Best Practices for Incentivizing Regulated Utilities to Pursue Energy Efficiency Programs, Or, How Duke Energy and Progress Energy Get Real Results from Energy Efficiency

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Energy Efficiency and the Utility Business Model…

- The Traditional Model: Sales to Cover Fixed Cost Investment
  - The "Regulatory Compact"
    - Monopoly over service territory, in exchange for 1) the obligation to serve all customers and 2) setting rates set at average cost (AC)
    - Rates geared towards recovery of costs for physical plant and an additional return for shareholders
    - Maximization of sales = Maximization of allowed rate of return, creating "throughput incentive" to encourage sales
  - The Result: Regulated utilities have an incentive to pursue investment scale and overbuild and a *disincentive* to conserve.

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…Until Recently

- Recent complications with the "regulatory compact" approach in NC
  - Significant and immediate need for generation replacement and compliance with new federal air rules, coupled with increases in fixed costs associated with new utility plant.
  - Significant increases and variation in variable costs (e.g. the price of Appalachian coal, fluctuating prices of natural gas, etc.).
  - Reduced overall sales due to poor economic conditions and increasing environmental consciousness across partisan spectrum, leading to self-directed conservation.
- The Result: Regulated utilities in North Carolina are spreading *higher fixed and variable costs over a smaller base of sales*, leading to more dramatic rate increases.

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Evaluating Approaches to Utility Energy Efficiency and Conservation

Types of Utility Energy Efficiency Incentive Approaches

No Cost Recovery/Public Benefit Fund

- Advantages
  - EE investments would technically go forward.
  - System benefit would be shared broadly.
- Disadvantages:
  - EE would cause loss of sales, resulting in poor financial case, potential downgrades of stock and bonds
  - Utility would also lack incentive to go above and beyond goals.

Program Costs and/or Net Lost Revenue Recovery

- Advantages
  - Utility can get basic cost recovery, avoiding significant financial/credit damage.
- Disadvantages
  - Very limited incentive to pursue broad suite of programs due to lack of profit motive.

Decoupling Sales from Revenues (Hard Revenue Target)

- Advantages
  - Utility would achieve full fixed cost recovery, theoretical indifference to pursuing sales.
- Disadvantages
  - With stand-alone decoupling, utilities do not earn a rate of return on efficiency investments.
  - Therefore, utility would not be incentivized to pursue energy efficiency independent of specific goals
  - In many cases, utilities would still have incentive to overbuild.

Direct Utility Rate of Return Performance Incentives (Current Duke Energy "Save-a-Watt")

- Advantages
  - Utility would achieve full cost recovery AND allows utilities to pursue efficiency beyond goals set out for utility.
- Disadvantages
  - Higher potential short-term cost to ratepayers.
  - Performance incentives, depending on their design, can lead to misaligned incentives and overly modest efficiency goals.

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Evaluating the Financial Impact of Various Utility EE Incentive Structures: Acme Electric Power Company

- Hypothetical Example: Acme Electric Power Company
  - Acme is newly required by law to meet 5% EE goal (Similar to NC REPS EE Allowance)
  - 1 billion kWh in territorial annual sales
  - Allowed Annual Revenue Requirement Before EE: $100M
  - Allowed Rate of Return: 11%

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Evaluating the Financial Impact of Various Utility EE Incentive Structures: Acme Electric Power Company

Acme Electric Power Company Financial Scenarios (Assuming 5% Efficiency Goal)				
Scenario	***Status Quo (No EE)***	***EE (Without Compensation)***	***EE (Decoupling)***	***EE (15% Return on Program Cost)***
Revenue Requirement	$100 million	$100 million	$105 million	$106 million
Total Energy Sales (kWh)	1,000,000,000	950,000,000	950,000,000	950,000,000
EE Savings (kWh)	-	50,000,000	50,000,000	50,000,000
Electricity Rate/kWh	$0.10	$0.10	$0.10	$0.10
EE Charge/kWh	$ -	$ -	$0.005	$0.006
Actual Revenue	$100 Million	$95 Million	$105 Million	$106 Million
EE Program Costs ($)	$ -	$5 Million	$5 Million	$5 Million
Allowed Rate of Return (Fixed Costs)	***11%***	***11%***	***11%***	***11%***
Actual ROR (Fixed Costs)	***11%***	***0%***	***11%***	***11%***
Lost ROR Due to EE (Fixed Costs)	***0%***	***-11%***	***0%***	***0%***
Actual ROR (EE Investments)	***0%***	***0%***	***0%***	***15%***

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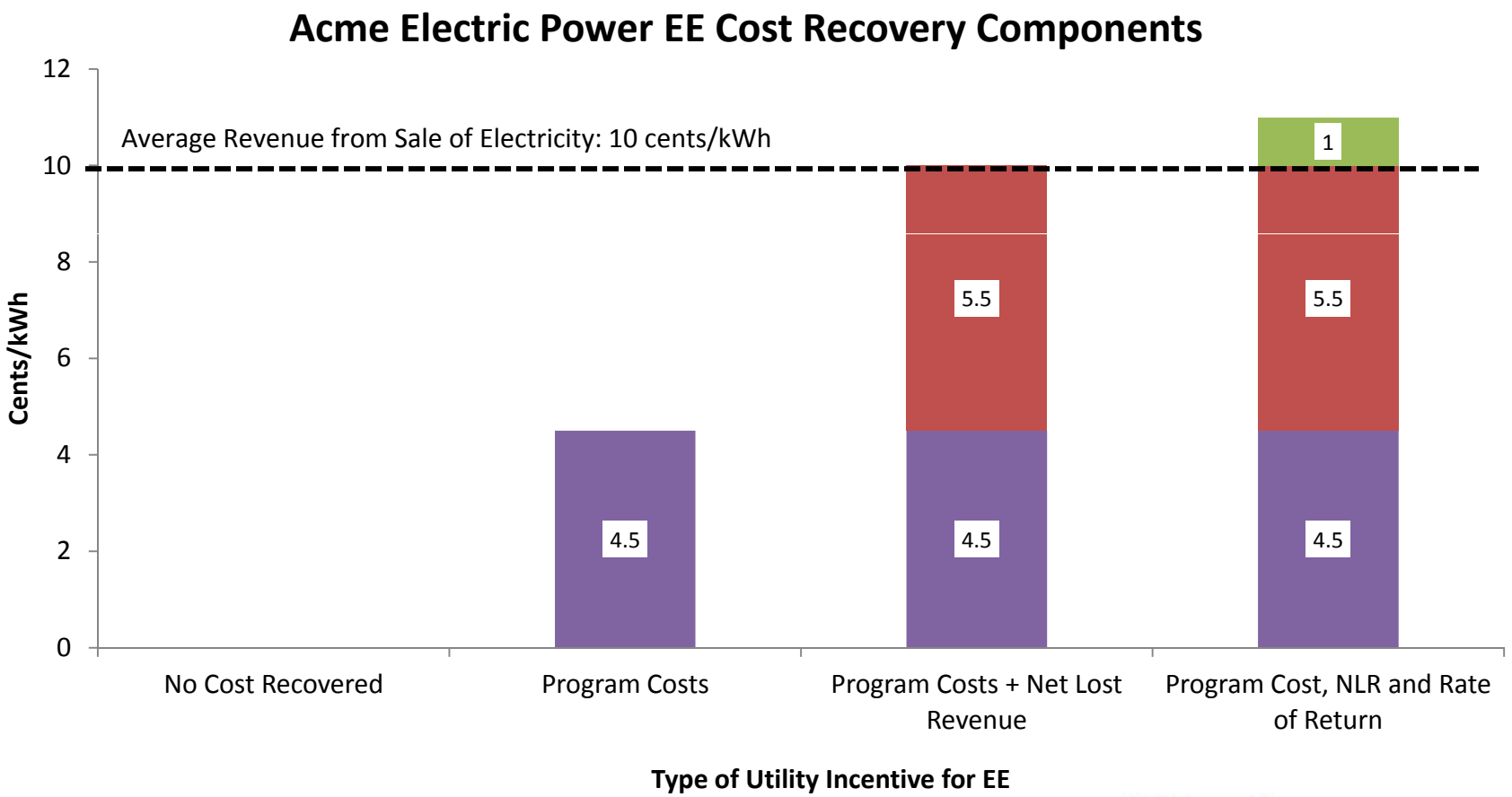
Evaluating the Financial Impact of Various Utility EE Incentive Structures: Acme Electric Power Company



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Key Takeaways from Duke Energy "Save-A-Watt" and Progress Energy Approach

- Set Hard kWh Goals.
- Allow for full fixed cost recovery for conventional plant investments.
- Create incentives to meet AND exceed goals enforced by public policy.
- Establish a set of programs targeting both "low-hanging fruit" (commercial lighting) and more hard-to-reach segments (residential multifamily, low-income).
- Ensuring that all customers participate in programs; fully spread and amortize system benefit across all classes.
- Engage in robust EM&V and effectively manage free-ridership.
- Ensure the use of appropriate avoided cost levels for cost-effectiveness evaluations.

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Questions?

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