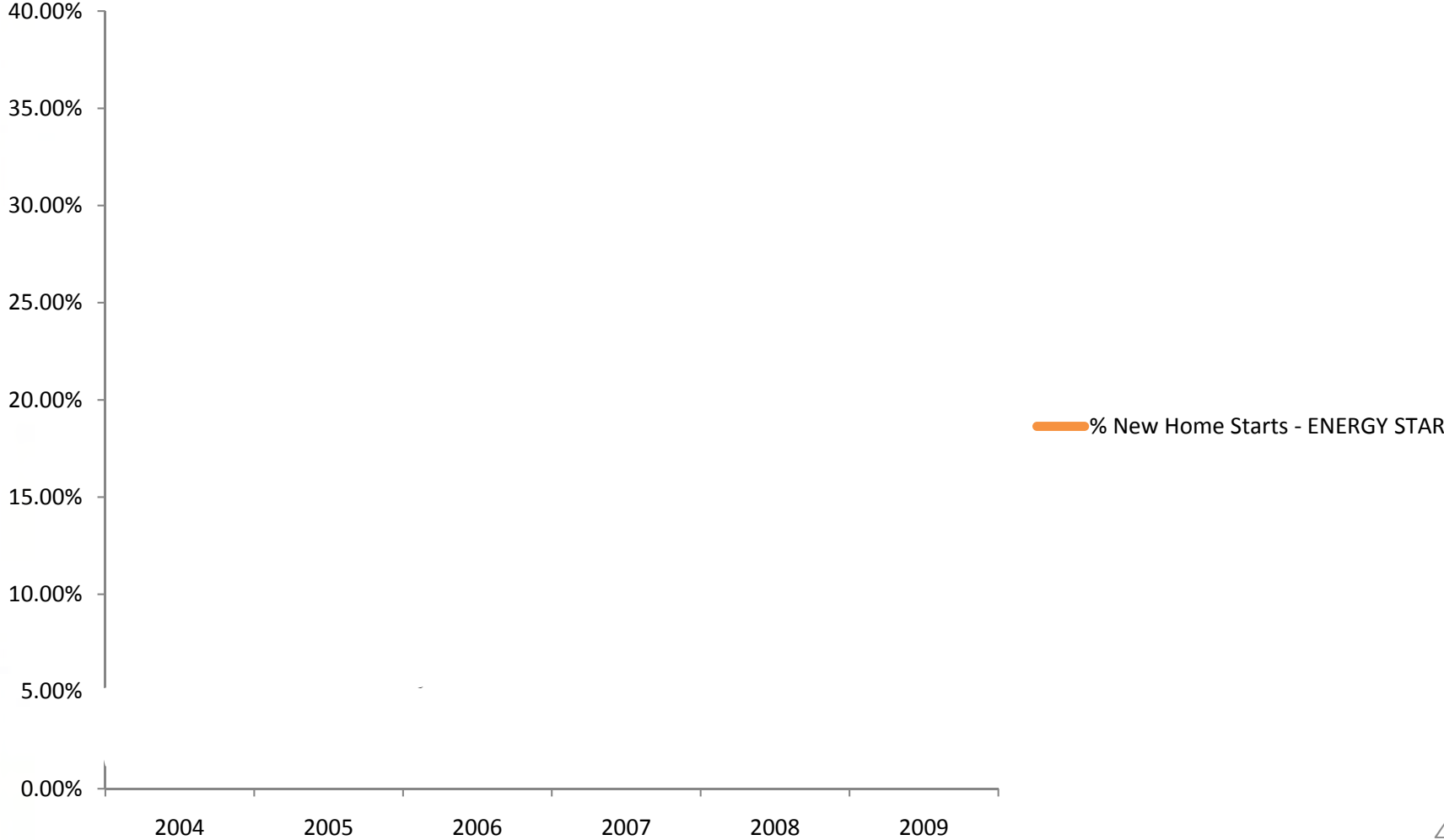
- **Colorado Climate Action Plan**
 - 20% reduction in CO2 below 2005 levels by 2020
- **Energy Efficiency**
 - 07-1037 DSM for IOUs – approx. 11%
 - Efficiency as a resource
 - Load Management
- **Renewable Energy – 10% by 2020 for REAs**
 - HB 1001 – 30% for IOUs
 - HB 1418 – incentives for <30MW on REA systems
 - Distributed Generation – rural economic development, lots of interest in smaller projects
 - 51 MW Duke wind, 30 MW Cimarron PV, DG projects at coops
 - Policies for member-connected RE systems – All-requirements contracts, Policy 115/117

Policy Landscape

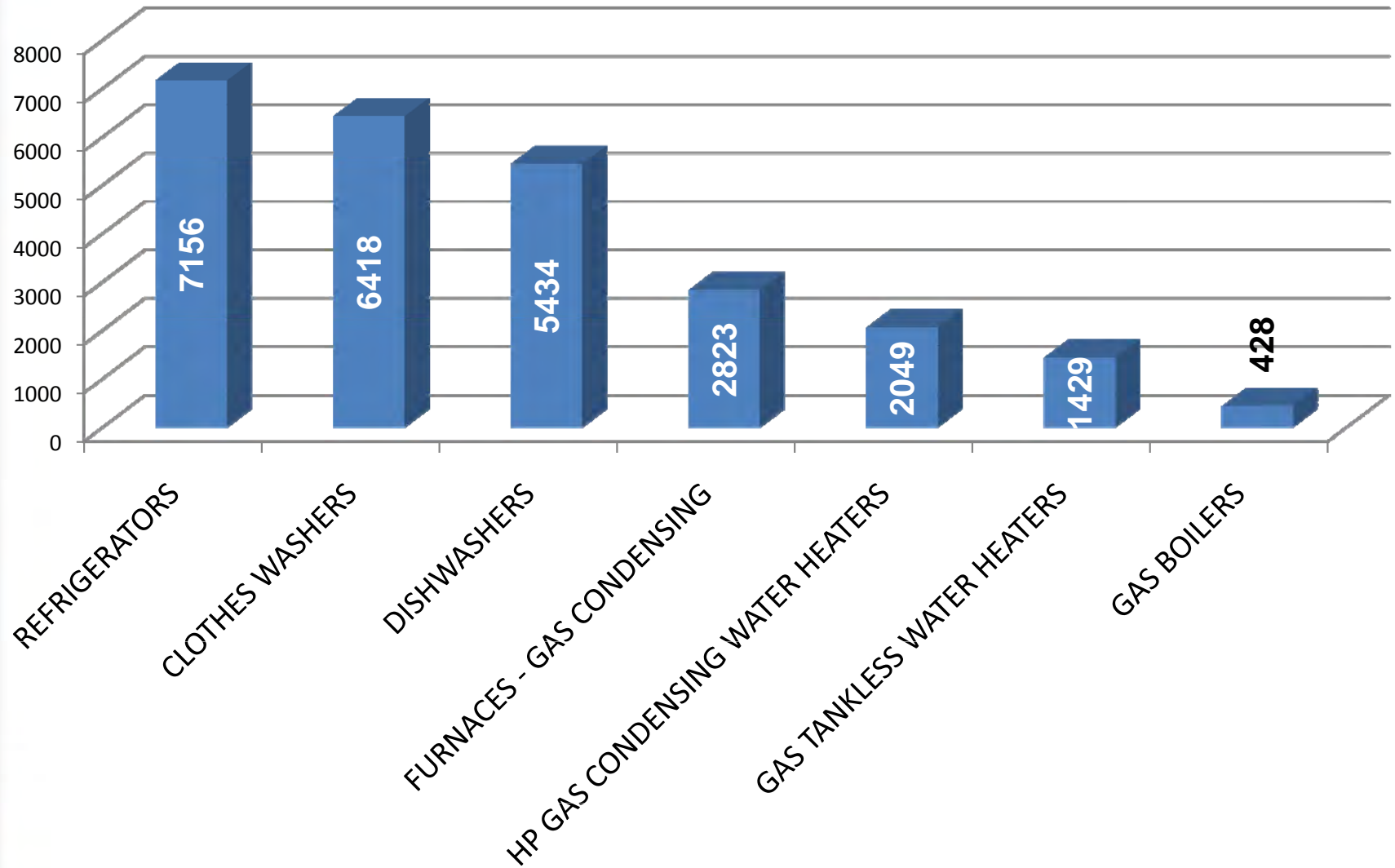
- **Transmission**
 - Generation Development Areas in Tri-State territory
 - Integrated Transmission Planning
 - Land use issues
 - SLV line – addressing reliability needs and access to renewable GDA
- **Job Creation**
 - Manufacturing
 - Installation
 - Research & Development
- **Increasing Environmental Regulations**
 - Colorado air quality and non-attainment issues
 - Regulations affecting retail customers (anaerobic digesters on farms, coal mine methane, landfill gas)
 - Potential GHG regulations: EPA mandatory reporting rule, SEC disclosure on carbon risk
 - Clean Air Clean Jobs Act - HB 1365
 - Coal plant repowering/retirement, increase use of natural gas and other low-emission resources
 - Effect on electric markets in the region as generation fleet transitions

EFFICIENCY DEMAND

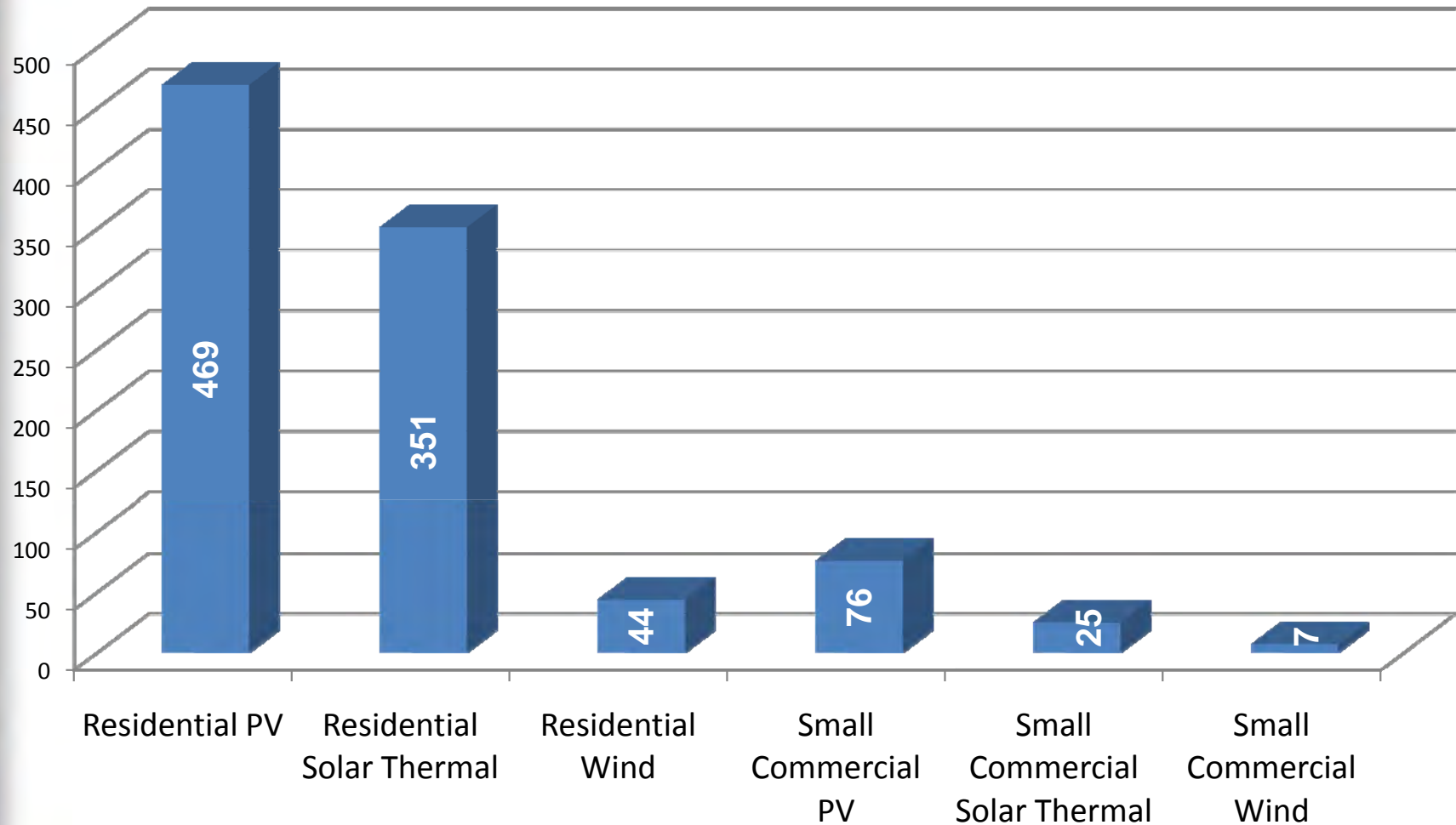
% New Home Starts - ENERGY STAR



EFFICIENCY DEMAND



EFFICIENCY DEMAND



What Might Constitute Long-Term Success at Tri-State?

- Presentation of Energy Efficiency as a resource for cooperative family
- Increased adoption of renewable energy as hedge against fuel/emission price uncertainty.
- Rural economic development with local clean energy projects and workers.
 - This strategy helps to minimize stress on the agriculture community's most precious limited resource: **water**.
- Strategic commitment to achieving climate goals
- Plan for modernizing metering, monitoring and grid management through smart grid technology

IF WE FAIL TO PLAN, WE PLAN TO FAIL

- The Colorado Ute Electric Association bankruptcy
 - CUEA overbuilt with inadequate anticipation of the viability of a synthetic fuel future
- The Fort St. Vrain saga
 - Obtain information from sources that may not conform to pre-existing conclusions

Changing Landscape

- The SB91 Report
 - NREL's tripling of wind capacity estimates using 80 meter hub heights.
- Development of large natural gas plays
- Future electrification of Transportation Sector
- IT Revolution in grid management and consumer involvement

A LASTING LEGACY

- Demonstrate exemplary foresight
- Embrace environmental stewardship
- Consider what new business structure is best suited to 21st century compelling challenges.

Distributed Generation: Overview

- Renewable DG is a scalable, grid support, emissions reduction strategy for utilities that does not require transmission infrastructure upgrades.
- Arizona Public Service found that total savings of solar distributed generation to their utility is between 8 and 14 cents/kWh (Jan, 2009).
- GEO has initiated a similar DG cost/benefit study with Ft. Collins, San Luis Valley REA and Holy Cross – quantifying benefits of DG on a specific system basis

Distributed Generation: Incentives for RES Compliance

- DG gets more credit than utility scale RE projects in Colorado RES. **3X multiplier for solar PV** (07-1281)
- HB 10-1418: Creates a **rural economic development multiplier**: 2X multiplier through 2014 for <30 MW RE projects that intertie with Muni and Coop lines (up to first 100 MW)
- “Community-based” projects: 1.5X multiplier has not be used to date although this incentive has been in place since 2007.

Distributed Generation: TSG&T Opportunities

- Coops are increasingly interested in developing their own DG projects.
 - San Miguel Power Association 2MW PV in Norwood Project
 - Highline 5MW waste heat recovery
 - Small hydro, geothermal, biomass, landfill gas, farm digesters, coal mine methane opportunities
- Policies 115 (5% self generation) & 117 (REC payment schedule). Are these policies effective?
- HB 1418 should generate further interest in <30MW RE projects that interconnect with Coop lines.

DG opportunities for TriState

- How does TS include DG and member-coop self-generation in the ERP process?
- Modeling scenarios on DG:
 - Minimum: HB1418 – max out the 100MW rural econ development multiplier
 - Maximum: max out 5% member coop self-generation policy across the entire system

Benefits of Hydro

- No carbon emissions
- Sustainable
- Distributed
- Efficiency > 90%, Capacity factor > 50%
- Economical
 - < 1 ¢ / kWh
- REDT Program
 - Pilot with FERC

Hydro Potential in CO

- Idaho National Laboratory
 - 5,061 feasible sites in Colorado
 - 3,204 of these are micro hydro sites
 - Cumulative power potential in nameplate capacity of 1,782 MW
- Current installed capacity 318 MW
 - Existing dams
 - Pumped Storage

Case Study

- City of Cortez
 - City Water Supply System
 - Pressure Reduction Station at WTP
 - 240kW
 - PPA with TriState
 - Benefits
 - Produce Green Renewable Energy
 - Eliminate Energy Waste (PRV)
 - Long-Term Revenue Stream
 - Energy Security for Water Treatment Plant in Case of Emergency

Potential Hydro Projects in CO

Location (County)	Name	Type of Existing Infrastructure	Potential Production
Larimer	Laramie-Poudre Tunnel	Tunnel Outlet	1,500 kW
Mineral	Humphries Lodge	Dam	320 kW
Adams	Burlington	PRV replacement Diversion Canal	300 kW
Pitkin	Watson Divide	Irrigation ditch	280 kW
Hotchkiss	Overland Ditch	Irrigation Canal	50 – 320 kW
Garfield	Porter	PRV replacement	80 kW
Eagle	Basalt	Municipal Water Supply	40 kW
Pitkin	Thomas Reservoir	PRV replacement on Potable Water Line	18 kW
Garfield	Meridith	Irrigation Ditch	7 kW
Garfield Co.	Avalanch Ranch	Domestic Water Supply	4 kW

GEO Partnering in Today's discussion

- Opportunities with Smart Grid
- Opportunities with Renewables
- Opportunities with Efficiency
- Opportunities with Modeling Scenarios

A world of opportunities

Fuel Switching
Demand Response

Energy Efficiency

Thank You!
Renewable Energy

Distributed Generation

Tom Plant

Clean Energy Resources

Director – Governor's Energy Office

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Smart Grid ²⁰