Utility Incentives & Disincentives

Hawaii Clean Energy Initiative Workshops

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Why Incentives Are Important

- All forms of regulation are incentive regulation
- Utilities can be expected to respond to the incentives they are given
  - Direct relationship to profitability
  - Management pay structure
- Traditional regulation creates incentives which run counter to public policy
- Utility management is positioned to act effectively in response to incentives
  - If incentives are poorly designed, expect poor results

Traditional Regulatory Framework

- Unlike most companies, utilities are price regulated
- Regulators use a “cost of service” framework to set prices
- Rate cases resolve three questions:
  - What are the total costs incurred to provide service to customers?
  - How do you allocate those costs among customer classes?
  - What pricing regime do you use to collect those costs from each customer class?

Terms of Art

- Test Year = 12 month financial snapshot of utility, adjusted for "known & measurable" changes
- Rate Base = Total investment in utility plant, net of depreciation
- Cost of service = O&M+ Depreciation + Interest on Debt + Return on Equity + Taxes
- Revenue Requirement = Cost of Service
- Tax Adjusted Weighted Cost of Capital =

  (Interest on Debt X Share of Debt in Total Capitalization X (1- Tax Rate)) +

  (ROE X Share of Equity in Total Capitalization / (1-Tax Rate))
- Cost of Equity = Allowed ROE
  - From a regulatory and customer perspective, ROE is a "cost"
  - From a utility and investor perspective, ROE is the utility's "profit"

Terms of Art

- Class Cost Allocation = Process for determining how much of the Revenue Requirement should be collected from each class
- Rate Design = The art of deciding how what types of prices to charge each customer class to collect the class revenue requirement (e.g. Small Commercial class likely has a customer charge, a demand charge ($/kW) and an energy charge ($/kWh))
- Generally, once prices are set, they remain constant until changed at the end of next rate case

Pricing & Revenues Simplified

- Prices are set to generate an allowed amount of revenue, so:
  - Price = Revenue Requirement ÷ Test Year Billed Determinants (i.e. units sold)
- But, actual revenues are a function of total consumption:
  - Actual Revenues = Actual Units Sold X Price
- Actual Revenues never equal Test Year Revenues, so once prices are set, increased sales increase profits and decreased sales decrease profits

Where Incentives Make a Difference

- Treatment of production costs (i.e. variable costs)
  - Typically flowed through
  - No profit margin for utility
- Treatment of non-production costs (i.e. generally O&M and short-run fixed costs)
  - Recovery tied to rate case pricing
  - This is where the utility profits are

Utility Financial Structures Enhance Power of Incentives

- Few non-production costs vary with sales
  - So, increased sales go to bottom line
  - Conversely, decreased sales come out of bottom line
- High leverage means that utility profits represent relatively small share of total cost of capital
  - But, again, revenue changes on the margin only affect profit
  - This makes profits highly sensitive to changes in revenues
- The effect may be quite powerful…

Assumptions for A Sample Utility

Assumptions	
Operating Expenses	$160,000,000
Rate Base	$200,000,000
Tax Rate	35.00%

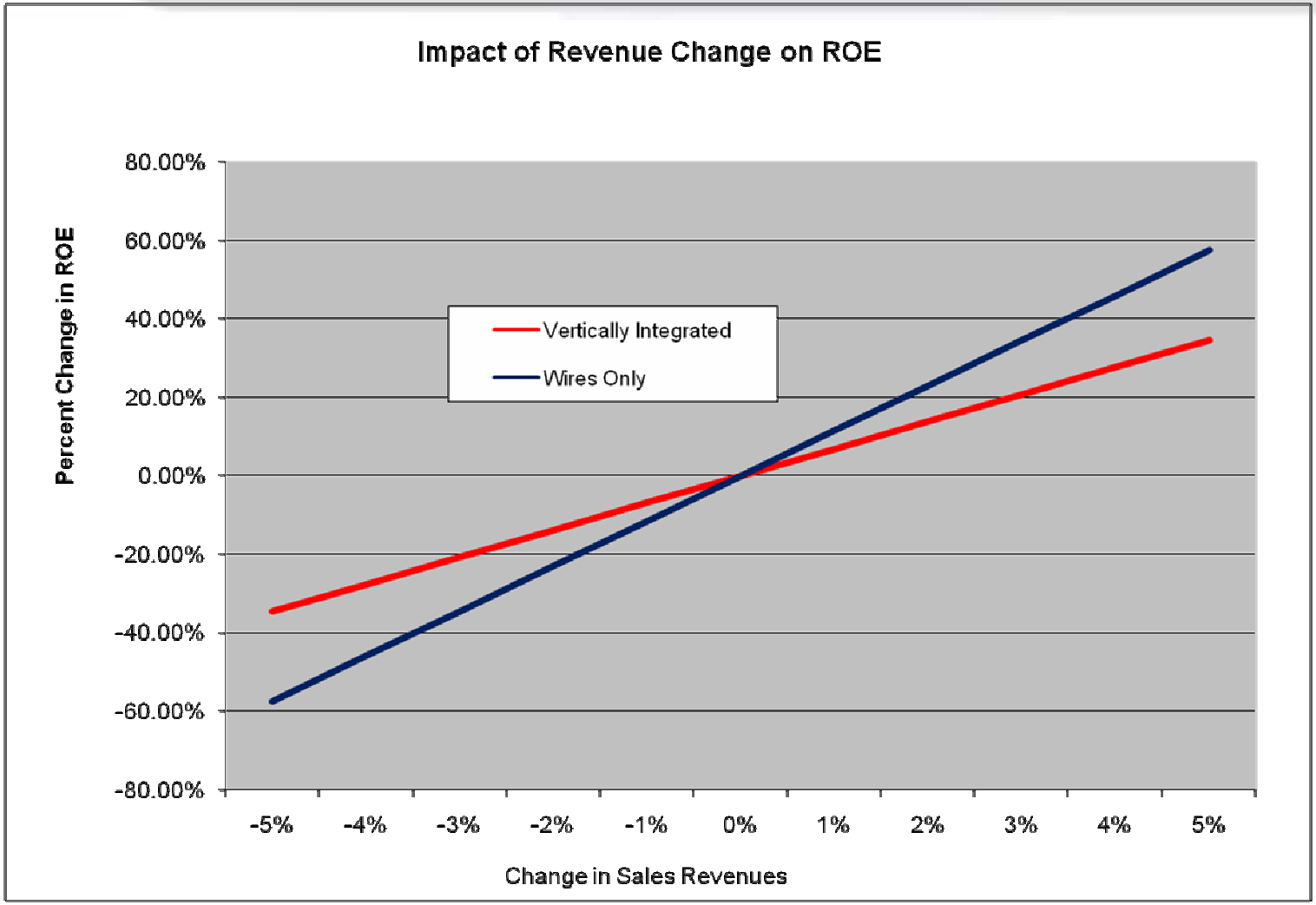
Cost of Capital	% of Total	Cost Rate	Weighted Cost Rate		Dollar Amount	
			Pre-tax	After-Tax	Pre-Tax	After-Tax
Debt	55.00%	8.00%	4.40%	2.86%	$8,800,000	$5,720,000
Equity	45.00%	11.00%	4.95%	7.62%	**$9,900,000**	$15,230,769
Total	100.00%			10.48%		

Revenue Requirement	
Operating Expenses	$160,000,000
Debt	$5,720,000
Equity	$15,230,769
Total	$180,950,769
Allowed Return on Equity	$9,900,000

How Changes in Sales Affect Earnings

	Revenue Change		Impact on Earnings		
% Change in Sales	Pre-tax	After-tax	Net Earnings	% Change	Actual ROE
5.00%	$9,047,538	$5,880,900	$15,780,900	**59.40%**	17.53%
4.00%	$7,238,031	$4,704,720	$14,604,720	**47.52%**	16.23%
3.00%	$5,428,523	$3,528,540	$13,428,540	**35.64%**	14.92%
2.00%	$3,619,015	$2,352,360	$12,252,360	**23.76%**	13.61%
1.00%	$1,809,508	$1,176,180	$11,076,180	**11.88%**	12.31%
0.00%	$0	$0	$9,900,000	**0.00%**	11.00%
-1.00%	-$1,809,508	-$1,176,180	$8,723,820	**-11.88%**	9.69%
-2.00%	-$3,619,015	-$2,352,360	$7,547,640	**-23.76%**	8.39%
-3.00%	-$5,428,523	-$3,528,540	$6,371,460	**-35.64%**	7.08%
-4.00%	-$7,238,031	-$4,704,720	$5,195,280	**-47.52%**	5.77%
-5.00%	-$9,047,538	-$5,880,900	$4,019,100	**-59.40%**	4.47%

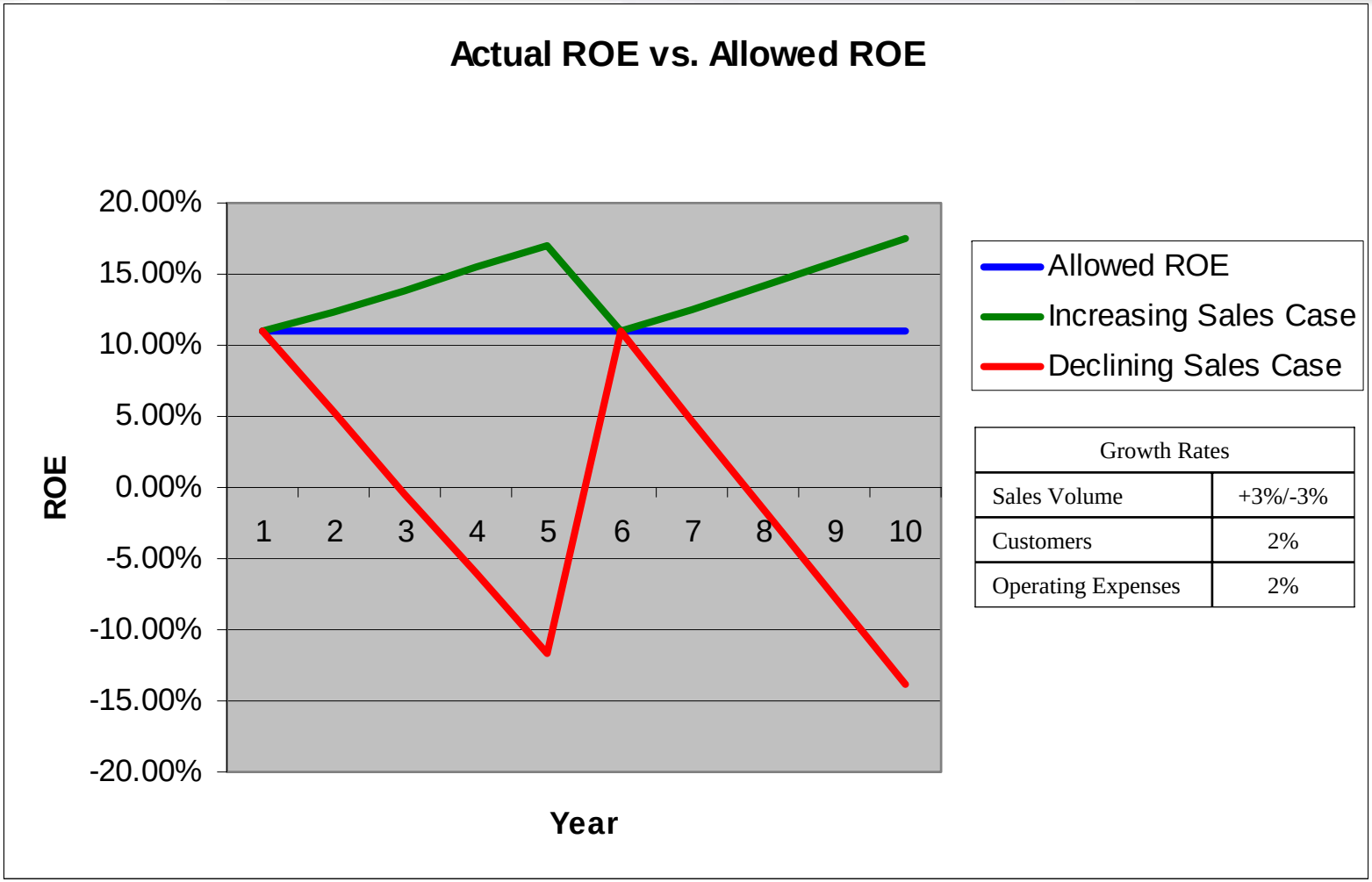
"Wires Only" Companies Are More Sensitive To Changes in Sales



Not All Utilities Are The Same

- Rising revenue-per-customer utilities:
  - Experience rising earnings between rate cases
  - Typical of many electric utilities
- Declining revenue-per-customer utilities:
  - Experience declining earnings between rate cases
  - Typical of many gas utilities
- Under reasonable assumptions, effects are not symmetric between rising and declining cases
- Driven in large part by differences in the average consumption between new and old customers

What Happens to ROE Under Traditional Regulation?



Growth Rates	
Sales Volume	+3%/-3%
Customers	2%
Operating Expenses	2%

Relationship to Demand-side Resources

- Relative to sales and revenues:
  - Energy Efficiency
  - Customer-sited generation
- Relative to rate base & utility earnings potential:
  - Depends on incentive structure
  - Depends on ownership of resource
- Rate Design & AMI
  - Rate Design should be reviewed in new environment
  - AMI may deliver high values, depending on customer circumstances and underlying production cost structure
    - Clearer identification of costs and savings opportunities
    - Possible change of customer operations (e.g. hospitality and food processing industries, etc.)

Policy Framework

- "Throughput" incentive is at odds with a requirement to invest in cost-effective energy efficiency
- Policies should, instead, align utilities' profit motives with acquisition of all cost-effective energy efficiency

Questions?

Addressing Disincentives

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Utility Incentives: Context

- Revenue erosion:
  - Rate Design
  - Lost Revenue/Expense Recovery
  - Decoupling utility profits from sales volume
- Positive incentives for meeting efficiency goals:
  - Cost Bonus
  - Shared Savings
  - Cost Capitalization
  - Performance Incentives
- Performance Goals:
  - Efficiency
  - Fuel Mix

Importance of Good Rate Design

- Improper rate design can create more revenue erosion than the associated avoided costs
- Constructive approaches include:
  - Time of Use or Critical Peak Pricing – based on on-peak costs
  - Inclining block rates – where total energy saved is the objective
  - Dynamic rates with advanced meters – automated demand response to cost or operating conditions on the system
  - Avoidance of high fixed charges
  - Appropriate line extension policies

Decoupling & Fuel Clauses

- Fuel clauses decouple fuel revenues from profits, but:
  - A traditional fuel clause means that ALL incremental sales are profitable, and ALL decremental sales reduce profits.
- Existing Hawaii ECAC:
  - Provides positive incentives for operational efficiency through heat-rate standard
    - Passes through all changes in fuel prices, based on heat rate standard
    - Utility loses/keeps the savings if it beats the heat rate
    - Otherwise, it has the same attributes as a traditional fuel clause in terms of effect on the throughput incentive

Defining The Terms of Decoupling

- **Full** Decoupling
  - Any variation in sales, due to conservation, weather, economic cycle, or other causes results in a true-up of utility revenues.
- **Partial** Decoupling
  - Any variation in sales, due to conservation, weather, economic cycle, or other causes results in a partial true-up of utility revenues (i.e., 90% of lost margins recovered)
- **Limited** Decoupling
  - Only specified causes of variation result in true-ups. For example, variations due to weather are excluded from the true-up (i.e., actual year sales are weather-normalized prior to calculating the true-up).

Revenue Erosion: Net Lost Revenue Recovery

- Adjustment that tracks the implementation of energy efficiency and uses statistical means to determine net lost revenues
- Recovery of net lost revenue can be contingent on achieving certain energy efficiency program goals
- Alternatively, recovery of “program expenses”
- Does not remove incentive for increased sales
- Does not remove disincentive for decreased sales from non-utility sponsored programs
- Requires sophisticated measurements and/or potentially contentious estimation of net efficiency impacts

Lost Revenue/Expense Approaches: Kentucky

- Allows lost revenue recovery for both electric and gas DSM programs.
- Recovery mechanisms are determined on a case-by-case basis
- Utilities can recover
  - Full costs of commission-approved demand-side management programs and
  - Revenues lost
  - Incentives designed to provide financial rewards to the utility for implementing cost-effective demand-side management programs
- Not in active use for all eligible utilities

Revenue Erosion: Revenue-Profit Decoupling

- Breaks the mathematical link between sales volumes and profits
- Objective is to make profit levels immune to changes in sales volumes
  - This is a revenue issue
  - This is not a pricing issue
  - Volumetric pricing approaches need not be changed
- Does not decouple customers' bills from consumption

Revenue Decoupling: The Basic Concept

- Basic Revenue-Profit Decoupling has two primary components:
  - Determine a "target revenue" to be collected in a given period
    - In the simplest form of revenue decoupling (sometimes called "revenue cap" regulation), Target Revenues are always equal to Test Year Revenue Requirements
    - Other approaches have formulas to adjust Target Revenue over time
  - Set a price which will collect that target revenue
- This is the same as the last step in a traditional rate case – i.e. Price = Revenues ÷ Units

The Decoupling Calculation

- Utility Target Revenue Requirement determined with traditional rate case
  - By class & by month (or other period coinciding with how often decoupling adjustment is made)
- Each future period *will have* different *actual* unit sales than Test Year
- The difference (positive or negative) is flowed through to customers by adjusting Price for that period (see Post Rate Case Calculation)

Periodic Decoupling Calculation	
From the Rate Case	
Target Revenues	$10,000,000
Test Year Unit Sales	100,000,000
Price	$0.10/Unit
Post Rate Case Calculation	
Actual Unit Sales	99,000,000
Target Revenues (from above)	$10,000,000
Required Total Price	$0.10101/Unit
Decoupling Price "Adjustment"	$0.00101/Unit

Approaches Where Target Revenues Are Not Held Constant

- California
  - Embeds decoupling in broader PBR context
  - Allows Target Revenues to change – e.g. for inflation & productivity
- Many now use Revenue Per Customer model, where Target Revenues are recomputed to account for customer growth

Revenue per Customer (RPC) Decoupling

- Recognizes that, between rate cases, a utility's costs change mostly as a function of the number of customers served
- For each volumetric price, a "revenue per customer" average can be calculated from the rate case test year data used to set prices

How RPC Decoupling Changes Allowed Revenues

- In any future period, the Target Revenue for any given volumetric price (i.e. demand charge or energy rate) is derived by multiplying the RPC value from the rate case by the then-current number of customers

Periodic Decoupling Calculation	
From the Rate Case	
Target Revenues	$10,000,000
Test Year Unit Sales	100,000,000
Price	$0.10/Unit
Number of Customers	200,000
Revenue Per Customer (RPC)	$50.00
Post Rate Case Calculation	
Number of Customers	200,500
Target Revenues ($50 X 200,500)	10,025,000
Actual Unit Sales	99,000,000
Required Total Price	$0.101768/Unit
Decoupling Price “Adjustment”	$0.001768/Unit

How Decoupling Is Administered

- Some (e.g. California) use an annual accrual of the revenue over- and under-recoveries and then collect or refund that amount over an ensuing 12 month period
  - CA also uses future test years and annual proceedings to approve decoupling adjustments
- Annual proceedings are potential opportunity for litigation and challenge

How Decoupling Is Administered

- Others use a “current” system which makes the decoupling adjustment directly on customers’ bills for that month (or, sometimes, with a 30-60 day lag)
  - Decoupling does not necessarily require any “lag” as is customary for fuel clauses
- When all inputs are derived directly from billing information, then process becomes ministerial and not subject to much litigation or challenge

Risks Affected By Decoupling

- Weather
- Economic
- Regulatory Lag
- Financial & business risk of utility
  - Cost of capital implications

What is weather risk?

- Weather risk is the risk that revenues change on account of changes in weather
- Utility and customer both face risk: If you receive more (or less) revenues or pay less (or more) in customer bills, then you face weather risk

Relationship of Utility Profits and Customer Bills to Weather

- Prices are usually determined using weather-normalized billing determinants
- In extreme weather, consumption goes up, along with profits and consumer bills
- In mild weather, consumption goes down, along with profits and consumer bills
- Both utility and customer face risk, with opposite economic effect

Decoupling Also Decouples Revenues From Weather

- Because Target Revenues are determined using weather-normalized values, decoupling eliminates effect of weather
- Sometimes characterized as a “shift” of weather risk from utility to customer
- In reality utility and customer take (or avoid) weather risk together in near zero sum wealth transfer (taxpayers take part of risk as well)
  - Wealth transfer is, therefore, a function of the vagaries of the weather
  - **Query: Are any public policies furthered by this phenomenon?**

Economic Risk

- Like weather, changes in economic conditions can change sales volume
- Decoupling has the effect of eliminating this risk as well because price adjustments are driven by actual sales
- Commission might consider off-ramps to account for significant changes in economic conditions

Regulatory Lag

- Because prices are periodically adjusted to reflect changes in sales, decoupling has effect of reducing regulatory lag
- May have cost-of-capital implications
- Should have effect of reducing lumpiness of price changes that occur in periodic full rate cases

Business & Financial Risk

- Decoupling stabilizes utility revenues and reduces profit volatility
- This means a lower risk profile for utility and a lower cost of capital
- May be reflected in either capital structure or ROE

Rating Agencies Value Stable Earnings

- A utility that can pay dividends out of cash earnings every year, regardless of weather, is likely to be viewed as lower risk.
- S&P has specifically identified a "**Business Risk Profile Rating"** that ties the utility's risk profile to a required equity ratio to maintain a given bond rating.
- Most distribution utilities are rated 1, 2, 3, or 4 on a 10-point risk scale (independent power producers are rated 7 – 9)
- A lower risk utility needs less equity to get the same bond rating (and thus the same bond interest cost).

Northwest Natural:
1 Step Benefit From Weather Adjustment

Northwest Natural Gas received a partial decoupling (90%) in 2002.

Christensen Associates review prepared in 2005.

"CFO David Anderson believes that DMN and WARM were contributing factors to NW Natural obtaining the best rating in the Standard & Poor's (S&P) business risk profile (scoring a 1 on a scale of 1 to 10). Similarly, he believes that DMN and WARM contributed to the upgrade in NW Natural's S&P bond rating from A to A+. An improved risk profile has several beneficial effects. It allows NW Natural to maintain smaller lines of credit, reduce the share of equity in its capital structure, and maintain a lower coverage ratio."

Benefit of a One-Step Improvement in the Risk Profile

- S&P Indicates that a 1-step reduction in the Business Risk Profile means about a 3% lower equity capitalization ratio is needed to maintain the same bond rating.

S&P Required Equity Capitalization

Risk Profile	BBB Rating	A Rating
3	35% - 45%	45% - 50%
2	32% - 42%	42% - 48%
Difference	3%	2.5%

A Lower Equity Ratio Does Not Mean A Lower ROE…

- A lower equity ratio still means the utility earns the same return on equity. It simply has fewer shares of stock (and more bonds) making up its capital structure.
- In the previous example, the ROE was 11%, and the cost of debt was 8%, reflecting an identical rate of profit, and an identical bond rating (and interest cost).

But It Does Mean Lower Costs For Consumers

Without Decoupling	Ratio	Cost	Weighted With-Tax Cost of Capital
Equity	45%	11.0%	7.62%
Debt	55%	8.0%	2.86%
Weighted Cost			10.48%
Revenue Requirement: $1 Billion Rate Base			$ 104,800,000
With Decoupling			
Equity	42%	11.0%	7.11%
Debt	58%	8.0%	3.02%
Weighted Cost			10.13%
Revenue Requirement: $1 Billion Rate Base			$ 101,280,000
Savings Due to Decoupling Cost of Capital Benefit:			$ 3,520,000

Why Not Leave The Equity Ratio Unchanged, and Let The Bond Rating Rise?

- Either one will produce the same effective results in the long run
  - A lower risk utility with an unchanged equity ratio will **eventually** get a higher bond rating
  - The higher bond rating will result in lower interest rates over time
- The bond rating benefits may take decade to materialize
- The equity ratio adjustment can be done at the same time (or in the next rate case) as decoupling
- By synchronizing the changes, decoupling can produce a reduction in rates for consumers, at no cost to investors:
  - Equity holders get the same ROE as before
  - Bond investors get the same interest rate as before
  - Both are taking less risk

Decoupling Can Mean A Win-Win For All

- The investor receives the same return, more stable earnings, and a lower business risk profile.
- The consumer receives a lower revenue requirement.
- If weather decoupling is done in real-time (every billing cycle), the consumer also receives a lower bill in extreme weather years, when bills are most difficult to pay

California Decoupling Basics

- Part of an aggressive and comprehensive policy framework designed to deploy cost-effective energy efficiency
- Covers SDG&E, SoCalGas, PG&E and SCE
- Tracks difference between allowed revenues and actual revenues
- Trued up each year to that year's authorized revenues
- Revenue requirements are adjusted each year for inflation
- Each utility has individual mechanisms for determining annual revenue requirements

California Case Specifics: Company Plan Features

- Southern California Edison
  - Citing:
    - Poor financial health of company
    - Changed circumstances since such adjustments were rejected (20 years ago)
  - Commission approved "non-test year" revenue requirement adjustments
  - Implemented revenue balancing account for over- / under-collections of revenue adjustment
- San Diego Gas & Electric and SoCalGas
  - Each year's revenue requirement is determined by the previous year's base margin adjusted by CPI
  - Minimum and maximum authorized adjustments (in 3%-4% range)
  - Balancing account for adjustment collections
  - Sharing mechanism

California: SDG&E/SoCalGas Shareholder & Customer Sharing

Earnings Band	Shareholders	Ratepayers
0 - 50	100%	0%
51 – 100	75%	25%
101 – 125	35%	65%
126 – 150	45%	55%
151 – 175	55%	45%
176 – 200	65%	35%
201 – 300	75%	25%
Over 300	Suspension	

Pacific Gas & Electric

- Separate Distribution and Generation mechanisms:
  - DRAM (Distribution revenue adjustment mechanism) and
  - UGBA (Utility Generation Balancing Account) revenue adjustment mechanisms
- Allowed revenues: annual CPI-based attrition adjustments for 2004-2006, with following minimums and maximums:

Year	Min	Max
2004	2.00%	3.00%
2005	2.25%	3.25%
2006	3.00%	4.00%

Decoupling: Oregon Northwest Natural Gas

- Defers and subsequently amortizes 90 percent of the margin differentials in the residential and commercial customer groups
- Average customer margin-per-therm calculation
- Calculated Monthly
- Weather Issue:
  - Lag between accrual and collection/refund creates possible mismatch in consumption
  - To compensate, adjustment is recovered over “weather normalized” consumption units

Outside the Effect of Decoupling

- Because decoupling drives revenues, not costs, utility profits remain a function of changes in underlying cost structure
- Utility ability to improve profits by reducing costs is kept intact

Stakeholder Concerns

- Industrial and Consumer Advocates:
  - Potential price increases
  - Risk of not capturing cost of capital benefits
  - Reduction of regulatory lag
- Regulators:
  - Staff time and expertise and ability to design
  - Changes to existing regulatory approach
  - Public acceptance

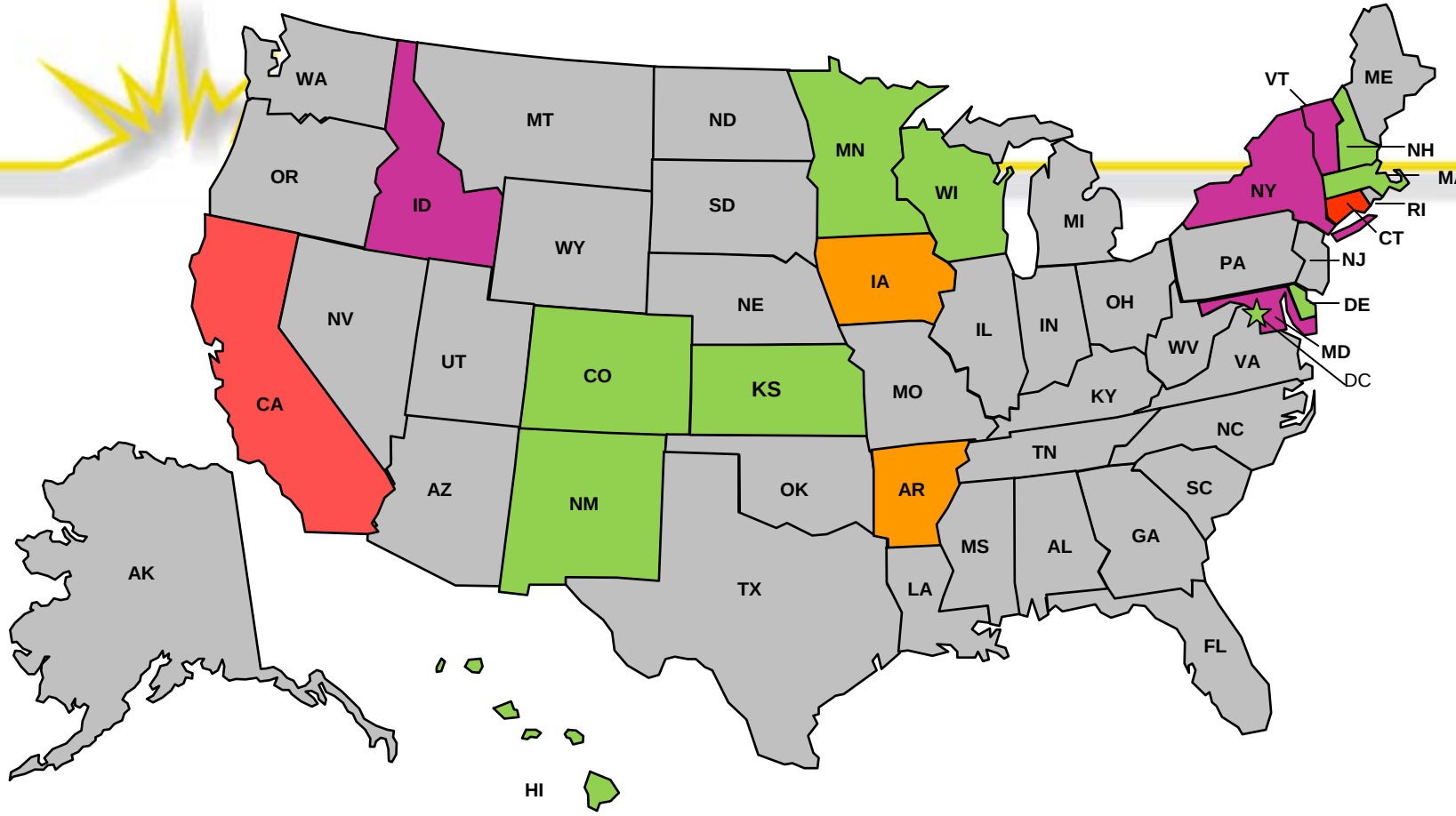
Decoupling Caveats and Lessons Learned

- Annual adjustments may result in large deferral accounts
  - Use current mechanisms instead of deferral accounts
- To limit regulatory risk, consider:
  - Limiting overall size of price changes over time
  - Exit ramps or required reviews if prices changes exceed some threshold
  - Sharing arrangements for price changes above some threshold
- Pay attention to the details in designing the mechanism

New Interest in Decoupling and Incentives

- Higher, deeper goals for EE driving new interest
  - State goals for significant decreases in energy consumption and/or demand will affect bottom line
  - States and utilities interested in EE investments being as profitable or more profitable than supply
  - Examples: CO, CT, MD, MN, NM, RI, VT
- GHG reductions call for new approaches
  - CA and WI connecting GHG reductions with need for new regulatory approaches.

Decoupling Status: Electric Utilities



LEGEND

All electric IOUs decoupled or will be (CA, CT)

At least one electric IOU is decoupled (ID, MD, NY, VT)

States considering decoupling (docket or investigation opened, or utility has filed proposal)
(CO, DC, DE, HI, KS, MA, MN, NH, NM, WI)

States where commission has indicated it will consider decoupling proposals (AR, IA)

Source: RAP April 16, 2008

Learn More

- Aligning Utility Incentives with Investment in Energy Efficiency (National Action Plan for Energy Efficiency)
  - http://www.epa.gov/cleanenergy/documents/incentives.pdf
- Profits & Progress Through Least-cost Planning
  - http://www.raponline.org/Pubs/General/Pandplcp.pdf
- Profits and Progress Through Distributed Resources
  - http://www.raponline.org/showpdf.asp?PDF_URL=Pubs/General/ProfitsandProgressdr.pdf
- Performance-based Regulation For Distribution Utilities
  - http://www.raponline.org/Pubs/General/DiscoPBR.pdf
- Performance-Based Regulation in a Restructured Electricity Industry
  - http://www.synapse-energy.com/Downloads/pbr-naruc.doc

Questions?

More Information…

Decoupling Status

- Arkansas – Utilities may propose decoupling (Electric)
- California – all 4 IOUs (Electric & Gas)
- Colorado – Under Commission consideration (Electric)
- Connecticut – Mandated by 2007 statute (Electric & Gas)
- Delaware – Commission investigation (Electric & Gas)
- District of Columbia – PEPCO proposal pending (Electric)
- Idaho – 3 Year RPC Pilot Idaho Power (Electric)
- Indiana – Vectren (Gas)
- Iowa – Utilities may propose decoupling (Gas & Electric)
- Kansas – Commission investigation (Gas & Electric)

Decoupling Status

- Maryland – In place for gas utilities, two electric (PEPCO & Delmarva) and expected for a third (BG&E)
- Massachusetts – Commission investigation (Gas & Elec)
- Minnesota – Statute allows voluntary pilots (Electric & Gas, but only Gas expected)
- Missouri – Atmos (Gas)
- New Hampshire – Commission investigation (Gas & Elec)
- New Jersey – New Jersey Natural Gas & South Jersey Gas
- New Mexico – Statute mandates profitability of EE; removal of negative incentives. Rulemaking opened. (Gas & Electric)

Decoupling Status

- New York – All electric & gas utilities must file proposals with rate cases. At least one utility decoupled (Con Ed)
- North Carolina – 3 Year pilot for all Gas Utilities
- North Dakota – Northern States Power (Gas)
- Ohio – Vectren (Gas)
- Oregon – Northwest Natural Gas & Cascade Natural Gas
- Rhode Island – NGrid filed (Gas)
- Utah – Questar (Gas)
- Vermont – Green Mountain Power (Electric); CVPS filed
- Washington -- Avista & Cascade (Gas)
- Wisconsin – Commission investigation (Electric)

Plan References

- CA
  - www.epa.gov/cleanrgy/pdf/keystone/prusnekpresentation.pdf
  - www.cpuc.ca.gov/published/final_decision/15019.htm
- MD
  - www.energetics.com/madri/pdfs/timmerman_101105.pdf
  - www.bge.com/vcmfiles/bge/files/rates%20and%20tariffs/gas%20service%20tariff/brdr_3.doc
- OR
  - www.raponline.org/pubs/general/oregonpaper.pdf
  - www.advisorinsight.com/pub/indexes/600_mi/nwn_ir.htm
  - www.nwnatural.com/cms300/uploadedfiles/24190ai.pdf
  - http://apps.puc.state.or.us/orders/2002ords/02-633.pdf
- NJ:
  - www2.njresources.com/news/trans/newsrept.asp?year=2005
- VT:
  - www.greenmountainpower.biz/atyourservice/2006ratefiling.shtml

History of Decoupling: California

- California 1990s to present, with interruption
- Decoupling functioned well in early 90s
- Move to retail competition precipitated its end in 1996 on theory that market forces and consumer choice would handle efficiency
- Reinstated following the energy crisis of 2000-2001 using a Revenue Per Customer approach embedded in a Performance Based Regulation
- Continues to work well

History of Decoupling: Washington

- Washington (Puget Sound Energy) adopted decoupling in 1990
- Variable power costs recovered via a true-up based on actual experience (same as traditional regulation)
- Fixed costs recovered based on a revenue-per-customer calculation
- Marginal fixed costs were much lower than average fixed costs
- Purchased power costs were higher than expected
- Result: over recovery of fixed costs & large increases in power costs
- Lead to negative consumer reaction
- But, root cause of problem was underlying cost structure, not decoupling
- Recent effort to restore decoupling with Puget foundered over cost of capital issue
- Two gas companies are decoupled

History of Decoupling: Maine

- Central Maine Power adopted revenue cap version of decoupling in early 1990s
- Used annual balancing accounting flowed through the following year
- Economy suffered steep economic downturn that reduced sales several percent
- Result was large, unexpected increases in prices
- Again, root cause was underlying cost structure, not decoupling *per se*

Positive Incentives & Utility Business Models

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Activities Where Incentives Come Into Play

- Energy Efficiency
- Customer-sited Generation
  - Customer-owned
  - Third-party-owned
  - Utility-owned
- Demand Response (both reliability and economic)
- Only cost-effective choices should qualify

When Positive Incentives Are Appropriate

- Incentives should be conditioned on meeting performance goals
- Goals should be stretch goals

Incentives in a Third Party Administration Model

- TPA should have its own incentive mechanism as part of its business model
- But, utility still faces revenue erosion from TPA deployed energy efficiency
  - Unresolved disincentive means utility will likely *not* be working in concert with TPA to further policy objectives
- To extent utility remains in energy efficiency business, positive incentives are needed for utility business model

Cost Bonus Incentive Mechanism

- Utility earns bonus computed as a percent of its energy efficiency budget
  - May incentivize over-spending
  - Budget may operate as ceiling on energy efficiency

Shared Savings Incentive Mechanism

- Utility earns incentive based on a share of the net economic benefits
  - Net economic benefits = Savings generated by the energy efficiency minus program costs
  - Provides greater incentives for programs with higher cost-benefit ratios (sliding scale may address this)
- Savings must be measured
  - Programs need good M&V anyway
  - Potential for controversy

Cost Capitalization Incentive Mechanisms

- Expenditures are rate-based and amortized over life of associated energy efficiency investments
- May also include a “bonus” ROR
- Provides a mechanism that is familiar to regulation
- Like other rate-base investments, may encourage overspending
- Use of regulatory asset may result in asset discounting by rating agencies

Performance Incentives

- Explicit goals are established, for example:
  - Energy savings
  - Demand savings
  - Carbon content
  - Fuel Mix
- An award is given based on success in meeting goal
  - Usually a sliding scale as a % of goal met
  - Lower and upper bounds

Some Examples of Positive Incentives

- Arizona
- Connecticut
- Massachusetts
- Minnesota
- Nevada
- New Hampshire
- Vermont

Positive Incentives

- Arizona
  - Utility may earn share of net economic benefits
  - Capped at 10% of program budget (APS EE budget ~$16M/year)
- Connecticut
  - Utilities receive "performance management fees" tied to performance goals based on lifetime energy savings, demand savings and other metrics
  - Incentives earned for outcomes from 70-130% of pre-determined goals (2007 incentives ~ $6.8M out of total budget of ~$98.2M)
  - 2007 Statue requires consideration of incentives to reduce peak demand
- Massachusetts
  - Recent shareholder program-by-program incentives (after taxes) were 5% of expenses. Sector-level metrics are sophisticated; include more than energy savings. Threshold performance level is 75%, and exemplary performance is set at 110%. Incentives are revised periodically.
  - Regulatory finding: Incentives must be large enough to promote good program management, but small enough to leave most of the energy efficiency funds to directly serve customers

Positive Incentives

- Minnesota
  - Utilities receive a percentage of total net benefits (avoided costs minus program costs) when performance levels are met or exceeded
  - 2007 Statute requires Commission to review incentive plans in light of new energy savings goals
- Nevada
  - DSM bonus rate of return 5% higher than returns for supply investments
  - Critical Facilities Incentive for reliability, diversity of supply- and demand-side resources, development of renewable resources, fulfilling statutory mandates and/or retail price stability, can be enhanced return on equity, CWIP treatment or creation of "regulatory asset" account

Positive Incentives

- New Hampshire
  - Shareholder incentives of 8-12% of total budget are possible
  - Based on actual vs. projected cost-effectiveness and energy savings
  - Separate incentives for Residential and Commercial/Industrial programs
- Vermont
  - Efficiency Vermont receives performance incentives for meeting or exceeding specific goals in contract with Vermont's Public Service Board (PSB)
  - Incentive categories:
    - Program Results Incentives (electricity savings & resource benefits)
    - Market Effects Incentives (significant market transformation)
    - Activity Milestones Incentive (exemplary performance for rapid start-up and/or infrastructure development)

More Resources…

- *National Action Plan For Energy Efficiency*, http://www.epa.gov/cleanenergy/energy-programs/napee/index.html
- *Aligning Utility Incentives with Investments in Energy Efficiency*, http://www.epa.gov/cleanenergy/documents/incentives.pdf

Questions?