

# Recovery of DSM Investments - Investor Perspective -

## Utility Rate Case Issues and Strategies 2009

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# The “Clean Energy” utility may include multiple demand-side management (DSM) resources

- Energy efficiency
- Customer sited distributed generation
- Advanced metering infrastructure/smart grid
- Demand response

# Utility DSM programs have strong public policy support and efforts are rapidly expanding

*Utilities are supporting clean energy to address:*

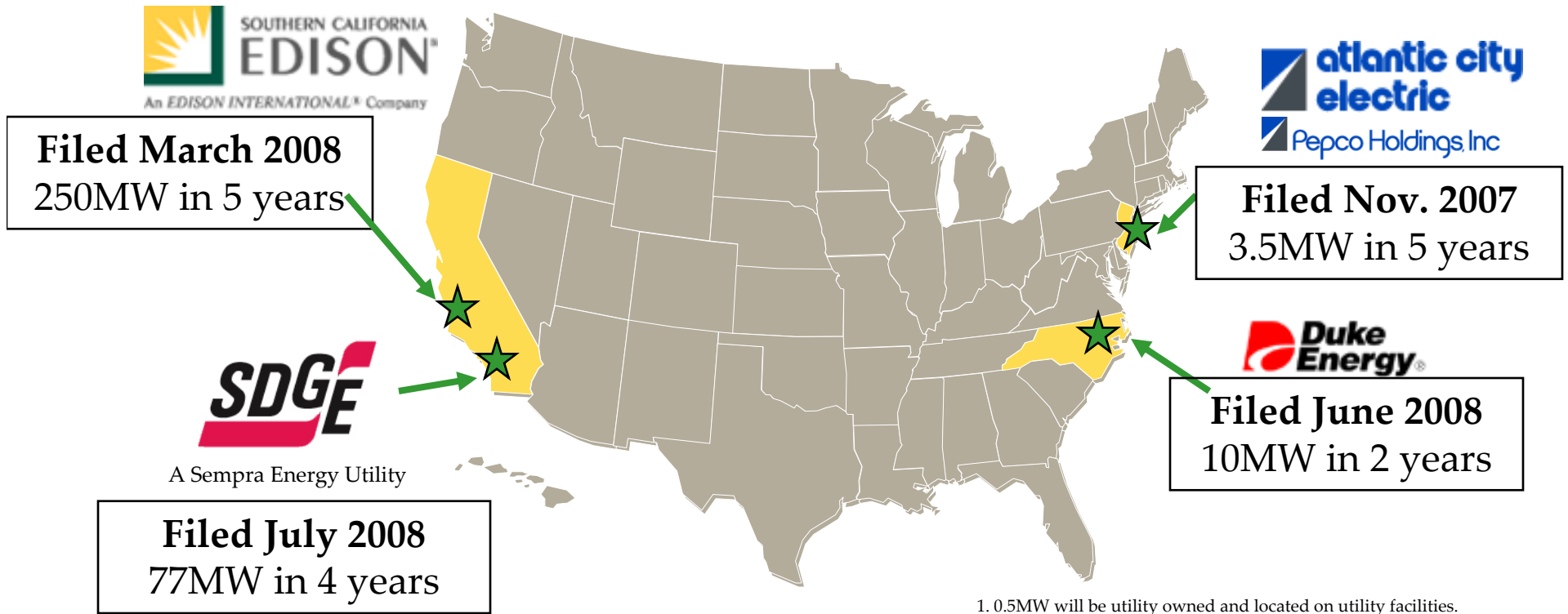
- High and unpredictable energy prices
- Growing concerns over our energy security and independence
- Increases in air pollution and the threat of global climate change
- Economic stimulus (New Jersey)
- Earnings growth opportunities

# Public agencies and utilities are expanding the role of DSM

## *Examples of response to address DSM*

- EPA's National Action Plan for Energy Efficiency
- DOE Report to Congress Pursuant to EPACT'05
- Energy Efficiency Promotion Act of 2007
- Individual State regulatory mandates for energy efficiency programs (and associated system benefits charges)
- FERC and ISO support for Demand Response (ISO-NE, NYISO, PJM)
- Individual State portfolio standards
- Net metering requirements
- Utility developed, sited PV (New Jersey, California, North Carolina)

# Several utilities are developing customer sited PV with utility ownership



# The Investor Perspective ...



Cash Flow is King

# The Investor Perspective ...

- Cash flow is king (really)
- Certainty of recovery of costs
- Relationship to rest of the business
  - Distraction or key part of company strategy
  - Skills and ability to manage business
  - Materiality
  - Regulator support or lightning rod?
- Upside earnings opportunity

## “National Action Plan for Energy Efficiency” recommends cost-recovery principles for DSM

- Align utility incentives with delivery of least-cost resources including energy efficiency
- Modify rate-making practices to promote energy efficiency
- Broadly Communicate benefits of energy efficiency and clean distributed resources
- Make strong, long-term commitment to cost-effective DSM
- Provide sufficient, timely and stable program funding

Source: “National Action Plan for Energy Efficiency”, July, 2006, supported by US Department of Energy and Environmental Protection Agency

# DSM cost recovery, incentives, and rate-making can be treated as separate issues

Issue	Goals	Example Concepts
Cost Recovery	<ul style="list-style-type: none"> <li>Recover program costs</li> <li>Compensate for volume penalty</li> </ul>	<ul style="list-style-type: none"> <li>Social benefit charge</li> <li>Decoupling</li> <li>Straight-fixed variable</li> </ul>
Incentives	<ul style="list-style-type: none"> <li>Make DSM as profitable as generation</li> <li>Promote efficient program administration</li> </ul>	<ul style="list-style-type: none"> <li>Earnings stabilization</li> <li>Performance awards</li> </ul>
DSM Rates	<ul style="list-style-type: none"> <li>Provide price signals to customers</li> </ul>	<ul style="list-style-type: none"> <li>Time-of-use</li> <li>Critical peak pricing</li> <li>Inverted block rates</li> <li>Efficiency connect charges</li> </ul>

*Ideally, cost-recovery, incentives and rate programs are integrated along with the utility DSM programs within a comprehensive and consistent policy framework*

## To pursue DSM with the same priority as generation, the utility ideally wants ...

Desired Attribute	Rationale
Contemporaneous cost recovery	<ul style="list-style-type: none"> <li>▪ Minimize carrying costs</li> <li>▪ Regulatory assets carry risk</li> </ul>
A DSM rider, SBC charge or line item in base rates	Establish predictable, long-term program funding
Program budgeting flexibility	Minimize regulatory costs, provide flexibility to respond to market
Earnings potential – comparable to supply investments	DSM should be part of earnings growth story brought to Wall Street
Fixed cost assurance	Need to be able to recover fixed costs even as sales decrease

## Utilities generally have an economic disincentive to promote DSM...

- Traditional utility ratemaking requires recovery of most of the approved costs through volumetric sales.
- A utility can recover these costs fully only if its customers consume a certain level of energy.
- This creates a financial disincentive to aggressively promote energy efficiency and distributed generation – the utility has a “*throughput incentive.*”
- When customers buy less energy, the utility’s financial performance suffers because recovery of fixed costs is reduced.

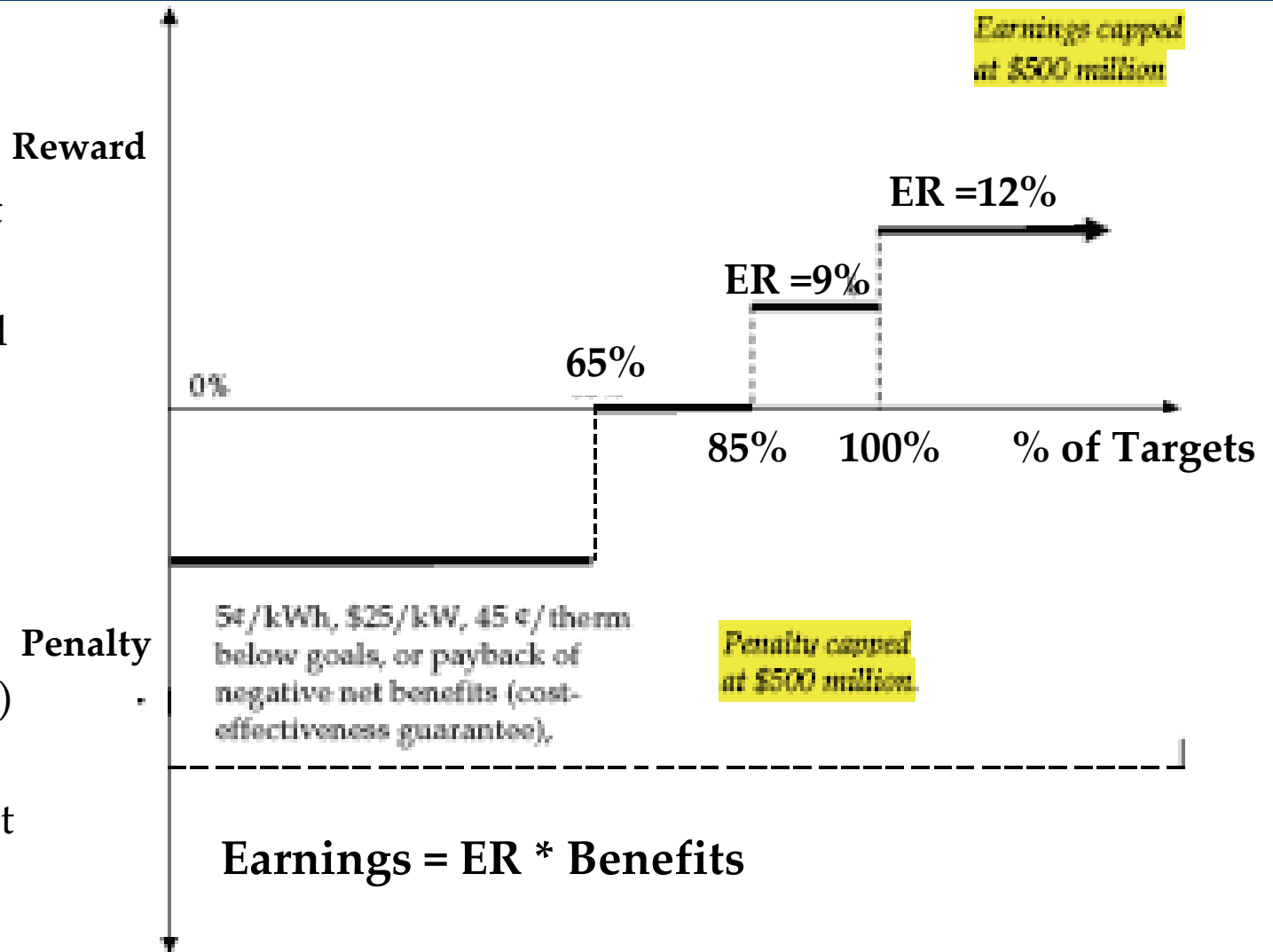
## Other financial concerns can undermine the utilities' pursuit of DSM

There are three areas of financial concern for utilities related to the funding and operation of DSM programs:

1. Assuring cost recovery for the direct costs of DSM programs
2. Addressing the risk of DSM program costs being disallowed and other risks (if energy savings fall short of expectations), PV system fails
3. Recognizing the full value of energy efficiency to the utility's system (equivalence to supply side resources)

# California 's earnings/penalty mechanism is based on the net benefits created

- Individual MW, kWh, and therms savings targets set
- Earnings opportunity based on supply-side "comparable" earnings
- Attained only if performance is superior (i.e. greater than 100%)
- At \$500 million cap, ratepayers net benefit exceeds \$3.6 billion



Source: CPUC R.06-04-010

# Duke Energy's "Save a Watt" program seeks compensation equal to 90% of avoided supply costs

- Customers will realize lower costs than if Duke built new generating capacity
- Provides incentives to Duke to keep costs low and expand energy efficiency programs
- Implemented through rider, separately for residential and non-residential customers
  - Set at 90% of avoided depreciation, operating, and return costs of new capacity
    - Determined through biennial avoided cost proceeding
  - Set prospectively based on program goals
  - Trued-up annually through balancing accounts for actual savings

# In utility-owned PV programs, systems may be located at customer sites or utility property

Leading Examples of PV Ownership by Utilities		
Southern California Edison	Rate basing PV systems of 1-2 MW at commercial customer sites.	March spring 2008; 250 MW goal over 5 years; targeting installed cost of 50% current market cost.
San Diego Gas & Electric	Rate basing PV systems of 1-2 MW at commercial and government customer sites.	Filed July 2008; up to 77 MW between 2009 to 2013; estimated cost of \$250M.

# Proposed rate treatment includes rate base with contemporaneous cost-recovery in current rates

Leading Examples of PV Ownership by Utilities		
Duke Energy Carolinas	Rate basing PV systems across range of system sizes and locations.	Filed June 2008; 10 MW goal (now) in 2 years; requesting \$50M for capital investment; will use 35% state investment tax credit
Atlantic City Electric Company ( a Pepco company)	Rate basing PV systems at substations and utility facilities; plus on-bill financing program for residential customers.	Filed November 2007; 500 kW goal for installations on utility facilities

# SCE's program targets 1-2 MW utility-owned installations

Southern California Edison	
<b>Program Motivation</b>	<ul style="list-style-type: none"> <li>▪ RPS compliance without additional transmission construction</li> <li>▪ Fill gaps in medium-scale PV left by CSI program</li> <li>▪ Energy efficiency</li> </ul>
<b>Target Customers</b>	<ul style="list-style-type: none"> <li>▪ Large commercial rooftops sufficient to support 1-2MW installations</li> </ul>
<b>Program size</b>	<ul style="list-style-type: none"> <li>▪ Up to 250 MW (with expansion to 500 MW if successful)</li> </ul>
<b>Solar ownership</b>	<ul style="list-style-type: none"> <li>▪ Utility-owned</li> </ul>
<b>Program Funding</b>	<ul style="list-style-type: none"> <li>▪ Ratebased (including 100% of reasonable start up costs)</li> </ul>

# SDG&E's Solar Power Initiative ('08) reduces the need for new transmission lines

SDG&E Solar Energy Program - 2008	
<b>Program Motivation</b>	<ul style="list-style-type: none"> <li>▪RPS and AB 32 GHG emissions reduction compliance</li> <li>▪Peak power demand reduction</li> </ul>
<b>Target</b>	<ul style="list-style-type: none"> <li>▪Commercial</li> </ul>
<b>Program Size</b>	<ul style="list-style-type: none"> <li>▪52 MW funded by SDG&amp;E at \$250m 1-2 MW each from 2009-2013</li> <li>▪In addition, the Solar Energy Project will also help facilitate the development of an additional 25 MW of capacity by third parties under CSI that would otherwise not have been built.</li> </ul>
<b>Solar ownership</b>	<ul style="list-style-type: none"> <li>▪Systems are built, owned and operated by SDG&amp;E;</li> <li>▪Participants "host" systems by leasing space to SDG&amp;E;</li> <li>▪System is connected to the utility side of the meter; there is no net metering and no effect on the customer electricity bill</li> </ul>
<b>Program Funding</b>	<ul style="list-style-type: none"> <li>▪SDG&amp;E would like the investments made under this program to be rate based; application was were submitted to the CPUC in an June 2008.</li> </ul>

# SDG&E's Sustainable Communities Program ('04) included options for utility-owned on-site PV

SDG&E Sustainable Communities Program – 2004	
<b>Program Motivation</b>	<ul style="list-style-type: none"> <li>▪ Encouraged sustainable building practices in the San Diego</li> <li>▪ Promote additional EE and onsite RE</li> </ul>
<b>Target</b>	<ul style="list-style-type: none"> <li>▪ Mostly commercial</li> </ul>
<b>Program Size</b>	<ul style="list-style-type: none"> <li>▪ &lt; 500 kW over life of program (2005-2008)</li> <li>▪ Total budget &lt; \$4.5m per year</li> </ul>
<b>Solar Ownership</b>	<ul style="list-style-type: none"> <li>▪ Systems are owned by SDG&amp;E; design, installation, and maintenance work is contracted out.</li> <li>▪ Participants “host” by leasing roof space to SDG&amp;E, generally for a 10 years with 2 possible 5 year extensions</li> <li>▪ System is connected to the utility side of the meter; there is no net metering and no effect on the customer electricity bill</li> </ul>
<b>Program Funding</b>	<ul style="list-style-type: none"> <li>▪ The investments are rate based and were included in the 2004 Cost of Service Filing</li> </ul>

# Duke Energy Carolinas is proposing a \$50 million plan to install solar PV at customer sites

Duke Energy Carolinas	
<b>Program Motivation</b>	<ul style="list-style-type: none"> <li>North Carolina's Renewable and Energy Efficiency Portfolio Standard (REPS) has a solar carve-out</li> </ul>
<b>Target Customers</b>	<ul style="list-style-type: none"> <li>All Duke Carolinas customers would benefit as electricity is fed into grid directly; some customers will also benefit from lease payments</li> </ul>
<b>Program Size</b>	<ul style="list-style-type: none"> <li>10 MW / \$50 million over 2 years + O&amp;M costs</li> </ul>
<b>Solar Ownership</b>	<ul style="list-style-type: none"> <li>Duke Energy would own and operate the equipment.</li> <li>The power produced would be used fed into the grid. Roofspace would be leased from customers.</li> </ul>
<b>Program Funding</b>	<ul style="list-style-type: none"> <li>Program costs would be recovered from rider (North Carolina's new REPS cost recovery mechanism).</li> <li>Company plans to take advantage of 35% state investment tax credit and federal 5- year accelerated depreciation.</li> </ul>

# ACE proposed to own solar PV at sub-stations and at utility owned and leased buildings

Atlantic City Electric Company (ACE) <sup>1</sup> Facility Installations	
<b>Program Motivation</b>	<ul style="list-style-type: none"> <li>▪ Part of comprehensive “Blueprint for the Future” proposal to the NJ Board of Public Utility and includes AMI, DSM, DR, PV and progressive cost recovery approaches</li> <li>▪ State renewable energy goals and increased reliability</li> </ul>
<b>Target Customers</b>	<ul style="list-style-type: none"> <li>▪ Utility - installation at company-owned substations and company-owned and leased buildings</li> </ul>
<b>Program Size</b>	<ul style="list-style-type: none"> <li>▪ 50 facilities for a total of 500kW</li> </ul>
<b>Ownership</b>	<ul style="list-style-type: none"> <li>▪ Utility-owned</li> </ul>
<b>Program Funding</b>	<ul style="list-style-type: none"> <li>▪ Capital costs recovered through base electric distribution rates</li> <li>▪ Energy and SREC sales used to offset distribution utility requirements</li> </ul>

# ACE also proposes to encourage customer ownership of PV via 15 year on-bill financing

ACE Customer Installation Program	
<b>Program Motivation</b>	<ul style="list-style-type: none"> <li>▪ Energy efficiency</li> </ul>
<b>Target Customers</b>	<ul style="list-style-type: none"> <li>▪ Any qualified ACE customer</li> </ul>
<b>Program Size</b>	<ul style="list-style-type: none"> <li>▪ 1,000 systems / 3.5 MW / \$2 million over 5 years</li> </ul>
<b>Solar Ownership</b>	<ul style="list-style-type: none"> <li>▪ Customer-owned; turn-key installation by certified installer and 15 year maintenance paid for by utility and provided by outside vendor</li> <li>▪ Customer would have access to all Federal and state incentives, plus net metering payments (pending tariff) and funds from sale of RECs</li> </ul>
<b>Program Funding</b>	<ul style="list-style-type: none"> <li>▪ Costs recovered over 15-year period through a line item charge on customer's bill</li> <li>▪ Financing discounted ~ 2% below market (bulk of program costs is due to this interest buy down expense)</li> </ul>

# Other approaches are also being tested, with utility taking less ownership risk

Leading Examples of Other Utility PV Programs		
Utility	Type of Business Model	Comment
PSE&G	Ratebasing solar loans for part of project & recovering 'lost revenue'	Initiating project; financing 30MW over two years.
SMUD	PPA with community-scale solar developer	Launching Solar Shares program; 1MW initial project

# Compliance and the long-term earnings opportunity are primary motivators

Key Utility Motivations for Owning Distributed PV Systems				
Potentially Motivating Factor	ACE (PEPCO)	Duke	SCE	SDG&E
Shareholder Benefit	●	●	●	●
Regulatory Compliance (e.g., RPS or solar target)	●	●	●	●
Grid Benefit	◐	◐	◐	◐
Customer Demand	○	◐	○	◐

Importance in Utility Decision to Pursue PV Ownership: ● = high ◐ = med ○ = low

**To a much lesser extent, utilities are motivated by the grid benefits of PV and customer demand.**

# Will distributed resources become a new line of business, separate from Energy Efficiency

- Enmity of interveners towards utility role
  - History of opposition and resistance
- Certainty of recovery of costs
  - Will they be limited to market benchmarks?
- Relationship to rest of the business
  - Distraction or key part of company strategy
  - Skills and ability to manage business
  - Materiality
- Upside earnings opportunity
  - Vision and trust of management

# Regulators and utilities can align financial incentives with DSM goals

- All essential financial issues should be addressed, including:
  - Revenue stability
  - Timeliness
  - Recovery of authorized fixed costs and returns (decoupling)
  - Earnings opportunity
- Revenue decoupling, by itself, is not sufficient, nor is it always the best approach for addressing fixed cost recovery.
- Duke's proposal and the California's reward/penalty mechanism provide roughly comparable earnings opportunity to supply-side options.
- Utilities will have to commit to broad DSM efforts to merit this favorable financial environment