

# USING SMART GRID TO MODERNIZE THE POWER SYSTEM

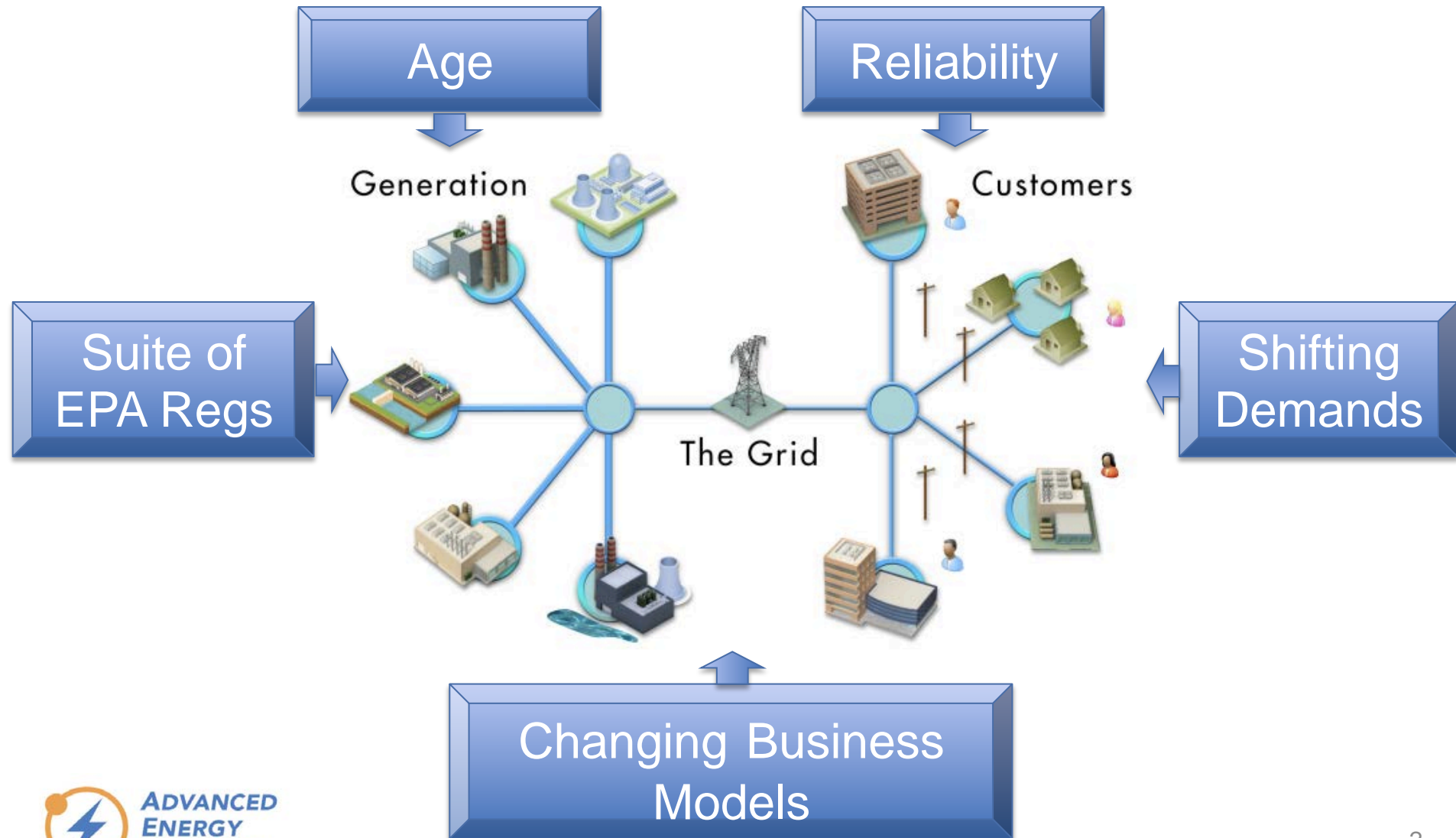
*December 2014*



**ADVANCED  
ENERGY  
ECONOMY**

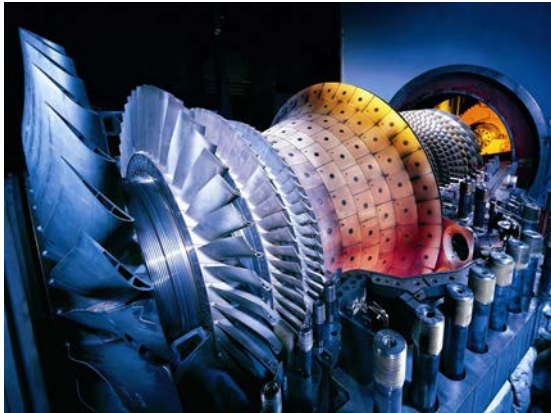
**CONFIDENTIAL AND PROPRIETARY**

# THE ENERGY SYSTEM FACES MULTIPLE CHALLENGES TODAY



# TECHNOLOGIES EXIST TO ADDRESS ALL OF THESE CHALLENGES

## Natural Gas Combined Cycle



## Demand Response



## Energy Efficiency



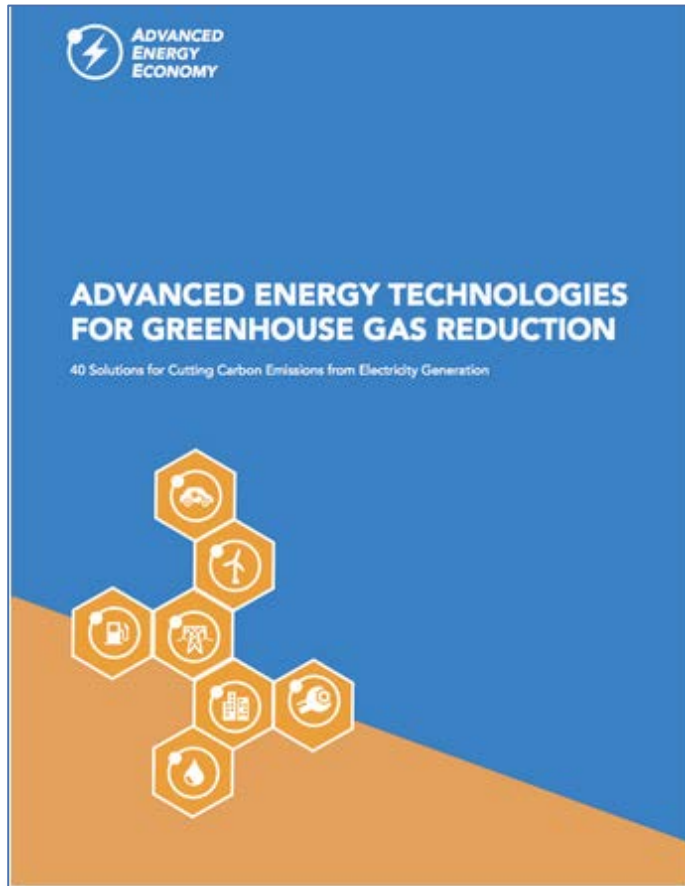
## Renewable Energy



## AMI



# MOST OF THESE TECHNOLOGIES ALSO REDUCE CARBON EMISSIONS



- The Clean Power Plan identifies technologies for compliance and flexibility to incorporate others
- A number of reports identify additional advanced technologies which could be used for emission reduction

# FORTUNATELY THE CPP GIVES FLEXIBILITY TO GO BEYOND THE FENCE LINE

**Smokestack  
Emission  
Reductions**

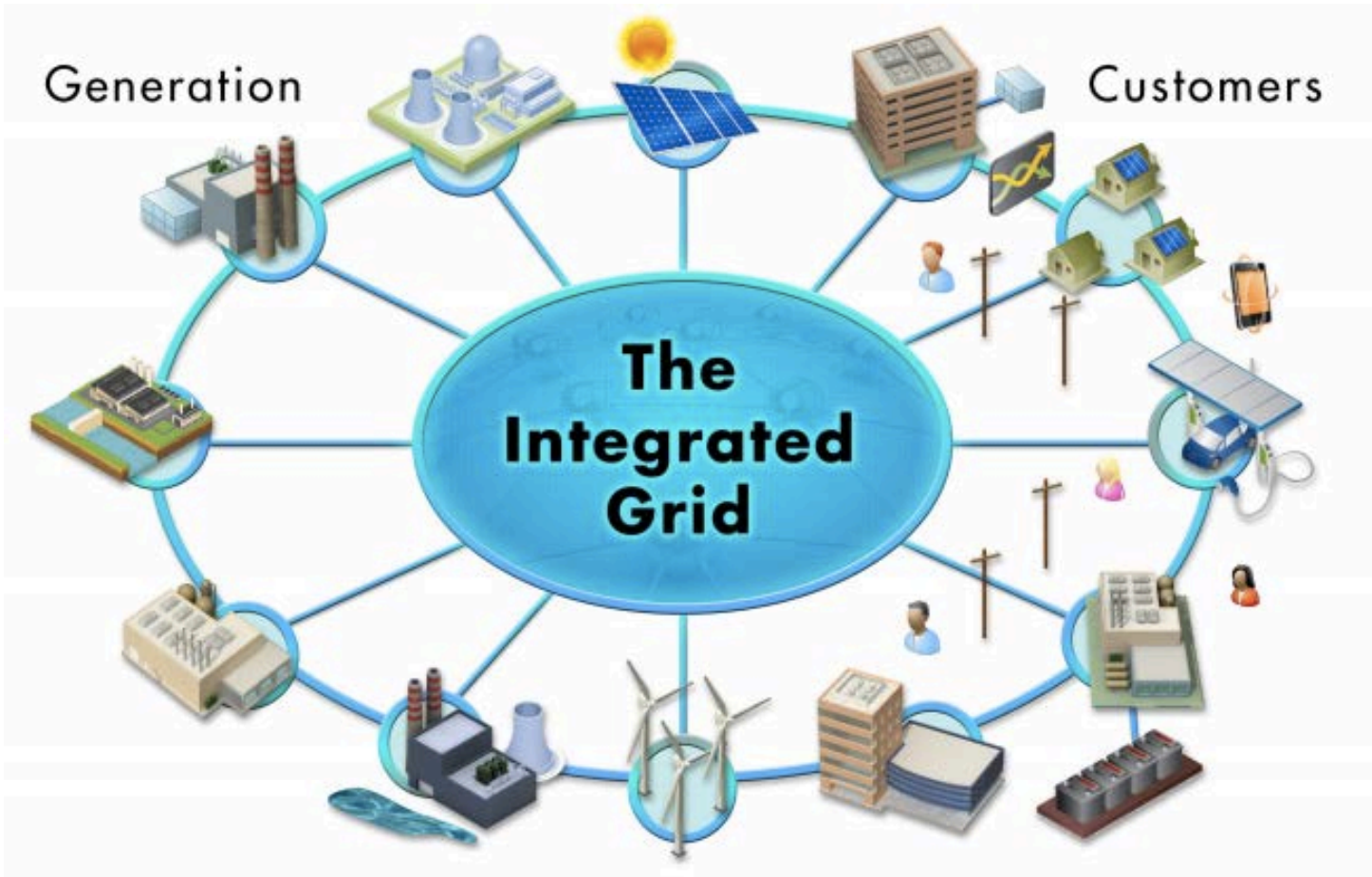


**Beyond the Fence Line  
Emission Reductions**





# THIS CPP FLEXIBILITY IS AN OPPORTUNITY FOR MODERNIZATION



# SMART GRID TECHNOLOGIES ARE THE MODERN POWER SYSTEM'S BACKBONE

- Integrates Renewables
- Load Forecasting
- Reduces Cost
- Efficiency
- Reliability

Distributed Automation

- Integrates Renewables
- Load Leveling
- Reliability

Energy Storage

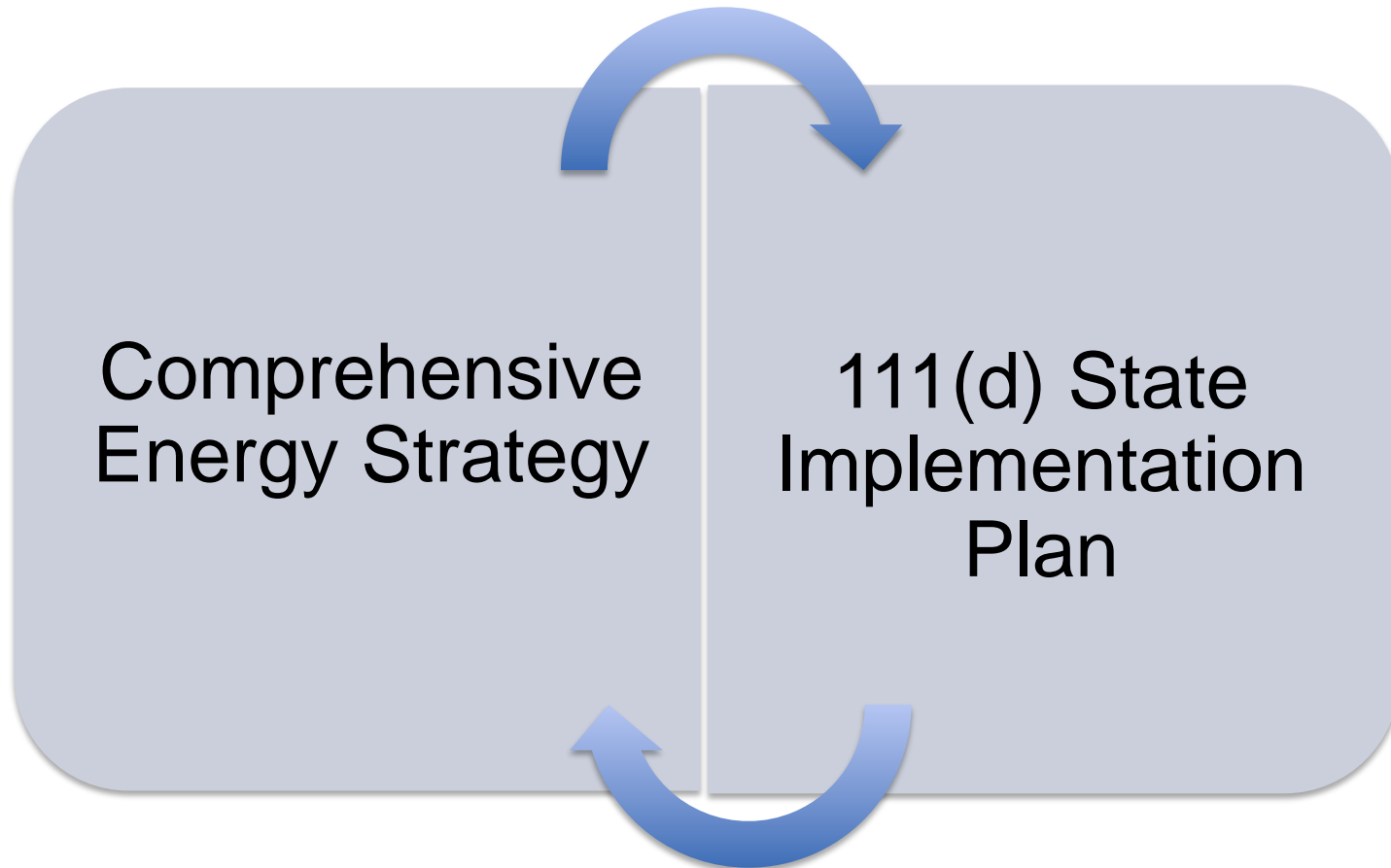
- Efficiency
- Reliability
- Reduces Costs
- Reduces Emissions

Volt VAR Optimization

- Efficiency
- Reliability
- Customer Savings
- Peak Demand Shaving
- Integrates Renewables

Demand Response

# SO STATES SHOULD CONSIDER SMART GRID IN 111(d) PLANNING





**THANK YOU**



**ADVANCED  
ENERGY  
ECONOMY**

**the business voice of advanced energy**

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