Decoupling to Support NERP Goals: What is it, How to do it

North Carolina Energy Regulatory Process
Performance Regulation Deep Dive Webinar

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1 Background
How do utilities make money under traditional (price-based) regulation?

- Under traditional regulation*:
  \[ \text{Price} = \frac{\text{Revenue Requirement}}{\text{Projected Sales}} \]
- But then reality happens:
  \[ \text{Actual Revenues} = \text{Price} \times \text{Actual Sales} \]
- Which means that for the utility:
  \[ \text{Net Income} = \text{Actual Revenues} - \text{Actual Costs} \]
- The utility can make money by:
  - Reducing costs and
  - Increasing sales

*RR = Cost of Service = Test Year Expenses + Depreciation + Taxes + (Rate of Return * Rate Base)
Traditional Regulation and the Throughput Incentive

• Traditional ROR regulation sets *prices*, not *revenues*
  • The revenue requirement is a best estimate of the total cost to provide service, used as the basis for determining rates

• By themselves, consumption-based rates 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

• Incentive to increase sales is *extremely powerful*
  • This is the “throughput incentive”
The Throughput Incentive: How it can be a problem

• When the power grid was growing and driving the US economy (think the period before the Oil Crisis and modern environmental regulation), we wanted growth and investment
  • That time is now long past
• Today, with a panoply of behind the meter and other grid solutions and other imperatives, an incentive to grow sales can distract the utility from least cost portfolios and other priorities
Decoupling Overview

A well-balanced contributor to solving the throughput incentive
Revenue-Based Regulation or “Decoupling”

- **Prices** set the old-fashioned way: in a rate case
- Rely on the **revenue requirement** from the rate case
- Differences between actual revenues and allowed revenues are **trued-up** periodically
- Other (non-sales-related) adjustments to revenue can also be made to customize the system
  - E.g., inflation, productivity, changes in numbers of customers, exogenous factors, rewards/penalties for performance, etc.
### How Decoupling Works

<table>
<thead>
<tr>
<th>Periodic Decoupling Calculation</th>
<th>From the Rate Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Revenues</td>
<td>$10,000,000</td>
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<tr>
<td>Test Year Unit Sales</td>
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<td>Price</td>
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<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>
</tr>
</tbody>
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Revenue-Sales Decoupling (1)

• Objectives:
  • Improve economic efficiency
    • Enhance 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
    • Enables a **shift in management focus** to customer service, policy priorities
  • Reduce risk for both the utility and the customer
    • Removes financial impacts (up or down) on revenue from weather, changes in the economy, and other exogenous factors
    • Likewise, eliminates impacts associated with **least-cost actions** that tend to **reduce sales**
Revenue-Sales Decoupling (2)

- Decoupling focuses on revenue, not prices:
  - Does not and is not intended to decouple customers bills from their consumption
  - Rate design 100% price signal for customers
    - 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 Compares to MYRP and Works With PBR

- Avoids need for rate case if sales is primary change
- Flexibility
- Performance rewards/penalties can be folded into periodic rate adjustment
Linking Decoupling to NERP Goals

- Reducing carbon
- Affordability
- Reliability
- Inclusive process
- Integrate DERs and other new services
- Utility efficiency and cost effectiveness
3 Decoupling Design Options
1. **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.

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

3. **Select how to handle refunds or surcharges**

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.

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**Customer Considerations**

- Refunds if utilities over-collect
- Caps on rate increases or decreases?
- More energy efficiency
- Reducing cost of capital
Decide what’s covered

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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
  - Base Rates Only
    - Riders
      - Some Riders, Not Others
      - All Costs Including All Riders
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:

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## Illustration of Debt/Equity Ratio Shift

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<tr>
<th>Without Decoupling</th>
<th>Ratio</th>
<th>Cost</th>
<th>Weighted with-tax cost of capital</th>
</tr>
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<tbody>
<tr>
<td>Equity</td>
<td>48%</td>
<td>10%</td>
<td>7.38%</td>
</tr>
<tr>
<td>Debt</td>
<td>52%</td>
<td>7%</td>
<td>2.37%</td>
</tr>
<tr>
<td>Weighted cost</td>
<td></td>
<td></td>
<td>9.75%</td>
</tr>
<tr>
<td>Revenue requirement: $1 Billion Rate Base</td>
<td></td>
<td></td>
<td>$97,506,154</td>
</tr>
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</table>

### With Decoupling

<table>
<thead>
<tr>
<th>Equity</th>
<th>45%</th>
<th>10%</th>
<th>6.92%</th>
</tr>
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<tbody>
<tr>
<td>Debt</td>
<td>55%</td>
<td>7%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Weighted cost</td>
<td></td>
<td></td>
<td>9.43%</td>
</tr>
<tr>
<td>Revenue Requirement: $1 Billion Rate Base</td>
<td></td>
<td></td>
<td>$94,255,769</td>
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**Savings Due to Decoupling Cost of Capital Benefit:** $3,250,385
The Revenue Adjustment Mechanisms

- **No RAM** – No adjustment. 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 *exogenous factors* such as inflation, industry productivity, customer growth.
- **Revenue Per Customer** – Revenue requirement determined on a per customer basis and 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.
- **K Factor** – Adjustment to increase or decrease overall growth in revenues between rate cases.
- **Hybrid** – Allows regulators to combine various RAM mechanisms to adjust rates.
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<tr>
<td>Number of Customers</td>
<td>200,000</td>
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<tr>
<td>Revenue per Customer (RPC)</td>
<td>$50.00</td>
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<tr>
<td><strong>Post Rate Case Calculation</strong></td>
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<tr>
<td>Number of Customers</td>
<td>200,500</td>
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3. **Select how to handle refunds or surcharges**

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.
Select How to Handle Refunds or Surcharges

- Surcharge/Credit Symmetry
  - Yes
  - No

- Allocation Of Over And Under Recovery To All Rate Elements
  - Across the Board
  - By Class
  - By Rate Element

- Choosing A Rate Adjustment Method
  - Via a Rider
  - Via Base Rate

- Frequency of True-Ups
  - Accrual (Choose Period up to a Year)
  - Current Method (Monthly)

- Caps on the Size of Decoupling Adjustment
  - None
  - Yes
    - Revenue
    - Rates

- Carrying Charges for Decoupling Deferrals
  - Risk-Free Rate
  - Weighted Average Cost of Capital
  - Symmetry
Customer Considerations

- Refunds if utilities over-collect
- Caps on rate increases or decreases?
- More energy efficiency
- Reducing cost of capital
Design Approaches to Protect Customers

- Symmetry: ensure that credits are provided
- Stability: cap on rate changes
- Changes to capitalization ratio to reflect risk reductions
- Bill simplification
Design Approaches to Protect Customers

- Direct more energy efficiency/DERs
  - Decoupling conditioned on comprehensive programs
- Direct more distribution efficiency
- Low income provisions
  - Rate design approaches
  - EE programs directed towards LI
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
Cautions regarding decoupling

- Scope of costs covered
- Guard rails on price changes
- Guard against destructive cost cutting
- Data freshness
- Engage the public on priorities

Decoupling is a concept and can be adapted to fit most circumstances
Decoupling and Policy Goals
Linking Decoupling to NERP Goals

- Reducing carbon
- Affordability
- Reliability
- Inclusive process
- Integrate DERs and other new services
- Utility efficiency and cost effectiveness
5 State Approaches to Decoupling
Roughly half the states have decoupling for electric or gas

Focusing on Electric, these are some:

- Maryland – ordered by PSC, monthly adjust
- New York – ordered by PSC, reset each rate case
- California – oldest practice in US, varied true up methods, including "attrition" for key cost drivers
- Washington – generic order by UTC, really a MYRP
Case Study: PG&E

What’s covered

- Authorized revenue: set through GRC every 3 years for the next 3 years, uses future test year
- Rev Req determined separately for each functional area
- All but 6% of costs included in decoupling; all customer classes included

Revenue adjustments

- No explicit reduction in RoE or debt-equity ratio
- Year 2 and 3 adjustments determined in GRC, designed to allow utility to recover increased costs
- Adjustments allowed according to exogenous factors (e.g. income tax rate changes)

Reconciliation

- Balancing accounts track billed vs. authorized revenue
- Adjustment to rates made annually
Case Study: BG&E

What’s covered

• Distribution system revenue requirements only
• Authorized revenue including cost of power is set through GRC using test year requirements and sales
• Residential, small general service, and general service customers revenue requirements determined separately

Revenue adjustments

• Initially, no adjustment to RoE or equity-debt ratio
• Adjusted for number of customers and deviations from expected sales

Reconciliation

• Adjustment to rates made monthly
• Applied separately to customer classes
• Balancing accounts track billed vs. authorized revenue
• Capped at 10% of rates
RAP Decoupling Resources

• Decoupling Design: Customize Revenue Regulation to Your State Priorities
  • Webinar: https://www.raponline.org/event/flexible-and-customizable-designing-decoupling-for-your-state/

• Revenue Regulation: A Guide to Theory and Application (Including Case Studies)
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.”
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