BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Columbus Southern Power Company and Ohio Power Company, Individually and, if Their Proposed Merger is Approved, as a Merged Company (collectively, AEP Ohio) for an Increase in Electric Distribution Rates	)	**Case No. 11-351-EL-AIR** **Case No. 11-352-EL-AIR**
In the Matter of the Application of Columbus Southern Power Company and Ohio Power Company, Individually and, if Their Proposed Merger is Approved, as a Merged Company (collectively AEP Ohio) for Tariff Approval	)	**Case No. 11-353-EL-ATA** **Case No. 11-354-EL-ATA**
In the Matter of the Application of Columbus Southern Power Company and Ohio Power Company, Individually and, if Their Proposed Merger is Approved, as a Merged Company (collectively AEP Ohio) for Approval to Change Accounting Methods	)	**Case No. 11-356-EL-AAM** **Case No. 11-358-EL-AAM**

Direct Testimony of
Dylan Sullivan
on behalf of the
Natural Resources Defense Council

Table of Contents

Page

<u>Part I: Introduction</u>

Q: What is your name, address, and position?

A: My name is Dylan Sullivan. My business address is 2 N Riverside Plaza, Suite 2250, Chicago, Illinois 60606. I am employed by the Natural Resources Defense Council ("NRDC") as a Staff Scientist.

Q: Describe your educational background and professional experience.

A: I earned a Bachelor of Arts degree, magna cum laude, in Environmental Geology from the University of Missouri-Columbia in 2004. I was awarded a Master of Science in Civil and Environmental Engineering from Stanford University in June 2008. My Masters degree was energy focused: I graduated from the Civil and Environmental Engineering Department's Atmosphere/Energy program and took classes on economic analysis of natural resources and climate policy, air quality analysis, and energy efficiency and renewable energy technologies and practices. I joined NRDC in June 2008, where I monitor the performance of Midwestern utilities' energy efficiency portfolios, recommend new programs or modifications to existing programs to capture cost-effective energy efficiency, and conduct research and advocacy on changes to the utility business model that ensure utilities and customers can benefit from energy efficiency. At NRDC, I have worked on many matters related to these dockets, including:

- Preparing testimony responding to electric utility energy efficiency programs and portfolios of programs, electric utility resource plans, and electric utility proposals for energy efficiency cost recovery mechanisms, including lost revenue adjustment mechanisms, performance incentives, and program cost recovery;

- Participating in groups advising Commonwealth Edison, Ameren Illinois Utilities, American Electric Power-Ohio ("the Companies" or "AEP-Ohio"), Duke Energy-Ohio, and FirstEnergy's Ohio operating companies on implementing energy efficiency programs;
- Researching and writing about utility regulations related to energy efficiency, particularly decoupling, a policy that removes a utility's disincentive to help improve the efficiency with which customers in its service territory use energy.

In October 2011, an article about decoupling I co-wrote was published in the Electricity Journal. I am attaching the full text of the article, "Essential to Energy Efficiency, but Easy to Explain: Frequently Asked Questions about Decoupling," to this testimony.

Q: Have you previously testified before the Public Utilities Commission of Ohio or other state regulatory commissions?

A: Yes. I most recently submitted testimony to the Public Utilities Commission of Ohio ("Commission" or "PUCO") in Duke Energy-Ohio's forecast report and resource planning case, No. 10-503-EL-FOR. I previously testified before the Commission in Case No. 08-935-EL-SSO, Case No. 09-1947-EL-EEC, et al., and Case No. 10-388-EL-SSO. I have testified before the Indiana Utility Regulatory Commission on decoupling[1] and before the Kansas Corporation Commission on energy efficiency program cost recovery, incentives, and decoupling.[2]

Q: What is the purpose of your testimony?

A: The purpose of my testimony is to support the Commission's adoption of the Throughput Balancing Adjustment Rider ("Rider TBA"), included as Attachment Y to the Stipulation

[1] Cause No. 43839.
[2] Docket No. 10-KCPE-795-TAR.

and Recommendation. I explain how this stipulation, specifically Rider TBA, serve the public interest and ratepayers, violate no regulatory principle or practice, and are a product of serious bargaining among knowledgeable parties.

Q: Can you summarize your recommendation to the Commission?

A: I recommend the Commission adopt Rider TBA as filed in the Stipulation and Recommendation. Rider TBA breaks the link between AEP-Ohio's kilowatt-hour (kWh) sales and overall revenue for over one million of its customers. The residential and small general service customers to whom Rider TBA will apply need help in increasing the efficiency with which they use energy, help which, if provided successfully, reduces electric bills, avoids or delays the construction of costly new generation, and lowers pollution. Rider TBA lays the foundation for AEP-Ohio to vigorously provide that help through official energy efficiency programs, education, and influence. It also ensures that these customers do not pay for kWh sales revenue "lost" through AEP's energy efficiency programs, even if that revenue was not lost because of natural variations in usage by these vast numbers of customers, as with Lost Revenue Adjustment Mechanisms. Rider TBA:

- Preserves customers' incentives to invest in energy efficiency and customer-sided renewable energy;
- Avoids complicated rate design changes that can confuse all customers and harm some through significant intra-class cost shifting;
- Is administratively simple and straight-forward;

- Aligns AEP Ohio's regulatory framework with state policies encouraging energy efficiency and customer-sited renewable energy.[3]

Part II: The Commission Should Approve Rider TBA

Q: Describe decoupling rate adjustment mechanisms, of which Rider TBA is an example.

A: Decoupling mechanisms return to or collect from customers the difference between revenues actually collected by a utility for the recovery of fixed costs, and revenues authorized for the recovery of fixed costs in the most recent ratemaking process. In short, the utility collects revenues no more and no less than authorized. What it earns – its profitability – depends on how well it has been able to control these fixed costs. If it has managed to spend less than the test year amount adopted in the ratemaking process, it will earn more under the authorized revenues. If it has spent more than this test year amount, it will earn less.

Some mechanisms, such as Rider TBA, adjust the authorized revenues for changes in the number of customer accounts, allowing for some revenue growth as the number of accounts is rising and shrinking the authorized revenue comparator if the number of accounts falls. Other mechanisms adjust the authorized revenue by factors such as inflation and productivity.

Based on the study NRDC consultant and former Portland General Electric executive Pamela Morgan performed in 2009, most rate adjustments under mechanisms such as Rider TBA have been quite small, often falling between plus or minus 1% of a bundled

[3] See Ohio Revised Code 4928.02 (C), (M), and (K).

rate for residential and smaller business customers,[4] and absolutely go both ways, driven by weather, underlying changes in the utility's service territory economy, energy efficiency – utility-driven or otherwise – and a host of other influences. A concentrated effort to increase customer energy efficiency can, over time, accumulate to a decrease in use but assuming the mechanism operates regularly, the moves in rates from this alone would be small.

The regulatory administrative burden for decoupling mechanisms is minimal because the formula is simple and the inputs few. Unlike a fuel and power cost recovery rider, which may entail a detailed look at the prudence of purchases, the revenues collected and the numbers of customers are generally not disputable.

Q: Describe Rider TBA.

A: Rider TBA would, on an annual basis, adjust rates separately for the residential and small commercial rate classes (RS and GS-1) to ensure that AEP-Ohio collects its Commission-authorized distribution revenue requirement from those rate classes, no less and no more. In detail:

- The authorized revenues to which actual revenues are compared are the amount of distribution revenues designed to be collected in per-kWh charges in the rates resulting from this case. The authorized revenues do not include those revenues collected in per-customer charges, or those revenues collected in riders that separately true-up. The authorized revenues for any given year are those from this case, adjusted upward or downward based on the increase or decrease in the

[4] Pamela Morgan, Rate Impacts and Key Design Elements of Gas and Electric Utility Decoupling: A Comprehensive Review, Electricity Journal, October 2009, Page 67-68.

annual average number of customers from the test year. This recognizes the fact that the revenue requirement has been changing *implicitly* as sales fluctuate below or (more likely) above the amount the Commission determined in past rate cases to be necessary to allow the Company to cover its fixed costs and produce an adequate return to its investors. It is appropriate to adjust the authorized revenues based on the number of customers added or subtracted because it is likely that AEP-Ohio's costs would increase if new customers moved to its service territory.

- The Companies would, separately for the RS and GS-1 rate classes, compare authorized revenues and the revenues actually collected from kWh charges in each rate class, beginning in 2012. This comparison would happen on a monthly basis to allow the Companies to reflect the impact of refunds/surcharges in quarterly earnings statements, and to compute the carrying charges in the balancing account, discussed below. However, the amount refunded/surcharged in Rider TBA would only change annually.
- Over a year, beginning in 2012, the Companies will accrue over- and under-recovery for each rate class in a balancing account that accrues interest at the long-term debt rate authorized by the Commission in this case. On March 1 of the following year (first in 2013), the Companies will submit to the Commission the proposed price changes under the rider, in order to clear the amount in the class-specific balancing accounts. The Commission Staff and other interested parties will review the accuracy of the Companies' calculations and submit comments to the Commission by May 1. Without a Commission order to the contrary, the new Rider TBA rates shall go into effect on July 1 (first in 2013).

- In order to prevent volatility, in no year shall a surcharge to customers be more than 3% of the total annual distribution revenues for a rate class. Amounts in the balancing account above 3% shall remain in the balancing account (accruing interest) for subsequent collection. This is necessary to ensure that the throughput incentive is actually removed. However, the electric decoupling mechanisms operating since the year 2000 have never produced rate adjustments greater than 3% of base rates, so it is unlikely that the use of "safety valve" will become necessary.[5]
- Rider TBA is a pilot, and will not continue after three years unless parties and the Commission agree that it should be continued.

Q: Why should the Commission approve Rider TBA in this case?

A: The Commission should approve Rider TBA because it would remove AEP-Ohio's financial disincentive to help its residential and small commercial customers improve the efficiency with which they use energy, without requiring the automatic collection of revenues that may never be "lost" (as in Lost Revenue Adjustment Mechanisms) or changing longstanding decisions about how rates should be designed and significantly shifting costs among customers (as in approaches that shift all short-term fixed costs into a monthly charge). It will be simpler to administer and explain to customers than the alternatives. Paired with the performance incentive included in AEP-Ohio's forthcoming Program Portfolio Plan Case, Rider TBA will allow the Company to fully engage in the promotion of energy efficiency through every possible means.

Q: Does Rider TBA violate any regulatory principle or practice?

[5] Id.

A: No. Decoupling has been implemented (or been declared state policy) for electric utilities in 14 states (including the District of Columbia) and for natural gas utilities in 21 states. The revenue requirement to which actual revenues will be compared is that which parties agreed to in this case, adjusted upward or downward between rate cases by changes in the number of customers, which parties recognize to be an important cost driver. As stated by the National Regulatory Research Institute's Ken Costello, "[u]nless a commission faces legal restrictions in implementing a 'sales tracker' or has a built-in policy of limiting trackers in general, [revenue decoupling] would seem to meet the regulatory threshold for a tracker."[6]

Q: Is the decoupling provision of the Stipulation and Recommendation the product of serious bargaining by knowledgeable parties?

A: Yes. The Commission Staff, Office of the Ohio Consumers' Counsel, Appalachian Peace and Justice Network, Ohio Partners for Affordable Energy, the Sierra Club, AEP-Ohio, and NRDC are all familiar with the throughput incentive and various methods to mitigate it. The provisions of Rider TBA listed above are the product of the same set of decisions that parties in other jurisdictions have made when adopting decoupling rate adjustment mechanisms.

Q: Would adoption of Rider TBA serve the public interest and ratepayers?

A: Yes. The adoption of Rider TBA would help align the interests of the Companies with that of ratepayers, and the Companies' regulatory structure with Ohio policy. As I'll explain below, without decoupling, AEP-Ohio's implementation of energy efficiency (as required by law) will be encumbered by a perverse, historical feature of Ohio's regulatory

[6] K. Costello, Briefing Paper: Revenue Decoupling for Natural Gas Utilities, National Regulatory Research Institute, April 2006, at 9.

system: the throughput incentive. Regulators have a few options to remove the throughput incentive or ensure that energy efficiency programs don't endanger a utility's recovery of its fixed costs, but the options other than decoupling have significant drawbacks. In all, decoupling as performed in Rider TBA is effective at removing the throughput incentive for utilities and maintains customers' existing ability to benefit from energy efficiency.

Part III: Rider TBA and Ohio Policy and Regulation

Q: Describe AEP's obligation to implement energy efficiency programs.

A: O.R.C. Section 4928.66 requires electric utilities to implement energy efficiency programs that begin in 2009 and escalate in size to achieve annual electric savings equivalent to 1% of sales in 2014 through 2018, and 2% of sales in 2019 and subsequent years. AEP-Ohio doesn't have to implement energy efficiency that is not cost effective (that doesn't pay for its extra cost in energy savings). This policy has already delivered significant benefits to the Companies' customers: I estimate that the energy efficiency measures (specific technology applications that save energy) put in place as a result of the Companies' efforts in 2009 and 2010 will save customers more than $151 million over the implemented technologies' lifetimes.[7]

Q: How would you characterize AEP-Ohio's implementation of O.R.C. 4928.66?

A: AEP-Ohio's energy efficiency efforts are among the most competent, innovative, and collaborative of those utilities throughout the country that are relative newcomers to running energy efficiency programs. AEP-Ohio has exceeded the law's 2009 and 2010 energy saving targets cost-effectively, and, in my experience, has worked diligently to improve programs.

[7] Exhibit DES-2, Case No. 11-346-EL-SSO, et al., July 25, 2011.

Q: Is there any conflict between AEP-Ohio's energy efficiency efforts and the manner in which electric utilities in Ohio have historically been regulated?

A: Yes. In spite of AEP-Ohio's efforts to comply with the law and save customers money through energy efficiency programs, the Companies face an immediate financial penalty when their efforts reduce sales. They incur this penalty because traditional rate design ties a utility's ability to recover its fixed costs of providing service – for the purposes of this case and Rider TBA, distribution service only – to the amount of electricity its customers use. If its customers use more electricity than was assumed in the ratemaking process, the utility gains financially because the underlying costs do not change with usage. If its customers use less electricity than was assumed in the ratemaking process, the utility suffers financially. This choice of traditional ratemaking has a perverse effect on utility-supported energy efficiency: the more successful a utility is in encouraging its customers to reduce the amount of electricity they use to meet their daily personal and business needs, the less profitable it is under any given set of adopted rates. This is often called the "throughput incentive."

Q. Why is eliminating the throughput incentive important?

A. The effect of the throughput incentive on a utility's actual financial results can be significant. Revenues associated with costs that do not vary in the short term fall directly to the bottom line. For example, assume that a utility managed its fixed costs exactly to the rate case-set revenue requirement but that sales went up by 1%. Those 1% extra in revenues will directly increase income because costs are the same and it will do so by more than 1% because income is just a fraction of the overall revenue requirement. For a very simplified example, assume that a utility's distribution revenue requirement recovered by variable energy charges is $1,000,000, which includes $100,000 as its income opportunity (authorized return on common equity times net rate base). Sales pursuant to the rates designed to recover this revenue requirement increase such that actual revenues are 1% ($10,000) higher and all of the utility's fixed costs are unchanged.[8] This revenue increase will raise the utility's income 10%. The reverse also holds: a 1% decrease in sales and revenues will decrease the utility's income 10%. If all else is equal, energy sales "lost" because of energy efficiency, will reduce actual revenues and adversely fall to the utility's bottom line.

This example is consistent with the findings in a 2008 Report to the Minnesota Public Utility Commission on decoupling done by the Regulatory Assistance Project (RAP).[9] In its hypothetical, a 1% change in revenues had an effect about ten times greater on utility earnings; for example, a 2% gain or loss in revenues caused a 23.76% gain or loss in earnings. The extent to which some portion of a utility's revenue requirement is a pass-through, such as purchased gas costs or electric utility fuel and net interchange costs, can mitigate the magnitude of the difference but never eliminate it.

The lack of alignment between AEP-Ohio's business/regulatory model and the goals and expectations in O.R.C. Section 4928.02 and 4928.66 creates a barrier to gaining the energy efficiency benefits AEP-Ohio could otherwise achieve in partnership with its customers. Ohio residents and businesses face significant barriers to the adoption of all

[8] This is not realistic. Utility "fixed" costs can vary from the rate case assumptions for any number of reasons and decoupling does not affect in the slightest a utility's motivation and need to manage increases in those fixed costs.
[9] Revenue Decoupling: Standards and Criteria, A Report to the Minnesota Public Utilities Commission, Regulatory Assistance Project, 2008, Page 36.

cost-effective energy efficiency – energy efficiency that will provide enormous long-term benefit to their state. The state should not enlist utilities in attempting to overcome these barriers and simultaneously maintain a ratemaking tradition that expresses the belief that Ohio utilities should succeed financially only if the use of electricity continues to grow.

Part IV: Conclusion

Q: Can you summarize your testimony?

A: The Commission should adopt Rider TBA in this case. Its development was the product of serious bargaining among knowledgeable parties, it violates no regulatory principle or practice, and it would serve ratepayers and the public interest by aligning the interests of AEP-Ohio with those of its customers. Moreover, Rider TBA is a pilot. Its operation will give Ohio residents and small businesses, the Companies, and regulatory stakeholders an opportunity to assess the impact of decoupling after three years.

CERTIFICATE OF SERVICE

It is hereby certified that a true copy of the foregoing *Direct Testimony of Dylan Sullivan* was served electronically to all parties this 29th day of November, 2011.

_/s/ Christopher J. Allwein_____
Christopher J. Allwein (0084914)

Williams, Allwein & Moser, LLC
1373 Grandview Ave., Suite 212
Columbus, OH 43212
callwein@williamsandmoser.com

SERVICE LIST

Werner Margard
Stephen Reilly
Assistant Attorney General
180 East Broad Street, 6th Floor
Columbus, OH 43215-3793
Werner.margard@puc.state.oh.us
Stephen.reilly@puc.state.oh.us

Steven T. Nourse
Matthew J. Satterwhite
Anne M. Vogel
Julie A. Rutter
American Electric Power Corporation
1 Riverside Plaza, 29th Floor
Columbus, OH 43215-2373

stnourse@aep.com
mjsatterwhite@aep.com
amvogel@aep.com
jarutter@aep.com

David F. Boehm
Michael L. Kurtz
Boehm, Kurtz & Lowry
36 East Seventh Street, Suite 1510
Cincinnati, OH 45202
dboehm@BKLlawfirm.com
mkurtz@BKLlawfirm.com

Attorneys for the Ohio Energy Group

Samuel C. Randazzo
Joseph E. Oliker
Frank P. Darr
McNees Wallace & Nurick LLC
21 East State Street, 17th Floor
Columbus, OH 43215
sam@mwncmh.com
joliker@mwncmh.com
fdarr@mwncmh.com

Attorneys for Industrial Energy-Users

Richard L. Sites
Ohio Hospital Association
155 East Broad Street, 15th Floor
Columbus, OH 43215-3620
ricks@ohanet.org

Attorney for the Ohio Hospital Association

Thomas J. O'Brien
Bricker & Eckler LLP
100 South Third Street
Columbus, OH 43215-4291
tobrien@bricker.com

Attorney for the Ohio Hospital Association

Colleen L. Mooney
Ohio Partners for Affordable Energy
231 West Lima Street
Findlay, OH 45839-1793
cmooney2@columbus.rr.com

Attorney for Ohio Partners for Affordable Energy

Barth E. Royer
Bell & Royer Co., LPA
33 South Grant Avenue
Columbus, OH 43215-3927
BarthRoyer@aol.com

Special Counsel for
The Ohio Department of Development

Mark A. Hayden
FirstEnergy Service Company
76 South Main Street
Akron, OH 44308
haydenm@firstenergycorp.com

Attorney for FirstEnergy Solutions Corp.

James F. Lang
Laura C. McBride
N. Trevor Alexander
Calfee, Halter & Griswold LLP
1400 KeyBank Center
800 Superior Ave.
Cleveland, OH 44114
jlang@calfee.com
lmcbride@calfee.com
talexander@calfee.com

Attorneys for FirstEnergy Solutions Corp.

Lisa G. McAlister
Matthew W. Warnock
Bricker & Eckler LLP
100 South Third Street
Columbus, OH 43215-4291
lmcalister@bricker.com
mwarnock@bricker.com

Attorneys for OMA Energy Group

Daniel R. Conway
Porter, Wright, Morris & Arthur LLP
41 South High Street
Columbus, OH 43215
dconway@porterwright.com

Attorney for AEP Service Corp.

Michael R. Smalz
Joseph V. Maskovyak
Ohio Poverty Law Center
555 Buttles Avenue
Columbus, OH 43215
msmalz@ohiopovertylaw.org
jmaskovyak@ohiopovertylaw.org

Attorneys for the Appalachian Peace and Justice Network

Mark S. Yurick
John W. Bentine
Zachary D. Kravitz
Chester Willcox & Saxbe, LLP
65 East State Street, Suite 1000
Columbus, OH 43215
myurick@cwslaw.com
jbentine@cwslaw.com
zkravitz@cwslaw.com

Attorneys for the Kroger Co.

Douglas G. Bonner
Emma F. Hand
Keith C. Nusbaum
SNR Denton US LLP
1301 K Street NW
Suite 600, East Tower
Washington, DC 20005
doug.bonner@snrdenton.com
emma.hand@snrdentonxom
keith.nusbaum@snrdenton.com

Attorneys for Ormet Primary Aluminum Corporation

Dylan Sullivan
Energy Advocate
Natural Resources Defense Council,
Midwest Office
2 N Riverside Plaza, Suite 2250
Chicago, IL 60606
dsullivan@nrdc.com

Katie Burke
Gardner F. Gillespie
Hogan Lovells US LLP
Columbia Square
555 Thirteenth Street, NW
Washington D.C. 20004
katie.burke@hoganlovells.com
gardner.gillespie@hoganlovells.com

Attorney for Ohio Cable Telecommunications Association

Benita Kahn
Lija Kaleps-Clark
Vorys, Sater, Seymour and Pease LLP
52 E. Gay St., P.O. Box 1008
Columbus, OH 43216-1008
bakahn@vorys.com

Attorney for Ohio Cable Telecommunications Association


Volume 24, Issue 8, October 2011
ISSN 1040-6190
ELSEVIER
the Electricity
JOURNAL
Getting It Right on Air Quality
The Practical, Legal and Equitable Problems with EPA's New Cross-State Air Pollution Rule
Brian H. Potts
Ontario Feed-in Tariffs: System Planning Implications and Impacts on Social Welfare
Debt Crunch: What Does It Mean for Baseload Investment, Emissions and Prices?
Power Trading Analytics and Forecasting in Germany
Essential to Energy Efficiency, but Easy to Explain: Frequently Asked Questions about Decoupling
Analysis of 2030 Large-Scale Wind Energy Integration in the Eastern Interconnection Using WINS
Prudence Review and Traditional Revenue Requirement Regulation: Some Thoughts
Understanding Residential Customer Support for – and Opposition to – Smart Grid Investments

Dylan Sullivan *is a Staff Scientist at the Chicago office of the Natural Resources Defense Council (NRDC). At NRDC, Mr. Sullivan monitors the performance of Midwestern utilities' energy efficiency portfolios, suggests new programs to capture cost-effective energy efficiency, and conducts research and advocacy on changes to the utility business model that ensure utilities and customers can benefit from energy efficiency. Mr. Sullivan has a M.S. in Civil and Environmental Engineering from Stanford University and a B.A. in Environmental Geology from the University of Missouri-Columbia.*

Devra Wang *is Director of the California Energy Program at NRDC. She promotes energy efficiency, renewable energy and sustainable energy policy through research and advocacy in local, state, and regional forums. Prior to joining NRDC, Ms. Wang worked on renewable energy and energy policy issues at the Lawrence Berkeley National Laboratory and the California Energy Commission. Ms. Wang holds a Master's degree in Energy and Resources and a Bachelor's degree in Bioengineering, both from the University of California at Berkeley.*

Drew Bennett *is a MAP Sustainable Energy Fellow at NRDC's San Francisco office. There, he focuses on state-level energy efficiency policy and implementation, as well as California's economy-wide comprehensive carbon reduction program under Assembly Bill 32. Mr. Bennett has an M.S. and B.S. from Stanford University's department of Management Science & Engineering.*

Essential to Energy Efficiency, but Easy to Explain: Frequently Asked Questions about Decoupling

Decoupling policies adjust rates between rate cases to ensure a utility collects the amount of revenue its regulator or governing board authorized, no less and no more. As they become increasingly common across the U.S., this article attempts to clear up many commonly asked questions and misconceptions about decoupling using case studies, previous research, regulatory filings, and the authors' experience in utility regulation.

Dylan Sullivan, Devra Wang and Drew Bennett

Energy efficiency is the cheapest and cleanest source of energy in the American economy, with enormous potential to save money (nearly $700 billion by 2020), create jobs, and reduce pollution (1.1 gigatons of carbon dioxide by 2020), through improvements in buildings, processes, and devices served by America's electric and natural gas utilities.[1] Energy efficiency programs that provide customers with information, assistance, and incentives for energy efficiency improvements are needed to overcome the persistent market barriers that prevent households, businesses, and industry from taking advantage of this opportunity.[2]

Utilities, together with their regulators and governing boards, are responsible for providing customers with reasonably priced and reliable energy services.

 1040-6190/$–see front matter doi:/10.1016/j.tej.2011.09.007

Whether utilities only distribute energy, have competitively provided generation service but retain responsibility for resource acquisition, or provide fully integrated distribution, transmission, and generation service, they have a critical role in accelerating the deployment of energy efficiency. Utilities have existing relationships with customers as "energy authorities," will collectively invest more than $2 trillion in infrastructure between 2010 and 2030,[3] and have the ability to reduce transaction costs for third-party providers of efficiency services. But under traditional regulation, utilities are discouraged from investing in the best-performing and cheapest resource – energy efficiency – because it hurts them financially.

Fortunately, there is a simple, effective, and proven way to remove this conflict: break the link between the utility's revenue and the amount of energy it sells by adjusting rates to ensure that the utility collects its authorized fixed costs, no less and no more. Combined with other key policies to encourage energy efficiency, such "decoupling" mechanisms can free utilities to help customers save energy whenever it is cheaper than producing and delivering it.

I. What Is Decoupling?

A decoupling mechanism adjusts rates between rate cases to ensure a utility collects its revenue requirement – the amount of revenue the regulator or governing board determined is necessary for the utility to maintain reliability and provide reasonable returns to its investors – no less and no more. Decoupling removes the throughput incentive: the incentive of a utility to increase sales of energy between rate-setting processes, beyond the amount of sales assumed when rates were set. Decoupling is suitable for any utility network system (i.e., electricity, natural gas, water). A utility that implements decoupling is free to invest in energy efficiency without endangering recovery of its fixed costs.

Motivated by this throughput incentive, utilities may work against energy efficiency despite policy direction promoting it.

II. Decoupling Is Necessary and Effective

A. What is wrong with the throughput incentive?

Under traditional rate design, utilities recover fixed costs from volumetric charges. When sales fall, utilities may not recover all of their fixed costs. When sales increase, utilities may collect more than their authorized fixed costs and reasonable return. Motivated by this throughput incentive, utilities may work against energy efficiency despite policy direction promoting it.

B. How does the throughput incentive impact energy efficiency?

The throughput incentive most often contributes to utility *inaction* on energy efficiency, even though it is the cheapest way to meet energy needs. In addition, various utilities have actively countered efficiency by:

- opposing (or not supporting) highly cost-effective efficiency codes for new buildings and standards for new appliances and equipment at the local, state, and national level;
- providing incentives for the use of inefficient equipment or practices, such as electric resistance heat;
- supporting rate structures that encourage high consumption, such as declining block rates or flat rates with a low consumption (volumetric) charge;
- failing to include energy efficiency and conservation in their communications with customers;
- not supporting or opposing targets or planning processes that help capture all cost-effective energy efficiency.

  doi:/10.1016/j.tej.2011.09.007

C. Where has decoupling helped support aggressive investment in cost-effective energy efficiency?

In 2010, seven of the 10 states with the highest per-capita investment in electric energy efficiency programs[4] and eight of the 10 states with the highest per-capita investment in natural gas energy efficiency programs[5] had decoupling mechanisms in place or had adopted decoupling as state policy. The following are a few examples of states in which decoupling policies have helped support a significant ramp-up in energy efficiency.

1. Idaho

Idaho consumers had long been the recipients of cheap electricity, due to large hydroelectric capacity built in the 1950s and 1960s. In 2000, the western electricity crisis caused a temporary 44 percent rate increase for customers.[6] To protect consumers in the future, the Idaho Public Utilities Commission (IPUC) ordered Idaho Power to begin investing in energy efficiency. In 2002, Idaho Power began demand side management programs, but the utility was focused more on compliance with IPUC targets than acquiring all cost-effective energy efficiency. Ric Gale, senior vice president of corporate responsibility at Idaho Power, said, "in order for energy efficiency to make sense for an investor-owned utility, there had to be a comprehensive set of policies in place."[7]

Idaho Power's decoupling pilot, which began in 2007, removed Idaho Power's disincentive to encourage efficiency. Upon implementation, it immediately showed the symmetrical nature of decoupling. In the first year, the mechanism produced a refund for customers when consumption was higher than predicted and in the second year it produced a surcharge to customers when consumption was lower than predicted. Idaho Power's investments in demand-side management programs tripled between 2006 and 2009, and its energy savings increased 220 percent to 148 GWh per year.[8]

In 2010, seven of the 10 states with the highest per-capita investment in electric energy efficiency programs had decoupling mechanisms in place or had adopted ecoupling as state policy.

2. California

In the early 1980s, California became the first state to adopt decoupling. The policy was eliminated as part of the state's now-infamous experiment in deregulation, and it was one of the first policies reinstated to help calm the electricity crisis of 2000 and 2001. The state made cost-effective energy efficiency its top priority energy resource and set aggressive energy saving targets. By early 2005, every major investor-owned utility in California had decoupling in place again. Additionally, a "shared-savings" mechanism provides financial incentives for utilities if they do a good job saving customers money through energy efficiency, and penalties for poor performance.

With a business model supportive of energy efficiency in place, California utilities aggressively increased their energy savings. Between 1998 (when decoupling and other supportive policies had been eliminated) and 2008 (when those policies had been restored), they increased their investments in efficiency nearly *five-fold* – to over 3 percent of revenues – and achieved significant increases in energy savings.[9] In addition to providing efficiency programs for customers, California investor-owned utilities have been instrumental in the adoption of more stringent codes and standards at the state and federal level, including California's TV efficiency standards that will save 6,500 GWh annually by 2020,[10] and state and federal lighting standards that require bulbs to be 25–30 percent more efficient across the country.[11,12]

3. Utah

In 2002, Questar Gas was facing declining usage per customer and increasing pressure from the

 1040-6190/$–see front matter doi:/10.1016/j.tej.2011.09.007

Public Service Commission of Utah to engage in energy efficiency. At the time, Questar employees were looking for ways to encourage customers to use more gas and thus bring in more revenue.[13] A working group of stakeholders explored various options to address the throughput incentive. A "lost revenue recovery" mechanism was rejected by Questar because it invited prolonged and contentious proceedings and was open to manipulation; a "straight fixed variable" rate design was rejected by the Commission because high fixed (customer) charges would be politically untenable and reduce incentives for customers to conserve.[14] Decoupling, on the other hand, could increase financial stability for Questar and increase efficiency savings while lowering bills for customers. In the Commission's 2006 decision approving the decoupling mechanism, Questar also agreed to aggressively pursue efficiency savings for its customers.[15,16]

Within 60 days of the decision, Questar began to offer its first efficiency programs. In its first year, Questar invested $7.4 million in energy efficiency and achieved savings of over 163,000 decatherms. Efficiency investments and savings increased every year and by 2009, Questar was investing $47.4 million to achieve savings of almost 873,000 decatherms.[17] In January 2010, the Commission made the decoupling mechanism permanent.[18]

III. Decoupling Benefits All Customers, Reduces Risk, and Maintains a Utility's Incentive to Control Costs

A. Does decoupling shift risk from the utility to customers?

No. Decoupling reduces risk for all parties. Under traditional regulation, utilities risk not collecting their fixed costs of service when sales are below what was assumed when rates were set, and customers risk providing windfalls to the utility when sales are above what was assumed (for example, when summer weather is hotter than normal). Decoupling reduces these risks for both utilities and customers, by ensuring that the utility collects its authorized fixed costs, no less and no more.

A "lost revenue recovery" mechanism was rejected by Questar because it invited prolonged and contentious proceedings and was open to manipulation.

B. Does decoupling benefit all customers?

In the short term, because decoupling can produce both refunds and surcharges for customers, decoupling alone has no predictable effect on customers, including those who have already invested in energy efficiency or those who use little energy. Over the long term, decoupling benefits all customers by clearing the way for energy efficiency investments that: (1) reduce peak and overall demand for energy, delay the construction of costly new generation capacity or pipelines, (2) reduce demand for underlying fuels and put downward pressure on commodity prices,[19] and (3) reduce pressure on the transmission and distribution system, reducing the likelihood of costly outages and delaying the need for costly upgrades.

Consumers who invest in energy efficiency can reduce their bills by 30 percent or more. In contrast, the modest decoupling adjustments to their rates are unlikely to fluctuate more than a few percentage points in either direction and will not create results much different from what frequent rate cases would otherwise yield. Given the relative size of bill savings and rate adjustments, the rate adjustments are unlikely to discourage customer investments in energy efficiency.[20] Decoupling, unlike alternatives like high fixed charges, retains the volumetric charges which are familiar to customers, more acceptable to low volume users, and which signal customers that lower use brings a lower bill and reduces the need for system investment.

C. Should concerns that decoupling is "single-issue ratemaking" prevent a regulator or governing board from implementing decoupling?

No. "Single issue ratemaking" usually refers to the increase of rates between rate-setting processes based on an increase in a single cost driver, without taking into account other factors that could offset a utility's increased costs. Decoupling mechanisms that use the allowed revenues authorized by the Commission in the rate proceeding, with no attempt to change the allowed revenue requirement in subsequent years to take into account cost drivers, are certainly not single issue ratemaking. Such mechanisms are rare, however. More common are decoupling mechanisms that change the revenue requirement between rate cases based on factors that drive costs, such as number of customers, inflation, productivity, and the age and condition of the system. These mechanisms are justified because regulators determine at the outset of the mechanism the important non-consumption related factors driving investment in fixed costs, and change the revenue requirement between rate cases based on these factors.

D. Is decoupling an example of "retroactive ratemaking?"

No. Decoupling is not "retroactive ratemaking" because it compares actual revenues to the revenues authorized by the Commission in a rate proceeding, or the revenues produced by an approved formula that takes into account important cost drivers. Decoupling rate adjustments are the result of the application of a fully adjudicated method for changing rates, and the rate adjustments can go in both directions. Ken Costello of the National Regulatory Research Institute has investigated whether decoupling mechanisms meet the traditional tests justifying state utility regulators' use of "tracking mechanisms that adjust rates and revenues whenever sales deviate from their targeted level" and has concluded that "[u]nless a commission faces legal restrictions in implementing a 'sales tracker' or has a built-in policy of limiting trackers in general, [revenue decoupling] would seem to meet the regulatory threshold for a tracker."[21]

Volatile rate changes? Decoupling mechanisms operating since 2000 have most often produced adjustments of less than $2.00 per month in higher or lower charges for residential electric customers.

IV. Decoupling Produces Small Rate Decreases and Increases

A. Does decoupling produce volatile changes in rates?

No. The decoupling mechanisms operating since 2000 have most often produced adjustments of less than $1.50 per month in higher or lower charges for residential gas customers and less than $2.00 per month in higher or lower charges for residential electric customers.[22] The size of decoupling rate adjustments as a percentage of the total bill is generally an order of magnitude less than the size of adjustments many customers already see from pass-throughs of fuel or purchased power costs.[23]

B. Could decoupling increase rates for customers if they conserve energy during an economic downturn?

In an economic downturn with an associated decrease in utility sales, *rates* of a utility operating with decoupling may temporarily increase while *bills* for conserving customers will likely decrease because of their

 1040-6190/$–see front matter doi:/10.1016/j.tej.2011.09.007

lower consumption. With or without decoupling, decreases in sales due to economic downturns are likely to result in rate increases, since utilities must act to maintain revenue to cover their fixed costs at the new, lower level of sales. But without decoupling, rates will almost never *decrease* when sales are higher than expected due to economic recovery, weather,[24] or other factors. Decoupling protects customers from paying utilities more than necessary to enable them to recover their authorized fixed costs.

C. Does decoupling guarantee profits? Does it affect a utility's incentive to control costs?

No and no. Decoupling provides assurance to a utility and its customers that the utility will recover only its authorized *revenues* (that is, the amount that regulators have already determined is necessary and prudent in order to deliver energy services to customers), no less and no more. A utility's profit will continue to be driven by both its revenues and its costs, as well as other regulatory decisions that determine the utility's authorized rate of return on capital. Without decoupling, profit is tied both to sales growth and cost control. With decoupling, controlling costs takes on even greater importance since the utility can no longer increase profits by increasing sales.

V. All Types of Utilities and Their Customers Can Benefit from Decoupling

A. Is decoupling necessary for publicly owned utilities?

Yes. While publicly owned utilities (municipal utilities and cooperatives) only have debt investors, and private utilities

have both debt and equity investors, both types of utilities have similar obligations to investors who have provided capital to create and maintain their distribution, transmission, and/or generation systems. The revenue publicly owned utilities need to recover their fixed costs for providing service (for example, repaying debt) is linked to energy sales, just as it is for regulated investor-owned utilities. Therefore, aggressive energy efficiency efforts can threaten a publicly owned utilities' ability to meet those financial obligations, creating unintended but powerful disincentives for investments in energy efficiency.[25] Decoupling can remove these financial impediments to enable publicly owned utilities to aggressively pursue energy efficiency. Methods for applying decoupling to self-regulating utilities, as many cooperatives and municipals are, may differ as compared with utilities regulated by public utility commissions, but the essence of revenue decoupling and stabilization relative to fixed costs applies in the same ways.

B. How does decoupling work for a vertically integrated utility?

A vertically integrated utility that collects fixed costs of generation, transmission, and distribution in its rates faces the same perverse incentive to increase sales between rate cases that distribution-only utilities face, because a vertically integrated utility has significant fixed costs that are recovered in volumetric rates. Many utilities, for example in Oregon,[26] Wisconsin,[27] Idaho,[28] California,[29] Hawaii[30] and Vermont,[31] have decoupling mechanisms that include generation fixed costs. Some vertically integrated utilities make wholesale sales of electricity with excess generation capacity, and energy efficiency can free resources to support wholesale sales. Most utilities have comprehensive power cost adjustment clauses that will net wholesale sales against fuel or purchased power costs. If a utility does not, then some adjustment may be necessary to

  doi:/10.1016/j.tej.2011.09.007

address the contribution of wholesale sales to fixed cost recovery.

C. Why do some utilities support decoupling?

Utilities that support decoupling often do so to create a business model that supports energy efficiency and other demand-side resources, and stabilizes their ability to recover authorized fixed costs.[32] Decoupling helps foster a change within a utility from a sales-promoting culture to a culture focused on delivering least-cost, highest-quality energy services to customers, including investment in energy efficiency whenever it is cheaper than generating or purchasing and delivering energy.[33] Many utilities also have aggressive energy savings targets and programs, and face (or recognize that they will soon face) limits on greenhouse gas emissions, and they realize that a regulatory structure that encourages ever-increasing energy sales is incompatible with those policy directives. Some utilities, especially in the gas industry, support decoupling simply to ensure recovery of fixed costs in a declining sales environment. Regulators should ensure that all utilities with decoupling aggressively pursue cost-effective energy efficiency, so customers will benefit from the change in regulation.

VI. Decoupling Mechanisms Are Simple to Design and Implement

A. Are decoupling mechanisms difficult to design?

No. In its basic form, a decoupling mechanism is simply

a system to regularly adjust rates to ensure a utility's *actual* revenues match its *authorized* revenues to recover its fixed costs. Decoupling was first proposed in a regulatory proceeding by the noted consumer advocate William Marcus, then a staff member of the California Energy Commission, in April 1981,[34] and first implemented in 1982. There are numerous examples of currently successful mechanisms that regulators and governing boards can use as models. Today, half the states in the nation have policies to break the link between recovery of fixed costs and sales for natural gas and/or electric utilities (Figures 1 and 2). Decoupling mechanisms can be designed to address many of the specific concerns of utilities, regulators, and other stakeholders; the key is that decoupling mechanisms remove the throughput incentive while preserving customer incentives to become more energy efficient.

B. How should a utility's authorized revenue change between rate cases?

Under traditional regulation, the regulator or governing board implicitly authorizes revenues to change between rate cases based on sales levels, which will always be different from the amount assumed in the rate case. With a decoupling mechanism, actual revenues no longer change based on sales. To ensure a utility is able to recover its fixed costs over time, regulators or governing boards may want to provide a formula to change authorized revenues between rate cases along with the decoupling mechanism. The best mechanism for adjusting authorized revenues between rate cases will depend on the specific circumstances a regulator or governing board is faced with in a specific utility's service territory, and various approaches can be effective. Implementation of a decoupling mechanism (which simply trues up actual and authorized revenues) is independent of which approach (if any) is used to adjust authorized revenues between rate cases.

In states that have implemented decoupling

 1040-6190/$–see front matter doi:/10.1016/j.tej.2011.09.007

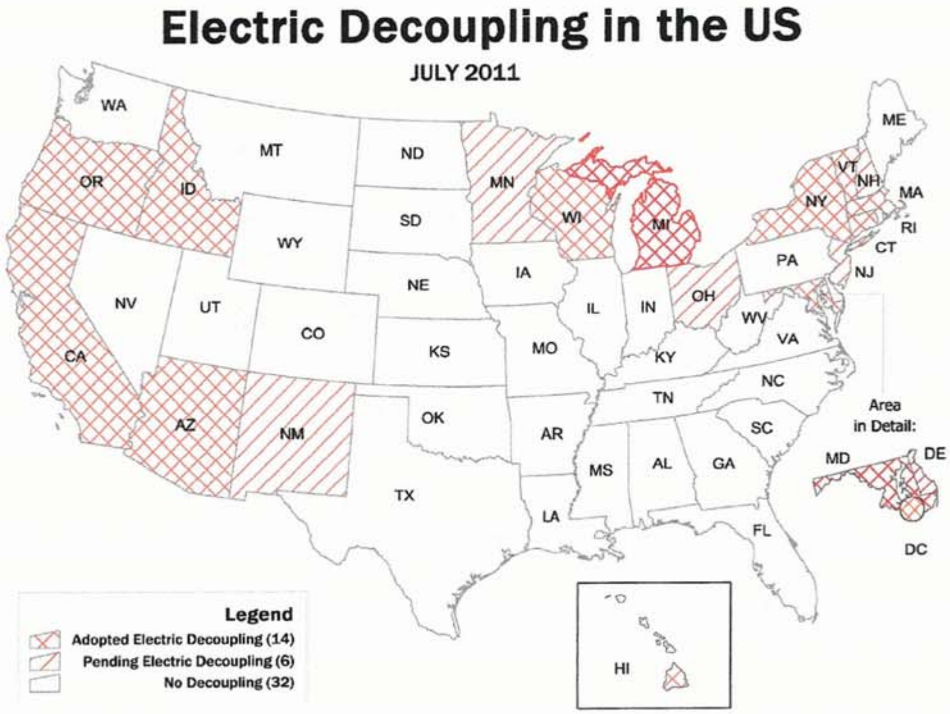

Figure 1: Electric Decoupling in the U.S.

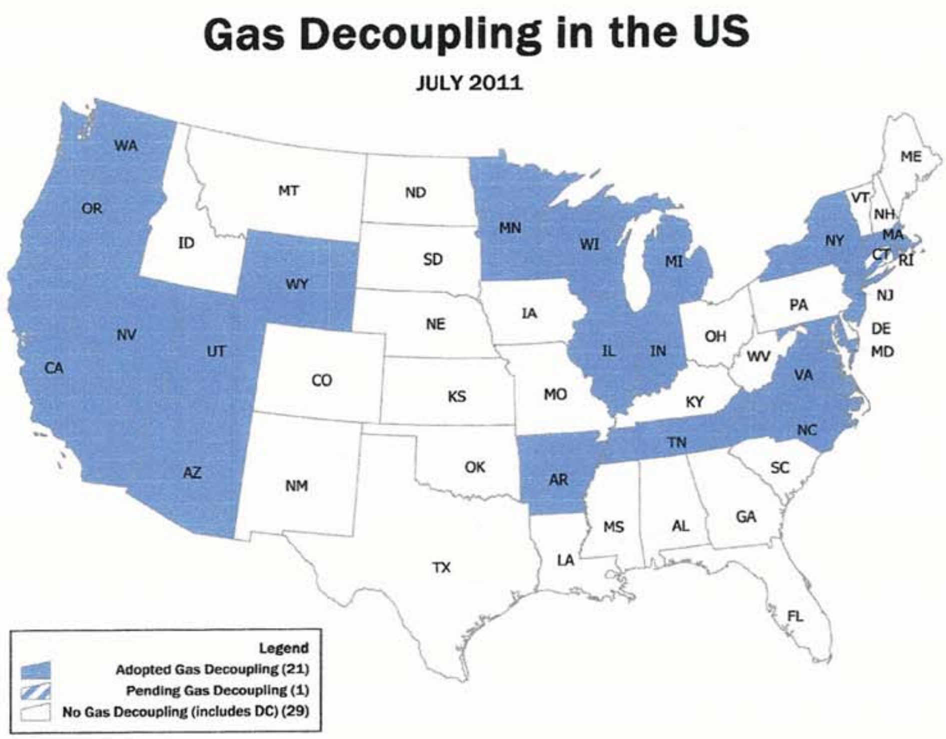

Figure 2: Gas Decoupling in the U.S.

mechanisms, the most common way regulators adjust authorized revenues between rate cases is by tying the authorized revenue to the number of customers the utility serves. The regulator or governing board authorizes the utility to collect a specific amount of revenue per customer (by dividing authorized revenues by the number of customers assumed in the rate setting process), and then calculates the authorized revenue every year by multiplying the "revenue-per-customer" by the number of customers the utility actually serves. This approach has the advantage of relying on objective information not subject to interpretation, enhancing the utility's incentive to encourage energy-efficient economic growth in its service territory, and encourages the utility to help every customer use energy efficiently. A statistical analysis by Lawrence Berkeley National Laboratory of the impact of changes in sales or number of customers on nonfuel costs showed that "one-year changes in the number of customers have a fairly strong one-year impact on nonfuel costs but that one-year changes in sales have a rather weak effect."[35] This "revenue-per-customer" approach works best for rate classes that are highly homogenous, with a large number of customer accounts.

Another way to adjust revenues between rate cases is by authorizing revenue for the first year and then using a formula that captures the effect of factors such as inflation, expected productivity improvements, and expected cost changes (e.g., plant investments) to change authorized revenues between rate cases. In a National Grid rate case, the Massachusetts Department of Public Utilities concluded that, "in addition to the number of customers, changes in

distribution-related costs could arise from . . . inflationary pressures on the prices of goods and services used by distribution companies and . . . the need for companies to invest in their infrastructure."[36] Of course, regulators and governing boards could also choose not to allow changes in authorized revenues between rate cases, although this practice has been relatively rare.[37]

C. How often should rates be adjusted to true up (or reconcile) actual revenues to authorized revenues?

To implement a decoupling mechanism, regulators or governing boards set up a periodic automatic process to compare actual and authorized revenues and adjust rates accordingly. These rate true-ups (or reconciliations) can take place as frequently as every month or as seldom as every year. Most mechanisms use annual adjustments.[38]

D. Should authorized revenues be dependent on weather?

Under traditional regulation, weather creates significant risks for both utilities and customers. For example, a mild summer in which few customers use air conditioning could cause electric sales to be lower than expected and cause a utility to under-recover its fixed costs; conversely, a hotter than expected summer could increase sales and provide a windfall to the utility.

Although short-term weather variations affect a utility's short-term variable costs, they do not affect its fixed costs to serve customers. Therefore, a utility's authorized revenues to recover its fixed costs should *not* be adjusted to be dependent on weather. Decoupling mechanisms reduce risk for *both* customers and utilities by eliminating utility over- and under-recovery of fixed costs associated with weather variations. Most decoupling mechanisms simply true up actual revenues to authorized revenues and do *not* reinstate weather-related risks by adjusting the authorized revenue based on weather.[39]

E. Should a decoupling mechanism include all customer classes?

To achieve the objective of removing the throughput incentive, a decoupling mechanism should include all classes of customers that pay fixed costs of service in charges that vary with throughput (including customers that pay for fixed costs in demand-based charges). A decoupling mechanism can be implemented by either comparing the actual revenue over-and under-collection for the utility in total, or by making the comparison for each separate customer class. In revenue-per-customer decoupling mechanisms, to prevent changes in the number of customers in rate classes with few customers or widely varying loads from producing large adjustments, regulators should maintain flexibility to determine how decoupling refunds and surcharges are spread among classes (but not the amount of the adjustment itself).

F. Should Commissions reduce an investor-owned utility's allowed return on equity (ROE) immediately upon implementing decoupling?

No. Decoupling, by ensuring a utility collects its authorized fixed costs, should reduce earnings volatility for a utility, but this is balanced by the loss of upside potential from growth in energy sales (above the amount assumed in the rate case). Investors care not only about greater certainty in securing a utility's authorized fixed costs, but also about losing the potential (realized repeatedly by many utilities) for achieving

recoveries in excess of authorized amounts when retail sales rise. Depending on the utility, this upside could have been a substantial portion of earnings in the past. While use of natural gas has been essentially flat from 1973 to 2009, electricity use during that time period more than doubled.[40] Decoupling eliminates the electricity industry's capacity to continue profiting from a very well established trend of steadily increasing sales. Also, as decoupling becomes widespread, which has already happened in the gas industry, it will be reflected in the ROEs of comparable utilities considered in establishing a utility's ROE.

There is abundant counter-evidence to the proposition that implementation of decoupling should lead to immediate reductions in ROE. A recent study of ROEs in the natural gas industry found that the adoption of decoupling did not reduce investors' required ROE.[41] Also, regulators do not routinely institute ROE reductions at the outset of a decoupling mechanism. Of the 46 decoupling mechanisms reviewed in Morgan's "Rate Impacts and Key Design Elements of Gas and Electric Utility Decoupling," only 12 were accompanied by ROE reductions (two of as a result of a settlement agreement, and one of those decisions has since been reversed). Acknowledging that it is impossible at the outset of a mechanism to predict how the reduction of volatility and elimination of upside potential will affect a utility's overall cost of capital and risk profile, the issue should be investigated after the mechanism is operating. Tentative adoption of decoupling by a regulator or governing board (by deeming it a "pilot," for example) would lead to a discounting by investors of any risk reduction decoupling provides. Full credit for any risk reduction will only come from full commitment to decoupling.

G. Is decoupling complex to administer?

No. Administering a decoupling mechanism requires staff to take

  doi:/10.1016/j.tej.2011.09.007

only ministerial action to perform a simple true-up comparing actual revenues to the allowed revenues, determined by applying the formula from the Commission or governing board order approving decoupling, and adjusting rates to return or recover any over- or under-collection the following period.

Most decoupling plans rely on objective information that can lead to rate changes by ministerial action. In the event the decoupling formula includes elements that require regulatory scrutiny, such as capital spending, administration can be more complex, though still quite a bit less complex than a rate case would be

VII. Alternatives to Decoupling Are Ineffective or Problematic

A. Why are "lost revenue adjustment mechanisms," which charge customers for revenue that a utility forgoes as it implements energy efficiency programs, ineffective and problematic?

"Lost revenue adjustment mechanisms" (LRAMs or "lost revenues") do not support the large-scale adoption of cost-effective energy efficiency and can dramatically increase the cost of energy efficiency.

- LRAMs *do not remove the throughput incentive*: a utility still keeps revenue it generates above its authorized revenue and is motivated to boost sales.
- In jurisdictions where program evaluation, measurement, and verification standards are weak, utilities can game a LRAM by running an energy efficiency program

that looks good on paper but saves little or nothing in practice, such as a behavior change program that does not use experimental design. The utility keeps the revenue associated with the unsaved energy while also collecting lost revenues for ineffective programs.
- LRAMs lead a utility to avoid investing in market transformation programs. Unless a program can be measured and evaluated with high confidence, it cannot generate "lost revenues" in a LRAM. This biases a utility to implement only programs from which savings can be easily evaluated, and still provides a disincentive for utilities to argue for stronger efficiency codes, proactively promote efficiency in conversations with customers, or otherwise use its relationships with customers to increase efficiency.
- LRAMs are inherently asymmetrical and penalize consumers by failing to protect them from utility over-collection: a utility gets to claim lost revenues from energy efficiency programs without having to give up "found revenues" from other factors, such as abnormal weather.
- LRAMs are imprecise: there is no check to see if the "lost revenue" is really needed to cover fixed costs. In a situation where high load growth is diminished by energy efficiency, remaining sales may be more than adequate to recover fixed costs, yet the utility may be entitled to a LRAM anyway, creating a regulated windfall.
- LRAMs are costly. Lost revenues are generally collected for the amount of time an efficient device installed by an energy efficiency program is operating (potentially decades), or until a rate case resets rates for new levels of consumption in a service territory. In fall 2009, FirstEnergy in Ohio proposed a compact fluorescent light bulb give-away program that would have distributed two CFLs to each residential customer in its service territory. FirstEnergy's LRAM would have added between $12.60 and $30.80[42] to the program's $7 per-customer implementation cost.

 1040-6190/$–see front matter doi:/10.1016/j.tej.2011.09.007

B. Why is increasing fixed (customer) charges on customer bills to recover utilities' fixed costs an ineffective way to remove the throughput incentive and promote efficiency?

Increasing fixed (customer) charges is an ineffective approach because customers lose much of their incentive to become energy efficient, and it creates incorrect long-term price signals. Raising fixed charges removes or lessens the throughput incentive, but it creates another problem by reducing customers' rewards for reducing energy use because less of their bill would change according to consumption. With higher fixed charges, a customer who installs an efficient air conditioning system, for example, would face longer payback periods, and customers who already use less electricity than average would see their bills increase. High fixed charges also shift cost to customers that use little energy as a result of choice, necessity, or investments in energy efficiency. In addition, such "straight fixed variable" rate designs fail to send proper long-term price signals, since costs that are fixed in the short term are often variable in the long term (such as the cost of expanding pipe and wire networks and building new power plants).

Increasing the fixed charge high enough will make the utility indifferent to consumption, but if the political environment does not allow the increase, or only allows part of it, the throughput incentive remains.

Decoupling was first proposed by the noted consumer advocate William Marcus.

 1040-6190/$–see front matter doi:/10.1016/j.tej.2011.09.007

C. Why not offer utilities a performance-based incentive for delivering energy efficiency programs instead of decoupling?

Performance-based incentives are a necessary part of the package of policies that lead to aggressive energy efficiency implementation and should be paired with decoupling for investor-owned utilities. However, performance-based incentives are not sufficient alone. With only a performance incentive, a utility would still have the incentive to increase sales between rate cases.

D. Why not have annual rate cases to assure a match among rates, revenues, and utility fixed costs?

The purpose of a rate case is to examine material changes in utility costs. Year-over-year changes in costs would have to be significant to justify the expense of rate cases. Importantly, the utility would still be motivated to boost sales *between* these annual rate cases, so the throughput incentive would not be removed.

E. Is decoupling necessary if energy efficiency programs are not administered by a utility?

Yes. Efficiency efforts will be significantly impeded if they have to compete against utilities with powerful financial incentives to encourage customers to increase energy consumption. Moreover, utility engagement and support is important to the success of energy efficiency programs, regardless of the entity administering programs.[43] Utilities often have a strong relationship with customers and serve as an authority on energy matters with regulators, legislators and other

public officials. They can be influential on policies such as codes and standards, and on the scale of efficiency investments. Regulators recognize this: electric and natural gas utilities in many states that have used third-party administrators, including Wisconsin, New York, Vermont, and Oregon, are decoupled.

VIII. Selected References on Decoupling

• National Action Plan for Energy Efficiency, *Aligning Utility Incentives with Investments in Energy Efficiency*, Nov. 2007, at www.epa.gov/cleanenergy/energy-programs/suca/resources.html.

• P.G. Lesh, *Rate Impacts and Key Design Elements of Gas and Electric Utility Decoupling: A Comprehensive Review*, Elec. J., Oct. 2009, at 65–71, at http://www.raponline.org/docs/GSLLC_Lesh_CompReview DecouplingInfoElecandGas_2009_06_30.pdf.

• Financial Analysis of Incentive Mechanisms to Promote Energy Efficiency: Case Study of a Prototypical Southwest Utility, Peter Cappers, Charles Goldman, Michele Chait, George Edgar, Jeff Schlegel, and Wayne Shirley, Ernest Orlando Lawrence Berkeley National Laboratory, Mar. 2009, at http://eetd.lbl.gov/ea/ems/reports/lbnl-1598e.pdf.

• W. Shirley, J. Lazar and F. Weston, *Revenue Decoupling: Standards and Criteria*, Report to Minnesota Public Utilities Commission. Regulatory Assistance Project, Gardiner, ME, June 2008, at http://www.raponline.org/docs/RAP_Shirley_DecouplingRevenueRpt_2008_06_30.pdf.

• U.S. Department of Energy, State and Regional Policies that Promote Energy Efficiency Programs Carried Out by Electric and Gas Utilities: A Report to the United States Congress Pursuant to Section 139 of the Energy Policy Act of 2005, Mar. 2007, at www.oe.energy.gov/DocumentsandMedia/DOE_EPAct_Sec_139_Rpt_to_CongressFINAL_PUBLIC_RELEASE_VERSION.pdf.

 1040-6190/$–see front matter , doi:/10.1016/j.tej.2011.09.007

• S. Carter, Breaking the Consumption Habit: Ratemaking for Efficient Resource Decisions, ELEC. J., Dec. 2001, at 66–74.

• D. Bachrach, S. Carter and S. Jaffe, *Do Portfolio Managers Have An* Inherent *Conflict of Interest with Energy Efficiency?* ELEC. J., Oct. 2004, at 52–62.

• RAP Issueletter, Regulatory Reform: Removing the Disincentives to Utility Investment in Energy Efficiency, Sept. 2005, at http://www.raponline.org/Pubs/IssueLtr/RAP2005-09.pdf.

• RAP Issueletter, *The Role of Decoupling Where Energy Efficiency Is Required by Law*, Sept. 2009, at http://www.raponline. org/docs/RAP_Schwartz_ IssuesletterSept09_2009_08_25.pdf.

• J. Eto, *et al.*, *The Theory and Practice of Decoupling*, Lawrence Berkeley National Laboratory, LBL-34555, Jan. 1994.

• Regulatory Assistance Project, *Revenue Regulation and Decoupling: A Guide to Theory and Application*, June 2011, at www.raponline.org/document/download/id/902. ■

Endnotes:

1. H.C. Granade, *et al.*, *Unlocking Energy Efficiency in the U.S. Economy*, McKinsey Global Energy and Materials, July 2009, at 6 and 118.

2. For more information on the market barriers that efficiency programs are designed to overcome, see NRDC Issue Brief, *Doing More and Using Less: Regulatory Reforms for Electricity and Natural Gas Utilities Can Spur Energy Efficiency*, Jan. 2011, at www.nrdc.org/energy/doingmoreusingless.asp.

3. M.W. Chupka, *et al.*, *Transforming America's Power Industry*, Brattle Group, Nov. 2008.

4. The states are: California, Connecticut, Idaho, Massachusetts, New York, Oregon, and Vermont. See *State of Efficiency Program Industry Report*, Consortium for Energy Efficiency, Table 6, Jan. 12, 2011, at http://www.cee1.org/ee-pe/docs/Table%206.pdf.

5. The states are: California, Massachusetts, Minnesota, New Jersey, New York, Oregon, Utah, and Wisconsin. Consortium for Energy Efficiency, *supra* note 4, Table 9, at http://www.cee1.org/ee-pe/docs/Table%209.pdf.

6. K. Galbraith, *Why Is a Utility Paying Its Customers?* N.Y. TIMES. Jan. 23, 2010.

7. NRDC Interview with Ric Gale, senior vice president of corporate responsibility, Idaho Power, Jan. 14, 2011.

8. *Demand-Side Management 2009 Annual Report*, Idaho Power, Mar. 15, 2010.

9. *California Restores Its Energy Efficiency Leadership*, Natural Resources Defense Council, Mar. 9, 2010, at http://docs.nrdc.org/energy/files/ene_10030901a.pdf. D. Wang, *Energy Efficiency Continues to Save Money and Cut Pollution in California*, at http://switchboard.nrdc.org/blogs/dwang/energy_efficiency_continues_to.html.

10. Frequently Asked Questions, California Energy Commission, at http://www.energy.ca.gov/appliances/tv_faqs.html.

11. *Shedding New Light on the U.S. Energy Efficiency Standards for Everyday Light Bulbs*, Natural Resources Defense Council, Jan. 2011, at http://www.nrdc.org/energy/energyefficientlightbulbs/files/SheddingNewLightFS.pdf.

12. *Compact Fluorescent Lamps Market Effects Final Report*, Cadmus Group, April 12, 2010. California utilities implemented CFL incentive programs through 2008, resulting in an increase in CFL market share from 1 percent in 2000 to 30 percent in 2008.

13. NRDC Interview with Barrie L. McKay, general manager, regulatory affairs, Questar Gas Company, Jan. 24, 2011.

14. *Id.*

15. Order Approving Settlement Stipulation, Docket No. 05-057-T01, Public Service Commission of Utah, Oct. 5, 2006.

16. Order, Docket No. 05-057-T01, Public Service Commission of Utah, Jan. 16, 2007.

17. *Annual Energy Efficiency Reports*, Questar Gas, submitted to Utah Division of Public Utilities, 2007–2009.

18. Order, Docket No. 09-057-16, Public Service Commission of Utah, June 3, 2010.

19. A study by the American Council for an Energy-Efficient Economy concluded that increasing energy efficiency by 5 percent could reduce natural gas prices by 20 percent. N. Elliott, A. Monis Shipley, S. Nadel and E. Brown, *Impacts of Energy Efficiency and Renewable Energy on Natural Gas Markets*, American Council for an Energy Efficient Economy, Sept. 12, 2003.

20. As the Oregon Public Utility Commission stated in its January 2009 order approving a decoupling mechanism for Portland General Electric: ". . . an individual customer's action to reduce usage will have no perceptible effect on the decoupling

adjustment, and the prospect of a higher rate because of actions by others may actually provide *more* incentive for an individual customer to become more energy efficient.'' See Docket No. UE-901183-T, Third Supplemental Order, April 10, 1991, at 10.

21. K. Costello, *Briefing Paper: Revenue Decoupling for Natural Gas Utilities*, National Regulatory Research Institute, April 2006, at 9.

22. P. Lesh, *Rate Impacts and Key Design Elements of Gas and Electric Utility Decoupling: A Comprehensive Review*, RAP Issueletter, June 2009, at 4, at www.raponline.org/showpdf.asp? PDF_URL=%22Pubs/Lesh-Comp Review DecouplingInfoElecandGas-30 June09.pdf%22.

23. *Id.*, at 5.

24. Unless the utility has a separate mechanism to account for variations from normal weather.

25. D. Bachrach, S. Carter and S. Jaffe, *Do Portfolio Managers Have An* Inherent *Conflict of Interest with Energy Efficiency?* ELEC. J., Oct. 2004, at 52–62.

26. Portland General Electric's Schedule 123, Decoupling Adjustment ''establishes balancing accounts and rate adjustment mechanisms to track and mitigate a portion of the transmission, distribution and fixed generation revenue variations caused by variations in applicable Customer Energy usage.'' See http://www. portlandgeneral.com/our_company/corporate_info/regulatory_ documents/pdfs/schedules/Sched_123.pdf.

27. The Wisconsin Public Service Commission approved a four-year pilot decoupling mechanism for Wisconsin Public Service that captures over- and under-collection of Wisconsin Public Service Corporation's test year revenue collection less monitored fuel costs. See Direct Testimony of Ilze Rukis, Case No. 6690-UR-119, May 15, 2008 and Appendix E, Final Order, Case No. 6690-UR-119, Dec. 30, 2008.

28. The Idaho Public Utilities Commission approved a pilot decoupling mechanism for Idaho Power that includes generation fixed costs. See http://www.idahopower.com/AboutUs/RatesRegulatory/Tariffs/tariffPDF.cfm?id=286.

29. See http://docs.cpuc.ca.govI PUBLISHEDIFINAL_DECISION/37086.htm, California Public Utilities Commission Decision 02-04-055, http://docs.cpuc.ca.govIPUBLISHED/FINAL_DECISION/44820.htm.

30. See Hawaii Public Utilities Commission Order in Docket No. 2008-0274.

31. Central Vermont Public Service and Green Mountain Power both operate under alternative regulation plans with adjustments that ensure utilities collect generation fixed costs. See Public Service Board orders 7175, 7176, and 7336.

32. American Gas Association (AGA) and Natural Resources Defense Council, Second Joint Statement of the American Gas Association and the Natural Resources Defense Council, May 2008, at http://www.aga.org/NR/rdonlyres/CC8D9622-9E61-47F4-9154-BC46302E41DD/0/0805 NRDCAGA2.pdf. Edison Electric Institute (EEI) and Natural Resources Defense Council joint letter to the National Association of Regulatory Utility Commissioners, Nov. 18, 2008, at http://www.eei.org/whatwedo/PublicPolicyAdvocacy/TFB%20Documents/NRDC,%20EEI%20Call%20on%20State%20Regulators%20to%20Help%20Electric%20Utilities%20Make%20Energy%20Efficiency%20a%20Durable%20Business%20Proposition.pdf.

33. D. Hansen and S. Braithwait, *A Review of Distribution Margin Normalization as Approved by the Oregon Public Utility Commission for Northwest Natural*, Christensen Associates Energy Consulting, Mar. 31, 2005, at 37, 41, 42, 46, 75.

34. W. <fn0170>Marcus, California Energy Commission Staff Report on PG&E's Financial Needs, Application No. 60153, California Energy Commission, April 22, 1981.

35. J. Eto, S. Stoft and T. Belden, *The Theory and Practice of Decoupling*, Lawrence Berkeley National Laboratory, 1994, at 32.

36. Order, D.P.U. 09-39, Nov. 30, 2009, at 73.

37. P. Lesh, ''*Rate Impacts and Key Design Elements of Gas and Electric Utility Decoupling: A Comprehensive Review*,'' ELEC. J., June 2009.

38. *Id.*

39. *Id.*

40. See Energy Information Administration, Monthly Energy Review, July 2010, at 91 (retail electricity sales grew from 1,713 billion kWh in 1973 to 3,575 billion kWh in 2009) and 67 (natural gas consumption grew from 22.049 bcf in 1973 to 22.881 bcf in 2009).

41. J. Wharton *et al.*, *The Impact of Decoupling on the Cost of Capital*, Brattle Group, Mar. 2011.

42. This assumes 2 bulbs, 80 kWh of savings per bulb, a distribution rate of $0.035/kWh, and lost revenue collection for 2.25 or 5.5 years.

43. *The Role of Decoupling Where Energy Efficiency Is Required by Law*, Regulatory Assistance Project, Sept. 2009, at http://www.raponline.org/docs/RAP_Schwartz_Issuesletter Sept09_2009_08_25.pdf.