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# The Effect of Energy Efficiency Programs on Rates

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## Overview

- Rate structures that incorporate energy efficiency measures must remove or reduce utilities' incentives to increase electricity sales to generate revenue because successful energy efficiency programs may cause utilities' sales to decrease.



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## Ratemaking approaches

- In the United States, ratemaking approaches to dealing with the effect of energy efficiency programs vary widely by state because each state has a unique regulatory environment.



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## Ratemaking approaches, continued

- Although each state will approach ratemaking differently, some major approaches to recovering costs associated with the implementation of energy efficiency programs have emerged:
  - Decoupling
  - Lost revenue recovery
  - Straight-fixed variable (SFV) rate designs



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## Decoupling

- The term “decoupling” is used to describe ratemaking approaches that sever the bond between sales and revenue recovery that exists in traditional revenue requirement ratemaking. The goal of decoupling is to make utilities less vulnerable to fluctuations in s



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## Decoupling, continued

- There are many decoupling approaches in use in the United States. Some of the most common approaches include:
  - Limiting the number of true-ups available to utilities to ensure that the utilities continue to bear the risk for changes in sales levels that are unrelated to energy efficiency programs.
  - Allowing recovery of lost margins. Sales reductions will also result in the reduction of some costs, which lowers the overall revenue requirement.



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## Decoupling, continued

- Revenue decoupling falls into two main categories:
  - Revenue decoupling linked to total revenue. In this approach, the revenue a utility is allowed to earn is capped.
  - Revenue decoupling linked to the revenue per consumer. In this approach, the amount of revenue that a utility is allowed to earn per customer is capped. This approach recognizes the connection between the amount of revenue a utility must earn and the number of customers the utility has.





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## Possible advantages of decoupling

- Because the link between sales and revenues is lessened, it is easier to get utilities to promote and invest in energy efficiency.
- Stabilization of utility revenues.
- Lessened need for evaluation, measurement and verification processes.
- Low administrative costs.
- Reduces the need for frequent rate cases.



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## Possible disadvantages of decoupling

- If price adjustments between rate cases are permitted, rates can fluctuate between rate cases. Some regulators institute annual caps on rate fluctuations to alleviate rate volatility.
- Rapid accrual of carrying costs.
- Frequent balancing or true-ups are needed to ensure neither over-recovery or under-recovery of the utility's revenue requirement.



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## Specific decoupling mechanisms

- The National Regulatory Research Institute has identified the following decoupling mechanisms:
  - Conservation Margin Tracker
  - Conservation-Enabling Tariff
  - Conservation Tariff
  - Conservation Rider
  - Conservation and Usage Adjustment Tariff
  - Conservation Tracker Allowance
  - Incentive Equalizer



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## Specific decoupling mechanisms, continued

- Delivery Margin Normalization
- Usage per Customer Tracker
- Fixed Cost Recovery Mechanism
- Customer Utilization Tracker



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## Performance-Based Ratemaking

- Performance-based ratemaking (PBR) functions as an alternative to traditional rate-of-return ratemaking. PBR allows rates or revenues to be adjusted based on a utility's performance against a set of specific benchmarks.



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## **Lost Revenue Recovery Mechanisms**

Lost revenue recovery mechanisms are designed to allow utilities to recover revenues that are lost as result of successful energy electricity programs.

These mechanisms do not affect the link between revenues and sales. Rather, lost revenue recovery is meant to capture and recover the amount of revenue that is lost as a result of reduced sales.



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## **Lost Revenue Recovery Mechanisms, continued.**

- To function well, lost revenue recovery mechanisms must accurately determine the actual savings that result from a successful energy efficiency program.
- If savings are over-estimated, the utility will over-collect.
- If savings are under-estimated, the utility will under-collect



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## **Potential advantages of lost revenue recovery mechanisms**

- Lost revenue recovery mechanisms remove a utility's disincentive to invest in successful energy efficiency programs because they provide for an alternative means for the utility to meet its revenue requirement.
- Lost revenue recovery mechanisms can help match utility financial incentives with the adoption of energy efficient consumer practices.





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## Potential disadvantages of lost revenue recovery mechanisms

- The evaluation process required to ensure accurate recovery under a lost revenue recovery mechanism has some drawbacks:
  - The evaluation process can produce very accurate estimates, but the cost of rigorous evaluation is high.
  - Evaluation is backward looking because it can only happen after the event being evaluated has occurred. This can greatly increase the lag time between incurring the cost and the recovery of that cost.
  - Real-time evaluations are very expensive.



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## **Straight-Fixed Variable Rate Design**

- The Straight-Fixed Variable (SFV) rate design:
  - Fixed costs of providing service to the customer (installing meters, service lines, etc.) are recovered through a fixed customer charge that is paid by the customer regardless of the customer's level of consumption.
  - All customers within each customer class pay the same fixed charge.
  - The cost of the commodity is recovered based on the customer's consumption.
  - In the United States, SFV rate design is seen most commonly in natural gas utilities.



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## Characteristics of SFV rate designs

- Stability in utility revenue, especially in the short term.
- Like decoupling, SFV rate designs can promote revenue neutrality with respect to energy efficiency measures.
- Proponents contend SFV rate designs are a good way to allocate costs.



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## Characteristics of SFV rate designs, continued

- Best used when most fixed costs are incurred in building and maintaining a distribution system.
- Customers may lose some ability to control the size of their bills because of the use of a fixed charge to recover fixed costs.
- It is more difficult to use SFV rate designs for vertically integrated electric utilities because fixed costs can be related to consumption volumes.



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## Characteristics of SFV rate designs, continued

- In vertically integrated electric utilities, the fixed costs could be very high, which would increase the amount of the monthly fixed charge the customers are required to pay. This could create problems for low-income customers who may be unable to pay the higher fixed charge.
- SFV rate designs could provide a disincentive for customers to engage in energy efficient behavior.



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## What does energy efficiency cost consumers?

- The cost of energy efficiency programs for consumers will vary based on many factors, including:
  - The number of consumers
  - The size and scope of the program
  - The duration of the programs
  - Participation levels
  - Legal and regulatory factors
  - The availability of tax credits or other financial incentives



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