

Advantages and Drawbacks of Revenue Decoupling: Rate Design and Regulatory Implementation Does Matter

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Presentation Outline

- Volumetric charges: mechanics and rationale
- Energy efficiency and DSM program rationales and interaction with volumetric charges
- Definition of and rationales for revenue decoupling (RD)
- An aside on what services utilities provide
- Two implementation methods of RD and why is one not considered RD?
- Determining advantages and drawbacks of RD implementation methods
 - Earnings stability
 - Shifting risk
 - Bill/Price stability
 - Cross-subsidies
 - Economic Efficiency
 - “Environmental” performance
 - Other considerations
- Concluding Thoughts

“Typical or Traditional” Rate Design for Cost Recovery

- Volumetric (per kWh or per therm) charges have been used to recover most utility fixed costs.
 - Can be combined with demand charges or customer charges, or set up as inclining or declining block tariffs
 - Important part is that the majority of fixed costs are recovered through the volumetric charge
- Implications for utility cost recovery and profitability
 - If demand is greater than forecast, utilities recover all their fixed costs and can increase their profits, all else equal.
 - If demand is less than forecast, utilities are unable to recover all their fixed costs and profits are less than allowed, all else equal

Rationale for Volumetric Charges

- Relatively simple for all parties, especially consumers to understand.
- Works with the average consumer's belief that if they do not consume the service, they should not pay for it...
 - This misunderstanding will be addressed later
- Some commissions see volumetric charges as a way to have large volume users (presumably wealthier) “cross-subsidize” small volume users (presumably poorer) on the recovery of fixed costs.
 - Effect can be stronger with inclining block tariff structures

Rationales for Energy Efficiency

- Energy efficiency programs are designed to reduce usage over all time periods, not just at the peak period.
- Possible energy efficiency savings:
 - Fuel costs, emissions costs, and possibly the need for new base load plant
 - In the context of climate change policy, emissions savings could be great here
- In order to be implemented programs must be cost-effective
- It also must make financial sense for consumers and utilities alike

Rationales for DSM

- Demand-side management (DSM) programs are designed to reduce usage during peak periods.
- Possible DSM savings:
 - Fuel costs at peak, some emissions costs, need for new peaking plant
 - Consumers may shift usage to off-peak offsetting Kwh savings while preserving kW savings.
- Of course, for implementation to make sense DSM programs must be cost-effective.
- It also must make financial sense for consumers and utilities alike

Interaction of EE/DSM with Volumetric Charges

- The goal of EE is to reduce kWh usage over all periods.
 - Reduces customer bills
 - But can put the utility in a financial bind in terms of fixed cost recovery
 - Runs counter to the incentive to increase throughput
- The goal of DSM is to reduce peak kW more than kWh
 - Reduce customer bills
 - May not have as great an effect on overall kWh usage so the financial effects on utilities may not be as great

Defining Revenue Decoupling

- Revenue Decoupling (RD):
 - Severing the link between profits of service providers (LDC in gas, local service provider in electric) from sales.
 - Separating the collection of required revenues to cover the cost of fixed infrastructure from sales by the utility.
 - Does not discriminate between the reasons (weather, economic growth, energy efficiency) for which required revenues were over- or under-collected!

Defining Revenue Decoupling

- Revenue decoupling implicitly imposes a revenue cap on the utility for the provision of fixed infrastructure services
 - Separate from the commodity gas or electric power
 - Cap on total revenue to cover the entire fixed infrastructure service which assume changes in customer base do not lead to changes in required infrastructure
 - Cap revenue per customer acknowledging changes in customer base require changes to the infrastructure base and hence required revenue

What Revenue Decoupling Is Not...

- Revenue decoupling is not merely allowing for “lost margin recovery” due to energy efficiency and DSM programs alone...
- Revenue decoupling is also not only a weather normalization adjustment alone...
- Programs such as the above are
 - only partial decoupling mechanisms and do not necessarily take away the throughput incentive
 - Difficult and contentious to implement due to “measurement” questions

Rationales for Revenue Decoupling

- Under volumetric charges it removes the utility's financial incentive to increase sales to ensure recovery of fixed infrastructure costs and increase profitability.
- EE/DSM proponents would say it removes the disincentive to promote energy efficiency, conservation, and demand response (DR)/(DSM).
 - RIM Test and the Utility Cost Test test become equivalent...one step away from the TRC test
 - Helps in putting supply- and demand-side options on equal footing for least-cost planning
- **Not a sufficient condition to promoting EE/DSM/DR !**

Revenue Decoupling and Utility Financial Incentives

- Utilities with declining sales per customer and using one-part or volumetric tariff have a financial incentive to embrace revenue decoupling
 - Makes it easier to recover fixed costs independent of EE/DSM/DR considerations
 - Some have argued this is why gas LDCs have been so quick to embrace revenue decoupling
- Utilities with increasing sales per customer have a financial incentive to avoid revenue decoupling
 - It prevents them from potentially earning higher returns
 - As long as infrastructure costs per customer do not outpace revenues per customer

What Services Do Utilities Provide?

- Energy services...and this is how customers and regulators often think of their utility service...***but there are really two distinct services provided:***
- **Infrastructure Service (Option to Consume):**
Regardless of how many therms or kWh consumed, if any, customers cause costs to have the option to consume
 - No different than telecommunications services
- **Commodity:** Therms of gas or kWh of electricity.

Two Ways to Implement RD...

- Volumetric Charge (one-part tariff)
 - Tracker mechanism that adjusts the price for over- or under-collections of required revenues to cover infrastructure costs...more administrative burden
 - Recovers the cost of the commodity **and** the cost of the option
 - Views the energy utility as providing one service
- Two-Part Tariff (Straight Fixed Variable...SFV)
 - Fixed, network or infrastructure costs are recovered through the fixed charge
 - Commodity costs covered through the variable charge
 - No need for a tracker mechanism reducing administrative burden
 - Views the utility as providing two services

...But Why are Two-part (SFV) Tariffs and RD Viewed as Different Alternatives?

- In the National Action Plan for Energy Efficiency, drafted by the USEPA and USDOE, shifting more fixed costs into fixed charges is called “an alternative to decoupling” (p. 2-4)
- This same view is also expressed in “Revenue Decoupling for Natural Gas Utilities” by Ken Costello and published by NRRI (p. 19)
- One gets this impressions from other sources as well.
- Why is this the viewpoint taken?
- Perhaps it has to do with many of the perceived problems and some legitimate concerns that consumers may not understand the rationale for two-part tariffs.

RD Advantages and Drawbacks: Implementation is Everything

- Perspectives on what the advantages and drawbacks are depends upon the perspective of how service is provided...
 - Are energy utilities providing one service or two services?
- ...which determines the method of implementation...
 - Volumetric tariffs vs. Two-part (SFV) tariffs
- ...and is dependent upon how the revenue cap is designed
 - Thinking in terms of traditional cost-of-service terms or in revenue and price cap implementation in the UK, Latin America, and Western Europe?

Utility Earnings Stability

- RD does provide revenue stability, in theory
 - But the utility still must control its costs in order to achieve its target return on equity
 - All else equal, there is more earnings stability, in theory...but should this translate into lower allowed ROE?
- Volumetric Charges with Tracker:
 - Possibility of costly and contentious hearings
 - Any accumulated deferrals may be at risk of not being recovered threatening stability
 - Variation in year-to-year ROE
- Two-part Tariff (SFV):
 - No need for hearings to update prices to true-up revenues
 - No deferrals by design to be put at risk
 - Little variation in year-to-year ROE
 - Maybe lower allowed ROE is called for under SFV?

Shifting “Business Risk” From the Utility to Consumers

- Idea itself assumes a world where utilities provide only bundled energy service and charges are volumetric.
 - What risk is shifted from the utility to consumers?
 - Weather?
 - Economic conditions?
 - Are these drivers behind the option to consume?
 - ***Utility still bears risk of costs for network or infrastructure service increasing beyond what has been allowed.***
- But neither the utility or consumers can control these outcomes

Customer Rate/Bill Stability

- Volumetric Charge with Tracker:
 - Very possibly could lead to greater rate and bill volatility
 - In an attempt to make bills more stable, requires an emphasis on load/usage forecasts which otherwise are not as important under RD
- Two-part Tariff (SFV):
 - Reduced volatility as changes in the rate and bill are only due to changes in commodity charge
 - Demand forecasts not so important in the recovery of fixed costs

Cross-subsidies from High Volume to Low Volume (Low Income) Consumers

- Volumetric Charge with Tracker:
 - Keeps the implicit cross-subsidy from large users to small users in place for the infrastructure
- Two-part Tariff (SFV):
 - Assumed to not preserve the cross-subsidy
 - By why not differentiate the fixed charge to preserve the cross-subsidy?
 - A cross-subsidy through the fixed charge would be more economically efficient anyway.
- But even without revenue decoupling, EE/DSM/DR programs, it can be argued, result in non-participants (usually small users) cross-subsidizing participants (usually large, wealthier users) except under the RIM Test

Economic Efficiency

- Volumetric Charge with Tracker:
 - This is already economically inefficient
 - With successful DR programs the price may be even more inefficient (reducing consumption could result in prices increasing, not decreasing as customers would expect).
 - Inefficiency falls on consumers
- Two-part Tariff (SFV):
 - Economically efficient, sends the right price signal for the commodity
 - If DR programs are successful, users should see the commodity charge drop as they cut back on usage
 - Cross-subsidies can be implemented through fixed charge without inhibiting efficiency

“Environmental” Performance

- Volumetric Charge with Tracker:
 - Because price increases with the success of DR, seen as self-reinforcing at reducing usage and therefore reducing emissions and other environmental problems
- Two-part Tariff (SFV):
 - Because the commodity price decreases with the success of DR, this is viewed as not desirable environmentally
 - Even without DR, seen as undesirable because commodity price is less than the bundled price
 - But “income effect” of fixed charge plus results of EE/DSM/DR can reduce consumption from baseline

Other Effects of RD on Utilities

Conjectures

1. RD would undermine the cost cutting incentives in multi-year settlements which all utilities to retain those cost savings as earnings
2. RD would limit the cash flows needed for investment going forward which may undermine system reliability

Reality

- Price/revenue cap regulation as practiced in the UK, Western Europe, Latin America, and the Caribbean is a multi-year regime that retains these incentives **and** accounts for investment needs during that period **and** has built in incentives for reliability
 - It does require forecasting of investment needs among other things
 - But with two-part tariffs (SFV), it is easier to forecast the number of customers than it is to forecast the consumption

Other Effects of RD on the Regulatory Paradigm

- It has been claimed that RD would reduce incentives to reform rate designs and by extension how regulation is done.
- Since RD is changing the way we think about regulating energy utilities, would this not be a good time to look at rate design and different ways of regulating?
 - Or are we doomed to be stuck in the cost-of-service/rate-of-return, volumetric charge mindset forever?

What are the Advantages and Drawbacks of RD?

- As was stated before, it depends on how RD is implemented.
- The other questions that should be asked are:
 - Are there situations where neither utilities nor consumers benefit?
 - Is there an implementation where both utilities and consumers benefit?

Volumetric Charge Implementation: Advantages

- If hearings are minimal and recovery of differences between required revenue and collected revenue is all that occurs, then utility has more stable revenues
- Consumption should decrease with EE/DSM/DR
- Cross-subsidies from large users to small users can remain
- Status quo in rate design and regulatory mechanisms can remain in place
- Easy to understand rate structure for customers

Volumetric Charge Implementation: Drawbacks

- Increased price and bill volatility for customers induced by sales volatility
- Move farther away from economic efficiency in pricing
- Increased EE/DSM/DR activity results in increased prices, all else equal
- Requires periodic hearings to “true-up” revenues for the utility which may be costly and contentious and may put recovery of deferrals owed a utility in jeopardy
- Innovative rate design and regulatory mechanisms are put on hold
- No recognition of the infrastructure (option) service as a separate service

Two-Part Tariff (SFV) Implementation: Advantages

- Need for period hearings for revenue “true-up” are largely eliminated which reduces the risk a utility may not recover deferrals or customers will not get rebates for over-collections
- Reduced customer rate and bill volatility
- More economically efficient prices
- When EE/DSM/DR activity increases, customers see reduction in commodity cost (all else equal)
- Recognizes two services are provided
- Promoting innovative rate design

Two-Part Tariff (SFV) Implementation: Drawbacks

- “Cross-subsidies” from large volume users to small volume users may be lost.
 - But these can be made up through differential fixed charges potentially
- With EE/DSM/DR activity, there is a concern that consumers facing a lower commodity charge will not reduce consumption as much.
 - The question is how much the “income effect” of the fixed charge reduces consumption.
- It may be more difficult for customers to understand this rate structure.

Revenue Decoupling Implementation

- Electric utility decoupling:
 - 5 states have approved or have implemented (CA, ID, MN, NY, RI)
 - 9 states proposals are pending (CO, DE, DC, HI, MD, MA, NH, NJ, WI)
- Gas utility decoupling:
 - 15 states have approved or implemented (AR, CA, IN, MD, MN, MO, NV, NJ, NY, NC, OH, OR, RI, UT, WA)
 - 7 states proposal are pending (AZ, CO, DE, KY, MI, NM, VA)
- SFV implementation:
 - 4 states in gas only (GA, OK, MO, ND)

Sources: For decoupling information, “Aligning Utility Incentives with Investment in Energy Efficiency: A Resource of the National Action Plan for Energy Efficiency,” Table ES-1, November 2007.

For SFV information, American Gas Association.

Concluding Thoughts

- Each of the implementations discussed here has its advantages and drawbacks.
- The just released *“Aligning Utility Incentives with Investment in Energy Efficiency: A Resource of the National Action Plan for Energy Efficiency”* offers some possible policy objectives:
 1. Balance the risk and reward between utilities and customers
 2. Stable customer rates and bills
 3. Stable utility revenues
 4. Administrative simplicity and managing regulatory costs

Concluding Thoughts

1. Balance the risk and reward between utilities and customers...*this will depend upon perceptions of risk and reward in the two implementations*
2. Stable customer rates and *bills...two-part tariff (SFV) accomplishes this*
3. Stable utility revenues...*in theory either implementation can accomplish this, but hearings under volumetric rate implementation introduces risk... bills...two-part tariff (SFV) would do better*
4. Administrative simplicity and managing regulatory costs...*two-part (SFV) would do better by eliminating the need for true-up hearings*

But there may be other policy considerations as have been discussed...economic efficiency?