

CASE STUDIES IN INCENTIVES AND PENALTIES

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Agenda

- ▣ Base Load Generation
- ▣ Transmission
- ▣ Energy Efficiency/Renewable Energy
- ▣ Distribution and Infrastructure

Base Load Generation

- ▣ Refers to electric generation resources that operate continuously and are available 24 hours a day
- ▣ Base-load power plants provide reliable power to maintain a large-scale electrical grid and generally shut down only for scheduled maintenance or emergency repairs
- ▣ Typically, they require large upfront capital investments but provide reasonably low-cost electricity

Examples of Base Load Generation

- ▣ Coal Plants
- ▣ Nuclear Plants
- ▣ Hydroelectric Plants

Scenario #1: Base Load Generation

- ▣ The country of Hardin needs base load generation. The federal government decides that the best type of new base load generation is nuclear power. The government of the state of Clayton supports the federal policy. What can the federal government of Hardin, the state government of Clayton, and the Clayton Public Service Commission do to incent the building of new nuclear power plants?

Federal Incentives

- ▣ Loan guarantees
 - Energy Policy Act of 2005 (EPACT 2005) - Allows the Secretary of Energy to provide loan guarantees for up to 80 percent of eligible project costs
- ▣ Federal Tax Credits
- ▣ Expedited review and licensing

State Incentives

- ▣ CWIP
 - Allows some (but not all) construction costs to be included in rate base before a construction project is completed
- ▣ State Tax Credits
- ▣ Property Tax Breaks
- ▣ Provide infrastructure (roads, sewer, water, etc.)

PSC Incentives

- ▣ Rate Design
 - Accelerated Depreciation
 - Timely Rate Case Completion
 - Pre-approval of projects
 - Incentive rates of return

Transmission

- ▣ The bulk transfer of electrical energy, from generating power plants to substations located near to population centers
- ▣ Distinct from the local wiring between high voltage substations and customers, which is typically referred to as electricity distribution
- ▣ Transmission lines, when interconnected with each other, become high voltage transmission networks. In the US, these are typically referred to as "power grids" or just "the grid"

Scenario #2: Transmission Incentives

- ▣ The Federal Government of Hardin has decided that it wants to incorporate more renewable energy (specifically, wind energy) into the national grid. In addition to this Federal mandate, the State of Busch has its own renewable energy standards. Transmission lines must be built to transmit the power from wind farms to the location of the load, or end users. What can the government of Hardin, the state of Busch, and the Busch PSC do to incent new transmission projects?

Federal Incentives

- ▣ Incentive rates of return on equity for new investment by public utilities (both traditional utilities and stand-alone transmission companies, or transcos);
- ▣ Full recovery of prudently incurred construction work in progress;
- ▣ Full recovery of prudently incurred pre-operations costs
- ▣ Cost allocation to spread the cost

State Incentives

- ▣ Tax Credits
- ▣ Siting Authority
- ▣ CWIP

PSC Incentives

- ▣ Rate Design
 - Pre-approval of projects
 - Incentive ROE
 - Accelerated Depreciation

Energy Efficiency/Renewable Energy

- ▣ Renewable energy is energy which comes from natural resources such as sunlight, wind, tides, and geothermal heat, which are renewable (naturally replenished).
- ▣ Common types of renewables:
 - Wind
 - Hydro
 - Solar
 - Biomass
 - Biofuel
 - Geothermal

Scenario #3: Energy Efficiency/Renewable Energy Incentives

- ▣ The federal government of Hardin believes that energy efficiency and renewable energy are the waves of the future. Likewise, the state of Fred wants its regulated utilities to implement more energy efficiency and renewable energy programs. What can the government of Hardin, the government of Fred, and the Fred PSC do to incent Energy Efficiency and Renewable Energy programs?

Federal Incentives

- ▣ Energy Efficiency
 - National standards for energy efficient appliances
 - Laws outlawing incandescent bulbs and mandating CFL bulbs
- ▣ Renewable Energy
 - Tax Credits
 - Low interest loans
 - National renewable energy standards

State Incentives

- ▣ Energy efficiency
 - State laws giving incentives to utilities to implement energy efficient programs
 - State building codes mandating more energy efficient buildings
 - Rebates for energy efficient appliances
- ▣ Renewable Energy
 - Tax credits
 - State renewable energy standards

PSC Incentives

- ▣ Energy Efficiency
 - Approval of energy efficiency programs
 - Revenue Decoupling
 - Promulgate rules to implement state laws on energy efficiency
- ▣ Renewable Energy
 - Preapproval of projects
 - Accelerated Depreciation
 - Incentive ROE

Distribution and Infrastructure

- ▣ Distribution infrastructure is the infrastructure and plant that is used for delivery of service to the end user.
- ▣ Looking for reliability, efficiency, safety and performance

Scenario #4:

- ▣ Utilities in the State of Jarrett need new distribution lines and infrastructure upgrades. What can the State of Jarrett and the Jarrett PSC do to incent new distribution lines and other infrastructure upgrades?

State Incentives

- ▣ Tax Credits
- ▣ Low interest Loans
- ▣ Laws allowing more timely recovery for spending on infrastructure improvements

CONCLUSION

- ▣ Governments and Regulators have many tools to incent utilities to meet certain policy, performance, safety, and efficiency goals
- ▣ There is no “perfect” incentive
- ▣ Key is to design incentive programs that are easy to apply, easy to monitor and flexible in case modifications are necessary

QUESTIONS?