

# State Policies on Smart Grid

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# Policies in Selected States

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- California
- Illinois
- Maryland
- Massachusetts
- Ohio
- Pennsylvania
- Texas
- PacifiCorp states



# Some Smart Grid Drivers

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- Enabling higher levels of efficiency & demand response (and better EM&V), distributed and renewable resources
- Deferral of costly new power plants and power lines
- Getting ahead of mass use of PHEVs – automate off-peak charging and V2G (on-peak discharging)
- Giving customers more control over energy bills and letting them participate in electricity market
- End-to-end system integration and system efficiencies
- Calls for higher reliability
- Stimulus funding



# Barriers to Smart Grid

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- New technology risk
- Lack of standards
- Cost recovery risk
- Making the business case, esp. benefits beyond operational savings
- Utility financial disincentives
  - Reduced sales from Smart Grid-enabled efficiency and customer energy resources
- Regulatory obstacles to third-party participation
- Cyber-security issues
- Concerns about cost impacts on low-income and elderly
- Perception that smart grid is technology company hype
  - Also by utilities wanting to rate-base new assets
- Lack of vision – Getting stuck on customer end and not seeing the whole picture



# Common Early Policies

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- Specify min. functional requirements (services provided)
- Require commonly accepted/open standards and protocols
- Provide guiding principles, objectives and goals
- Gain direct experience through pilot programs
- Ensure consumer access to information, privacy
- Mandate 3<sup>rd</sup> party access to data and provision of services
- Specify business case requirements, including B/C analysis
- Provide for automated control of loads, set by consumer
- Develop a comprehensive smart grid plan



# How States Are Addressing the Issues

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- Collaborative stakeholder process with an independent facilitator, report on findings and recommendations, and follow up with comments on remaining disputed issues
- Legislation
- Commission rulemakings and investigations
- Review of utility filings
- Pilots
- Studies



# California

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## California activities at a glance

EISA 2007  
(R.08-12-009)

Opened 12/08; comments filed; workshops focused on ARRA funds for Smart Grid projects. Goal is to develop a state-wide Smart Grid vision and consistent framework. Process expected to last two years.

Rulemaking on policies and practices for AMI, demand response, and dynamic pricing  
(R.02-06-001)

- Established minimum functionality criteria for AMI eligible for ratepayer funding
- Adopted an analysis framework to guide development of utility AMI business cases (which each utility then filed)
- Established the Statewide Pricing Pilot to test the impact of TOU and CPP tariffs on residential and small commercial customer usage
- Adopted demand response program plans for customers >200 kW and annual MW targets for demand response
- Laid out vision for pricing options by customer size (e.g., residential customers should have a choice of CPP, TOU or flat pricing w/hedge for risk protection)



# California (cont.)

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## California activities at a glance (cont.)

California Energy Action Plan	Loading order – Efficiency and demand response first, then renewables, then conventional generation and transmission; demand response should meet 5% of system peak demand
Legislation	Under SB 17 (introduced 12/1/08), CPUC would develop requirements for smart grid deployment plans by 7/1/10 consistent with policies in bill; electric companies would submit plans by 7/1/11 for CPUC approval (CPUC can modify requirements for utilities with <100,000 customers)
Approved AMI business cases with additional smart grid features	Pacific Gas and Electric San Diego Gas and Electric Southern California Edison





# California (cont.)

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- **Minimum AMI functionality criteria**
  1. Implementation of price responsive tariffs
  2. Collection of usage data at a level to support customer understanding of hourly usage and relation to energy costs
  3. Customer access to own energy usage data with flexibility to ensure change in access frequency does not increase hardware costs



# California (cont.)

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4. Compatible with applications for customer education and energy management, custom billing and improved complaint resolution
5. Compatible with applications that improve system operating efficiency and service reliability (e.g., remote meter reading, outage management, and reduced theft and diversion)
6. Capable of interfacing with load control communication technology



# Illinois

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## Illinois activities at a glance

Legislation  
(*SB 1592, 8/07*)

Directs utilities to reduce peak demand beginning 6/1/08 by 0.1% over prior year, for 10 years, through cost-effective demand response

Commission  
Smart Grid orders  
(*Docket Nos. 07-0566 and 07-0585 through 07-0590*)

Com Ed System Modernization Projects - Approved 200,000-meter pilot with two-way communication starting 4<sup>th</sup> quarter 2009; includes assessment of pilot plus B/C analysis for full-scale deployment (4 million meters); Com Ed will submit smart grid plan late 2010/early 2011 with possible full-scale rollout in 2013; established foundational policies and Statewide Smart Grid Collaborative

Ameren Illinois Utilities - Directed to participate in statewide collaborative



# Illinois (cont.)

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## ➤ Illinois Commerce Commission foundational policies

- **Consumer education**

- Consumer education and dissemination of information about smart grid technologies, demand response programs and alternative rate structures (#7)

- **Pricing**

- Implications of smart grid technology for future policies regarding rate design, consumer protection, and customer choice (#5)
- Mechanisms to flow through to customers any utility smart grid revenues (#11)
- Adoption of new demand response programs (#12)

- **Non-utility and non-quantifiable costs and benefits**

- Methods of estimating, calculating and assessing benefits and costs including evaluation of non-quantifiable benefits and costs (#4)
- Effect of statutory renewable resource, demand response and energy efficiency goals on smart grid planning and implementation (#6)



# Illinois (cont.)

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- **Definition of a smart grid and its functionalities (#1)**
- **A new “rulebook”**
  - Principles Illinois should use to guide smart grid planning and deployment – for example, interoperability, open architecture and non-discriminatory access (#2)
  - Uniform standards (#3)
  - Standards for interconnection of third-party equipment (#8)
  - Data collection, storage, management, security and availability to third parties (#9)
  - Open architecture and interoperability standards for connectivity to RTO/ISO (#10)
  - Access by electricity market participants to smart grid functionalities (#13)
- **Member of Mid-Atlantic Distributed Resources Initiative, which is starting a Smart Grid Initiative at the request of Commissioners** (Member states: DE, DC, IL, MD, NJ, OH, PA; Regulatory Assistance Project is the facilitator)



# Illinois (cont.)

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- Statewide Smart Grid Collaborative includes utilities, Commission staff, consumers and other stakeholders
  - Develop strategic plan to guide SG deployment, including goals, timetables, evaluation criteria and functionality criteria for SG technologies
  - Recommend policies to guide SG deployment
    - Consider foundational policies and utility-specific issues
  - Analyze benefits and costs for utilities and consumers



# Maryland

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## Maryland activities at a glance

### Legislation

*(EmPOWER Maryland Energy Efficiency Act of 2008, Chapter 131)*

Requires cost-effective utility DSM programs to achieve target reductions in usage and demand, subject to Commission approval; requires Commission to determine cost-effectiveness of SG technology to reach 2015 goals; allows Commission to mandate SG implementation

*HB 368*

Provides funding for demand response programs

### Commission

proceeding on AMI, DR and efficiency  
*(Case 9111)*

Order 81448 established AMI/DSM Collaborative to recommend, among other things, AMI technical standards and operational capabilities; Order 81637 in part established min. AMI technical standards for utility DSM programs that rely on AMI to achieve usage and demand reduction goals

### EPAAct 2005

*(Case 9059)*

Established Demand Response/Distributed Generation Working Group; deferred decision in February 2007, directing group to continue evaluating issues



# Maryland (cont.)

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- 12/31/08 orders approved efficiency and demand response programs for four IOUs and one coop (Case Nos. 9153 - 9157)
  - To meet EmPOWER Maryland goals including per capita reductions in peak demand of at least 5% by 2011, 10% by 2013, and 15% by 2015
  - 3 IOU plans to look more like BG&E’s plan; costs to be refined by RFPs
- Commission approved BG&E AMI, CPR pilots
  - 5,300 meters, CPP and CPR options for 1,300 residential customers, orbs and smart A/C switches
- PEPCO and Delmarva filed for full AMI roll-out
  - PEPCO also filed “Smart Community” pilot
- Utility-Scale Clean Energy Capacity Project
  - Determine SG benefits for state; assess best SG practices in U.S.







# Massachusetts

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## Massachusetts activities at a glance

### Legislation

*(Green Communities Act  
Chapter 169, 2008)*

Section 85 required each EDC to file a proposed plan with the DPU by 4/1/09 to establish a smart grid pilot program

- “[A]dvanced technology to operate an integrated grid network communication system in a limited geographic area”
- At a minimum, smart meters that provide real time measurement and communication of energy consumption, automated load management systems, and remote status detection and operation of distribution system equipment
- Must include pilot TOU or hourly pricing - 0.25% of customers
- Incremental pilot costs recouped through Basic Service rates

### Commission proceedings on Green Communities Act

*(Docket Nos. 09-31-09-34)*

Fitchburg, NGrid, NStar and Western Massachusetts Electric filed plans



# Ohio

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## Ohio activities at a glance

Legislation  
*(SB 221, effective  
7/31/08)*

Established state policy to encourage time-differentiated pricing and AMI implementation; requires EDCs to file Electric Security Plans that may propose a Distribution Infrastructure Modernization Plan

Commission  
rulemaking on SB 221  
*(Case No. 08-777-EL-  
ORD)*

Describes time-differentiated and dynamic pricing options to be offered; requires application for Infrastructure Modernization Plan to describe communication infrastructure, metering, distribution automation, or other applications it supports as well as benefits, costs, performance milestones and metrics

EPAAct 2005  
*(Case No. 05-1500-EL-  
COI)*

Adopted EPAAct 2005 metering/communication standard; directed EDCs to offer all customers a rate option that distinguishes at least on-peak/off-peak, plus a TOU meter for customers choosing that rate; directed staff to analyze B/C of AMI deployment strategies



# Ohio (cont.)

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- SB 221 allows use of single issue rate-making for Distribution Infrastructure Modernization Plan, plus incentives “for the utility’s recovery of costs, including lost revenue, shared savings, and avoided costs, and a just and reasonable rate of return on such infrastructure modernization”
- SB 221 also includes Energy Efficiency Standards
  - Peak reduction programs to achieve a 7.75% reduction in demand by 2018
  - Efficiency programs to achieve a 22% reduction in energy use by 2025
  - Qualifying programs include demand response and efficiency programs and distribution infrastructure improvements that reduce line losses
- Energy Security Plans recently approved by the Commission include demand response programs, smart metering pilots and smart grid studies (*e.g., AEP GridSMART, Case Nos. 08-917-EL-SSO and 08-918-EL-SSO*)



# Pennsylvania

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## Pennsylvania activities at a glance

Legislation (*Act 129, 66 Pa. C.S. § 2807(f), effective 11/14/08*)

Requires electric distribution companies with >100,000 customers to file smart meter technology procurement and installation plans by 8/14/09 for PUC approval

Commission investigation - Smart Meter Procurement and Installation Plans (*Docket No. M-2009-2092655*)

Will establish proposed standards and procedures for submittal, review and approval of plans, minimum smart meter capabilities, and guidance on deployment and cost recovery

Commission investigation into AMI, DR and efficiency (*Docket No. M-00061984*)

Working group report filed 6/07; staff developed policy recommendations; suspended for special Legislative Session on Energy; hearing held in November 2008



# Pennsylvania (cont.)

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## ➤ More on Act 129

- Technology must be capable of bidirectional communication and record electricity usage at least hourly; also must provide customers direct information on hourly consumption, enable TOU rates and real time pricing, and effectively support automatic control of consumption by customer or, at customer's request, by the EDC or a third party
- Default service providers must submit TOU and real-time pricing plans by 1/1/10, or at the end of the applicable generation rate cap period, whichever is later
- EDCs must provide technology in new construction and upon request of customer that agrees to pay cost
- Allows cost recovery through base rates, including a deferral for future recovery with carrying costs, or a “reconcilable” automatic adjustment clause



# Pennsylvania (cont.)

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- Draft staff proposal for implementing Act 129 plans (3/31/09)
  - EDCs would have 18 months following plan approval to develop and install the two-way communications network required by the law; EDCs would not be required to install smart meters during this “grace” period
  - Customers requesting early deployment of a smart meter would pay only the incremental costs over and above the cost for system-wide deployment
  - Staff proposes additional minimum functionality requirements, including remote disconnection/reconnection, ability to provide 15-minute interval data (consistent with RTO), hourly reads delivered at least daily, open standards and protocols, communication of outages and restorations, minimum of 14 days storage capability
  - Nondiscriminatory access to information by third parties



# Texas

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## Texas activities at a glance

Legislation  
*HB 2129, 2005*

Required Commission to establish a cost recovery mechanism for utilities that install AMI and report biennially on progress, barriers and recommendations

*HB 3693, 2007*

Encourages smart grid networks to be deployed as rapidly as possible; requires utilities to report how they met reductions in annual growth of demand mandated by Efficiency Portfolio Standard

Commission rules on  
*HB 2129 (P.U.C. Subst.  
R. 25.130, Project 31418)*

Established AMI deployment plan requirements and expedited process for cost recovery surcharge for deployment meeting minimum functional criteria

Commission  
investigations  
*(Projects 32854 and 33874)*

Will accept EAct '05 AMI/TOU standard  
Addressed cost information required for AMI surcharge request and approved McKinsey Model for B/C analysis



# Texas (cont.)

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- **Minimum functionality requirements** (*Project 31418*)
  - Include automated meter reading, two-way communications, remote disconnect/reconnect, capability to provide 15-min. interval data daily, real-time access to usage data, open standards, and capability to communicate w/in-premise devices that monitor usage and control loads
- **AMI Implementation Team** (*Project 34610*)
  - Texas PUC is currently addressing impacts on markets and ensuring consumers receive benefits of AMI investment
    - Web portal, HAN, access to consumer data and related security, ERCOT settlement and customer education
- **Project to Track Stimulus Bill Efforts for ARRA** (*Project No. 36774*)





# PacifiCorp States

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## ➤ Idaho Commission

- In February 2009, approved Idaho Power’s AMI project (*Case No. IPC-E-08-16, Order No. 30726*)
  - Includes accelerated depreciation of existing metering equipment over the three-year deployment period (2009-2011)
  - Up to \$70.9 million in capital costs can be included in base rates as meters go into service; O&M benefits to be included as they occur
  - Operational benefits alone justified investment
    - About \$9 million during deployment period
- EISA 2007 investigation (*Case No. GNR-E-08-04*)
  - Initial comments filed; public workshop May 6<sup>th</sup>
  - Additional opportunity for written comments in May



# Other PacifiCorp States (cont.)

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## ➤ Oregon Commission

- Rulemaking on disconnection notification, meter readings and bill forms (*Docket No. AR 500*)
- Addressing EPA Act 2005 metering/time-varying rates requirements in company rate cases and AMI filings
- Approved PGE's AMI project (*Docket No. UE 189*)
  - Tariff rider during deployment (6/08 to 12/10) - \$12.9 million/yr (\$4.5 million for accelerated write-off of existing equipment + \$12.5 million for new system - \$4.1 million deemed O&M savings)
  - 0.8% increase in revenue requirement
  - 1% average rate increase during tariff period; thereafter reduced costs



# PacifiCorp States (cont.)

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- Approved Idaho Power’s request for accelerated write-off of existing meters before AMI installation (*Docket No. UE 202*)
  - Tariff rider from 1/1/09 to 6/30/10 - 0.0970 cents/kWh (1% increase)
- EISA 2007 investigation underway (*Docket No. UM 1409*)
- Reviewing PGE’s proposed critical peak pricing pilot for residential customers (*Advice No. 09-05*)
  - Planned for May 2010 to April 2012, following a year of meter reads
  - 3,500 participants
  - \$1.6 million cost (plus \$750,000 for PCTs, if added)
  - Draft rate design calls for critical peak price about 3x higher than standard energy rate in summer, and about 5x higher in winter
  - Can call 10 events in summer, 10 events in winter



# PacifiCorp States (cont.)

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## ➤ Washington Commission

– EISA proceeding in process (*Docket No. U-090222*)

- Smart Grid Investment Standard

- Asked for written comments by April 24<sup>th</sup> addressing specified questions related to parts A and C

- Stated Commission already has determined how to implement cost recovery policies in part B

- Smart Grid Information Standard

- Regulations already meet some of the standards; asked whether additional standards for time-varying pricing are “practicable” absent organized wholesale markets




# PacifiCorp States (cont.)

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## ➤ Wyoming Commission

- Order soon in EISA 2007 proceeding (*Docket No. 90000-106-XO-8*)
- Governor's Office asked PacifiCorp to evaluate a smart grid pilot in Wyoming
  - Company's August 2008 report concluded financial benefits were negative even if funded by a 3<sup>rd</sup> party because of increased operating costs (IT costs and analytical work spread over few end points)
    - *Pilots generally are expected to have a B/C ratio < 1*



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