Revenue Regulation Options for New Mexico

New Mexico Public Regulation Commission
Workshop with Staff

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About RAP – US

• RAP provides technical and policy support at the federal, state and regional levels, advising utility and air regulators and their staffs, legislators, governors, other officials and national organizations.

• We help states achieve ambitious energy efficiency and renewable energy targets and we provide tailored analysis and recommendations on topics such as ratemaking, smart grid, decoupling and clean energy resources. RAP publishes papers on emerging regulatory issues and we conduct state-by-state research that tracks policy implementation.
Reconsidering Incentive Structures

RAP has written several studies and worked with many Public Utility Commissions on issues of revenue regulation, decoupling, performance-based regulation, and other tools to align incentives with public policy goals.
1 Efficient Use of Energy Act

Background and Amendments
Efficient Use of Energy Act (EUEA) Background

- Numerous revenue regulation mechanisms have been proposed in NM
- EUEA now requires the Commission, on its own motion or upon a petition, to “identify and remove regulatory disincentives or barriers for public utility expenditures on energy efficiency and load management measures.”
Efficient Use of Energy Act (EUEA) Goals

- The EUEA also sets new energy efficiency goals for the state
- Utilities shall acquire “cost-effective and achievable energy efficiency and load management resources”
- Not less than savings of 5 percent by 2025 of 2020 total retail kWh sales, with a rulemaking to be undertaken for future goals
Reforming Regulation

Aligning Incentives with Public Policy Goals
All regulation is incentive regulation

- The trick is to understand what the incentives are and how they affect behavior
How Do Utilities Make Money under Traditional (Price-Based) Regulation?

- Under traditional regulation*: 
  \[
  \text{Price} = \frac{\text{Revenue Requirement}}{\text{Projected Sales}}
  \]
- But:
  \[
  \text{Actual Revenues} = \text{Price} \times \text{Quantity}
  \]
  Where: Quantity = Actual Sales
- Which means that:
  \[
  \text{Net Income} = \text{Actual Revenues} - \text{Actual Costs}
  \]
- The utility makes money by:
  - Reducing costs and
  - Increasing sales

*\text{RR} = \text{Cost of Service} = \text{Test Year Expenses + Depreciation + Taxes + (Rate of Return \times Rate Base)}
Traditional Regulation: The Problem

• Traditional ROR regulation sets \textit{prices}, not \textit{revenues}
  • The revenue requirement is only an estimate of the total cost to provide service, used only as the basis for determining rates

• By themselves, consumption-based rates ($/kWh and $/kW) link revenues (and thus net income) to sales
  • The more kilowatt-hours a utility sells, the more money it makes
  • This is because, in most hours, the price of electricity is greater than the cost to produce it
    • Utility makes money even when the additional usage is wasteful, and loses it even when the reduced sales are efficient

• The incentive to increase sales is \textit{extremely powerful}
  • This is the “throughput incentive”
### How Changes in Sales Affect Earnings

<table>
<thead>
<tr>
<th>% Change in Sales</th>
<th>Revenue Change</th>
<th>Impact on Earnings</th>
<th>Actual ROE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-tax</td>
<td>After-tax</td>
<td>Net Earnings</td>
</tr>
<tr>
<td>5.00%</td>
<td>$9,047,538</td>
<td>$5,880,900</td>
<td>$15,780,900</td>
</tr>
<tr>
<td>4.00%</td>
<td>$7,238,031</td>
<td>$4,704,720</td>
<td>$14,604,720</td>
</tr>
<tr>
<td>3.00%</td>
<td>$5,428,523</td>
<td>$3,528,540</td>
<td>$13,428,540</td>
</tr>
<tr>
<td>2.00%</td>
<td>$3,619,015</td>
<td>$2,352,360</td>
<td>$12,252,360</td>
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<tr>
<td>1.00%</td>
<td>$1,809,508</td>
<td>$1,176,180</td>
<td>$11,076,180</td>
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<tr>
<td>0.00%</td>
<td>$0</td>
<td>$0</td>
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</tr>
<tr>
<td>-1.00%</td>
<td>-$1,809,508</td>
<td>-$1,176,180</td>
<td>$8,723,820</td>
</tr>
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<td>-2.00%</td>
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The Solution: Revenue-Based Regulation or “Decoupling” – it’s pretty simple

• Prices set the old-fashioned way: in a rate case
• But now the amount of revenues that the company will receive is determined:
  • The “revenue requirement” becomes the company’s “allowed” (or “authorized” or “target”) revenue
• Differences between actual revenues and allowed revenues are trued-up through periodic rate adjustments (monthly, quarterly, yearly)
• Other (non-sales-related) adjustments to revenue can also be made
  • E.g., inflation, productivity, changes in numbers of customers, exogenous factors, rewards/penalties for performance, etc.
Revenue-Sales Decoupling (1)

- Breaks the mathematical link between sales volumes and revenues
  - Makes revenue levels immune to changes in sales volumes
  - It enables recovery of the utility’s costs, including return on investment, in a way that doesn’t create perverse incentives for unwanted outcomes
- Objectives:
  - To improve economic efficiency
    - Preserves the utility’s incentive to improve its operational efficiency
      - Net income remains a function of utility operations & management
    - Removes the utility’s incentive to increase net income by increasing sales
    - Shifts focus to customer service
  - To reduce risk for both the utility and the customer
    - Eliminates impacts (up or down) on revenue from weather, changes in the economy, and other exogenous factors
    - Likewise, eliminates impacts associated with least-cost actions
Revenue-Sales Decoupling (2)

• This is a *revenue* issue, not a *pricing* issue: it is not intended to decouple customers' bills from their consumption
  • Customers continue to see the cost implications of their consumption decisions through usage-based pricing
  • Use more, pay more. Use less, pay less
How Decoupling Works

### Periodic Decoupling Calculation

<table>
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### Post Rate Case Calculation

<p>| | |</p>
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<tbody>
<tr>
<td>Actual Unit Sales</td>
<td>99,500,000</td>
</tr>
<tr>
<td>Required Total Price</td>
<td>$0.1005025</td>
</tr>
<tr>
<td>Decoupling Price &quot;Adjustment&quot;</td>
<td>$0.0005025</td>
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</table>
Decoupling Rate Adjustments Have Generally Been Very Small

Source: Lesh, 2009
Credit Implications of Decoupling

• Standard & Poor Views Decoupling as Generally Positive from a Credit Perspective:
  ➢ Provides the opportunity for a utility to earn a pre-determined level of distribution revenue regardless of the actual KWH sold
  ➢ Enables utilities to project cash flow more accurately and avoid much of the earnings volatility from changes due to policy goals (and other influences – weather/economy) that occur under traditional regulations
  ➢ Reduces the need for rate case filings, resulting in lower overall costs for the utilities
Conclusion

• Decoupling promotes economic efficiency
  • Stabilizes utility revenues
    • Reduces or eliminates a host of risks for both utility & customers
  • Eliminates the key financial barrier to utility support for customer-sited resources
• Decoupling elsewhere has worked well
  • “Now we can focus on customer service instead of worrying about revenue levels.”
3 Public Interest Benefits of Revenue Regulation
Consumer Benefits of Decoupling

• Requires utility to refund to the customer any excess revenues beyond those authorized by the Commission – injects a level of accountability and customer protection that is otherwise generally lacking.

• Removes the disincentive to for utilities to engage in energy efficiency (EE) the least cost resource option. EE:
  o Contributes to reductions in overall rate increases; and,
  o Provides tools for customers to reduce their bills through energy savings.

• Opens the opportunity to reduce revenue requirements by enabling changes to the debt – equity ratio.

• Can be designed to achieve public policy goals
Design Approaches to Protect Customers

• Symmetry – ensure that credits are provided.

• Stability: cap on rate changes or bands around size of rate adjustment, (e.g. plus or minus 3%)
  ➢ Provisions for carry-over of over or under recoveries

• Bill simplification
Design Approaches to Protect Customers

• Changes to capitalization ratio to reflect risk reductions (Recommended Approach); or
• Reductions in utility return on equity to reflect reduced risk, (e.g. 50 basis points)
  ➢ Controversial among utilities, environmental groups and consumer groups
Design Approaches to Protect Customers

• Direct more energy efficiency/DERs
  o Decoupling conditioned on comprehensive programs and minimum energy efficiency requirements

• Direct more distribution efficiency

• Low income provisions
  o Rate design approaches
    ▪ Refunds allocated to the first block; surcharges to the tail block
  o EE programs directed towards LI
    ▪ Can be combined with HWAP funds for more comprehensive approach.
Decoupling and the Cost of Capital

• Earnings are more stable

• Utility can carry a lower equity ratio and still protect bondholders from risk of insolvency

• S&P: ~3% more debt for a utility with decoupling, for the same bond rating

• 3% more debt (and less equity) means about $3+ million/year in lower revenue requirement per $1 billion of rate base which results in more consumer savings.
# Illustration of Debt/Equity Ratio Shift

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<thead>
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**Savings Due to Decoupling Cost of Capital Benefit:** $3,250,385
4 Decoupling Design Choices
Designing Decoupling

1. Decide what’s covered
   Decoupling can be applied to:
   - Distribution
   - Transportation, and transmission
   - Interconnection, transmission, and generation
   It can cover residential, commercial, and industrial customers or apply statewide. Decide on how much of the purchase price of their energy is already covered in a rider, fuel adjustment mechanism, etc.

2. Choose how to adjust utility revenue
   There are about a half-dozen options. For “Renewable Adjustment Mechanism” (RAM), to adjust utility revenue to provide stability to utilities and customers. Among them:
   - Revenue per customer
   - Annual review decoupling
   - Adjustment at all

3. Select how to handle refunds or surcharges
   Truncate actual utility revenues with what utilities are allowed to earn can be done monthly or at least quarterly. Refunds or surcharges can be collected as credits or depreciation. The rate can be adjusted to all customers evenly or be allocated to customer classes. They can also be directed to encourage a particular policy goal, like rewarding energy efficiency.

Customer Considerations

- Refund if utilities over-collect
- Cuts in rate increases or decreases?
- More energy efficiency
- Reducing cost of capital
Decide what’s covered

Decoupling can be applied to:
- Distribution alone
- Distribution and transmission
- Distribution, transmission, and generation

It can cover residential, commercial, and industrial customers or apply selectively. Exclude fuel or power purchase costs if they are already covered in a rider, fuel adjustment mechanism, etc.
What’s Covered?

Decide What’s Covered

- Applicability of Utility Function
  - Transmission & Distribution
  - Transmission, Distribution, & Generation

- Applicability of Revenue Regulation to Customer Classes
  - Residential and Small Commercial
    - All

- Costs Included in Decoupling Mechanism
  - Base Rates Only
    - Riders
  - Some Riders, Not Others
  - All Costs Including All Riders
What’s Covered?

- Applicability of Utility Function
- Transmission & Distribution
- Transmission, Distribution, & Generation
What’s Covered?

Application of Revenue Regulation by Utility Function

What Type of Utility is It?
- Vertically Integrated
- Distribution Only

What Costs are Being Included in the Decoupling Mechanism?
- Wires and Power Supply Costs
- Wires
What’s Covered?

Applicability of Revenue Regulation to Customer Classes

Residential and Small Commercial

All
What’s Covered?

- Costs Included in Decoupling Mechanism
- Base Rates Only
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Regulatory Assistance Project (RAP)®
2. Choose how to adjust utility revenue

There are about a half-dozen options for "Revenue Adjustment Mechanisms" (RAMs) to adjust utility revenue to provide stability to utilities and customers. Among them:

- Revenue per customer
- Annual review decoupling
- No adjustment at all
Choose How to Adjust Utility Revenue

1. Frequency of Rate Cases to Determine Revenue Requirement
   - Rate Case as Needed
   - Mini or Full Rate Case Annually
   - Rate Case Every 3 to 5 Years

2. Ex Ante Adjustment to ROE/Capital Structure
   - Yes
   - No

3. Choosing The Revenue Adjustment Mechanism
   - None
   - Stair/Indexing
   - Revenue Per Customer
   - Attrition
   - K Factor
How to Adjust Revenue?

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How to Adjust Revenue?

Choosing The Revenue Adjustment Mechanism

- None
- Stair/Indexing
- Revenue Per Customer
- Attrition
- K Factor
The Revenue Adjustment Mechanisms

• **No RAM** – No adjustment made to revenue requirements. Rates are not adjusted until the next rate case

• **Stair-Step** – These are predetermined adjustments made in the last rate case based on forecasts of projected cost increases

• **Indexing** – Adjustments to the revenue requirements are tied to factors such as inflation, industry productivity, customer growth
The Revenue Adjustment Mechanisms

• **Revenue Per Customer** – Revenue requirement determined on a per customer basis and is adjusted for the total number of customers served.

• **Annual Review Decoupling (aka Attrition Decoupling)** – Rates are periodically adjusted for incremental and decremental known and measurable changes to rate base and operating expenses.
The Revenue Adjustment Mechanisms

• **K Factor** – an adjustment used to increase or decrease overall growth in revenues between rate cases

• **Hybrid** – Allows regulators to combine various RAM mechanisms to adjust rates
Revenue Per Customer or Attrition Decoupling?

What Type of Utility is It?
- Vertically Integrated
- Distribution Only

What Costs are Being Included in the Decoupling Mechanism?
- Distribution and Power Supply Costs
- Distribution Costs Only

What Type of Decoupling Mechanism Should Be Considered?
- Attrition Decoupling
- Attrition or Revenue Per Customer Decoupling
## Periodic Decoupling Calculation

### From the Rate Case

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Revenues</td>
<td>$10,000,000</td>
</tr>
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<td>Required Total Price</td>
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</tr>
<tr>
<td>Decoupling Price Adjustment</td>
<td>$0.0005025</td>
</tr>
<tr>
<td>From the Rate Case</td>
<td>Post Rate Case Calculation</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Target Revenues</td>
<td>Number of Customers</td>
</tr>
<tr>
<td>$10,000,000</td>
<td>200,500</td>
</tr>
<tr>
<td>Test Year Unit Sales</td>
<td>Target Revenues ($50 x 200,500)</td>
</tr>
<tr>
<td>100,000,000</td>
<td>Actual Unit Sales</td>
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<tr>
<td>Price</td>
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<tr>
<td>$0.100000</td>
<td>Required Total Price</td>
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<tr>
<td>Number of Customers</td>
<td>$0.1005013</td>
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<tr>
<td>200,000</td>
<td>Decoupling Price “Adjustment”</td>
</tr>
<tr>
<td>Revenue per Customer (RPC)</td>
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Truing up actual utility revenues with what utilities are allowed to earn can be done monthly or at longer intervals. Refunds or charges can be applied to all customers evenly or be allocated to customer classes. They can also be directed to encourage a particular policy goal, like rewarding low energy usage.
How to Handle Refunds/Surcharges

Surcharge/ Credit Symmetry

Yes
No
How to Handle Refunds/Surcharges

Allocation Of Over And Under Recovery To All Rate Elements

- Across the Board
- By Class
- By Rate Element
How to Handle Refunds/Surcharges

Choosing A Rate Adjustment Method

Via a Rider
Via Base Rate
How to Handle Refunds/Surcharges

Frequency of True-Ups

Accrual (Choose Period up to a Year)

Current Method (Monthly)
How to Handle Refunds/Surcharges
How to Handle Refunds/Surcharges

Carrying Charges for Decoupling Deferrals

Risk-Free Rate

Weighted Average Cost of Capital

Symmetry
Customer Considerations

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  o EE programs directed towards LI
    ▪ Can be combined with HWAP funds for more comprehensive approach.
Decoupling Design and Choices

• Utility rate design matched with decoupling – opportunity to adjust rate design to send better price signals and to adapt to smart grid based on a customer focused point of view
  ➢ Inclining Rate Structure
  ➢ Flat Rate Structure
  ➢ Declining Rate Structure

• Note that a dynamic pricing scheme can be layered onto any of these rate options.
## Customer Considerations

### Using Rate Design and Decoupling Surcharges to Effect Policy Goals

<table>
<thead>
<tr>
<th></th>
<th>Summer</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Charge</td>
<td>$7.00</td>
<td>$7.00</td>
</tr>
<tr>
<td>First 500 kWh</td>
<td>$0.80</td>
<td>$0.073</td>
</tr>
<tr>
<td>Next 2,500 kWh</td>
<td>$0.102</td>
<td>$0.093</td>
</tr>
<tr>
<td>Over 3,000 kWh</td>
<td>$0.120</td>
<td>$0.113</td>
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- Minus any decoupling credit
- Plus any decoupling surcharge
Decoupling: Key Take-Aways

• It’s flexible, customizable
• It’s been done before, so models exist
• It can serve the policy goals of most states
• It can be designed to protect consumers
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org

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