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December 7, 2012

Luly E. Massaro, Commission Clerk
Rhode Island Public Utility Commission
89 Jefferson Boulevard
Warwick, RI 02888

Re: Docket 4366- IN RE: NARRAGANSETT ELECTRIC COMPANY d/b/a NATIONAL GRID'S ENERGY EFFICIENCY PROGRAM PLAN for 2013

Dear Luly:

I enclose ten copies of a supplemental response of the Energy Efficiency and Resource Management Council to the Commission's first data request.

Very truly yours,

R. Daniel Prentiss
EERMC Counsel

RDP/ka
Enclosures
Cc: Service List
874/92/9428

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Rhode Island
Energy Efficiency & Resource Management Council

Overview and Guidance for Utility Performance Incentives

DRAFT FINAL

by:

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Primary authors: Phil Mosenthal, Cliff McDonald

April 30, 2011

EXECUTIVE SUMMARY

Under traditional regulatory structures, most utilities have an inherent disincentive to aggressively and successfully pursue capture of efficiency resources. Typically the main disincentives result from short term lost revenue (between rate cases), as well as reducing the need for new supply-side investments which can increase a utility's ratebase and therefore shareholder earnings. As a result, performance incentives (PIs) can be designed to offset and/or overcome those disincentives, and provide a profit mechanism whereby utilities have incentive (or at least a lack of disincentives) to excel in the capture of efficiency resources. Obviously, the current regulatory framework the utilities operate under can influence aspects of good PI design. For example, if decoupling exists, the risk and financial losses to the utility from efficiency are significantly reduced, and therefore PIs may not need to be as generous. Similarly, even without any decoupling or lost revenue recovery, if utility rates are set based on forecasts that include the expected energy efficiency (EE) savings, then lost revenue may be minimized or eliminated.[1] It is worth noting that there are also long term benefits to utilities from offering efficiency programs by allowing them to build relationships and improve interaction with customers and provide value to them. Particularly in a deregulated environment, this may have significant strategic value to the utility.

In general, there are seven key elements involved in designing a successful shareholder incentive. These elements are discussed in detail in the first section of the report, entitled "Key Elements of Utility Performance Incentives" but are summarized in the table below.

[1] While forecasting EE savings and using this reduced forecast to set rates can remove the loss to utilities from lost revenue, it fails to completely remove the disincentives between rate cases because if the utility does not capture all of the EE savings they can collect additional unanticipated earnings. Similarly, any performance that exceeds planned EE savings can result in a loss to the utility. However, it dramatically reduces the overall impact on lost revenues from EE.

Figure 1: Overview of Key Elements

Level of Financial Reward	Performance Based	Multivariate	Scalable	Penalties vs. Awards	Minimum Criteria	Evaluation, Monitoring, & Verification
Rewards of 4-8% are typically sufficient to encourage utility performance. It is easier to evaluate the size of the reward when it is based on program budget, rather than net benefits or an increased rate of return	Incentives should be based on actual measurable and verifiable performance to avoid perverse utility incentives.	Multiple metrics should be used other than savings in order to discourage cream-skimming and to promote secondary policy objectives	Incentives should scale with performance to encourage performance even once goals have been met (or once it is clear that goals will not be met)	Some states, especially in the West, impose penalties instead of or in addition to awards. Penalties may encourage extra effort to meet goals, though in practice they are very rarely incurred.	Almost all PIs have a minimum threshold below which no incentive is given. Some also use additional minimum qualifying criteria that don't carry any financial incentive themselves.	In order for shareholder incentives to actually encourage performance, goals must be set to be aggressive but reachable, and performance metrics must be verified by an independent third party.

Furthermore, shareholder incentives can be divided into four general structures: performance target, shared savings, rate of return, and Duke Energy's recently proposed Save-a-Watt model. While in theory, the details of the design matter more than the type of structure, in practice each structure tends to naturally address each of the areas above in a somewhat different manner, and tends to result in a different distribution of the benefits of efficiency between the utility shareholders and the ratepayers. Each type of shareholder incentive will be discussed in the section of the report entitled, "Types of Performance Incentive Financial Award Mechanisms".

The final section of the report, entitled, "Overview of State Shareholder Incentives", first provides a brief description of the correlation between the existence of a shareholder incentive in the state, and the level of efficiency spending. It will then go on to describe the details of the Rhode Island shareholder incentive, and compare the Rhode Island incentive structure to that of other states.

KEY ELEMENTS OF UTILITY PERFORMANCE INCENTIVES

LEVEL OF FINANCIAL REWARD

Given the purpose of PIs is to effectively encourage exemplary performance in capturing efficiency resources, a fundamental starting point is to understand the current regulatory structure, efficiency mandates if any, and the financial impacts (both positive and negative) to the utility from efficiency. PI financial rewards should be structured to ensure they are sufficient to effectively motivate utilities, while striving to avoid higher than necessary costs to ratepayers. Experience indicates that rewards in the range of 4-8% of total efficiency portfolio budgets have been sufficient to capture utility staff attention and provide a significant motivator. As is described in the best practices section, the incentives in the states with the most aggressive efficiency programs typically fall within this range, and in Vermont the incentives amount to only 3% of program spending.[2] Some utilities have argued for much higher incentives (sometimes greater than 100% of spending), however there is little evidence that levels greater than 10% at most are necessary for effective motivation. It is worth noting that just the existence of PIs, even when relatively small dollars are tied to a particular metric, can have a very significant motivating factor. For example, many utility staff will be given internal goals that focus on meeting exemplary levels of performance related to PI metrics, and become highly motivated to meet them regardless of the actual impact to the utilities financial bottom line. Similarly, imposition of penalties can often have a large motivating factor because utilities may view a penalty as more negative than failing to earn a reward.

In setting the level of incentives, one should analyze the potential financial and regulatory risk to the utilities, as well as any relevant legislative or regulatory mandates. For example, in Illinois utilities have no shareholder incentives, but instead are mandated by legislation to meet certain goals and failure can result in financial and other penalties.[3] Many stakeholders in Illinois view the mandate to perform efficiency as sufficient motivation and therefore do not support additional ratepayer funding going to the shareholders for what they have to do anyway. In an environment where a utility has wide discretion in setting goals and investments in efficiency more generous rewards may be deemed necessary to encourage aggressive efforts.

Throughout this document, the term "rewards" is generically used to indicate any financial or other incentive that could be positive or negative. We recognize that PIs can include financial or other penalties as well as awards, and discuss this issue below.

PERFORMANCE BASED

While it is convenient to think about the level of financial reward in terms of a percent of program budgets, actual reward mechanisms where reward amounts are a function of spending

[2] Hayes, Sara, et al. Carrots for Utilities: Providing Financial Returns for Utility Investments in Energy Efficiency. ACEEE. January 2011.

[3] Senate Bill 1592. http://www.ilga.gov/legislation/publicacts/fulltext.asp?Name=095-0481&GA=095

or budgets at best fail to focus attention on the real purpose—performance— and at worst can create perverse incentives. For example, if tied to actual spending (as the current RI PI mechanism is), it provides the utility an incentive to be less cost efficient and spend more funds than may be necessary to increase rewards.

PIs should be tied directly to actual outcomes, and where possible avoid rewards for simply undertaking specific actions. Performance parameters should be objective, unambiguous, measurable, and verifiable (through EM&V procedures). Focusing on actions rather than performance can result in utilities doing things simply to achieve a PI, rather than focusing on maximizing the ultimate effects of any actions. For example, simply rewarding a utility for conducting a study, offering a trade ally seminar, etc. may encourage unnecessary actions, and also removes the utility focus on ensuring any actions taken result in positive outcomes. In some instances early on in a utility's tenure offering efficiency programs a few action-related metrics may be justifiable to ensure important steps are taken by the utility deemed essential for ultimate success.[4] However, whenever possible it is best to identify the desired outcomes from these proposed actions and articulate the metric in a way that holds the utility accountable to results. This also allows program administrators a level of flexibility in determining the most appropriate actions that will lead to success rather than being committed to something that was originally planned but perhaps later determined to be less worthwhile.

MULTIVARIATE

Regulators and policy-makers typically have numerous objectives and goals related to efficiency portfolios. Clearly one primary goal is achievement of cost-effective energy savings. However, it is rarely the only policy objective. In addition, many objectives may create some tension — possibly pushing or pulling in opposite directions. For example, a single goal of maximizing energy savings can create a perverse incentive to "cream skim" by focusing only on those resources that are easiest and cheapest to capture. This can undermine other objectives such as to achieve deep and comprehensive savings in buildings; or market transformation in the future; or equity by focusing on low income and hard to reach customers.

PIs should therefore be multivariate, and use a number of different metrics, with varying weights in terms of reward, to provide a fuller, more complex structure of reward and focus for utilities. Typically the highest weight is applied to a primary goal or goals, such as net savings or net benefits achieved. However, it is critical to have other metrics that provide countervailing influences to protect against a singular focus and encourage a comprehensive approach to efficiency portfolios that balance many important and potentially competing policy objectives. Effective PIs may typically have a large share of earnings on the few primary interests, with a handful of other metrics offering smaller earnings or penalties that *in toto* provide a balanced perspective.

In establishing PIs, the first step is to comprehensively consider the primary and secondary objectives of efficiency portfolios. In addition, it is important to identify where these objectives

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[4] These can also be considered for minimum qualifying criteria, as discussed below.

may be either: 1) correlated; 2) opposing; 3) reinforcing; or 4) independent. For example, dollar benefits and electric savings may be highly correlated because typical electric efficiency programs derive the vast majority of benefits from the electric avoided costs. Therefore, while maximizing both the parameters may be important objectives, it may not make sense to have separate metrics and rewards for both. Alternatively, one may desire to focus on both but should then consider the overall weight applied to them collectively when considering importance. On the other hand, opposing objectives such as capturing savings cheaply vs. capturing deep and comprehensive savings may both be important criteria. Therefore, focusing solely on one may result in perverse incentives that undermine the other.

While multiple metrics are worthwhile, too many metrics with small rewards can divert focus and increase risk to the utility unnecessarily. A balance should be achieved that ensures some focus on important policy objectives, while maintaining simplicity and primary focus on the overarching objectives. Typically, a large portion of total award will be on the few primary objectives, with at most a handful of smaller ones with secondary objectives.

SCALABLE

Financial rewards or penalties should be scalable. In other words, the better the performance is the higher the reward should be. A single target where a utility either achieves a reward or not can result in perverse incentives. For example, if a utility is overachieving and meets its annual goal for a reward early, they may relax and not continue to aggressively pursue even better performance. Similarly, if a utility realizes they will not be able to reach the target three months early they may decide not to try as hard to come close. Scalable rewards provide on-going incentives to strive for the best outcome regardless of likely final performance. It also is viewed as fundamentally fairer, and lowers the risk to the utility. This lowered risk should be considered in the overall context of setting goals and levels of reward.

In scaling metrics, one should think about a starting (or threshold) level, a band within which rewards are scalable, and perhaps an upper cap on rewards. Below the threshold level a utility would earn no reward, or perhaps be exposed to a penalty. Threshold levels in recent PI mechanism have tended to range from65% - 85% of planned performance goals. Typically scaling of rewards once a threshold level is reached is done in direct proportion to the performance outcome. However, more complex scaling methods can be used to more heavily weight exemplary performance beyond the design levels. For example, one might structure a PI mechanism so that outcomes up to the design performance goals result in relatively low rewards, with much more generous rewards for utilities that exceed the design goals.

Many existing metrics that rely solely on rewards rather than penalties will design PIs so the utility earns the target level of financial reward if they meet 100% of the design (planned) goals. However, some stakeholders perceive meeting the plans as relatively expected and would prefer to target most of the financial rewards for truly exemplary performance. How one sets targets and financial reward levels should be considered along with the considerations around current regulatory structure, efficiency mandates, aggressiveness of the goals and budgets, risk exposure to the program administrators, and other related issues.

One should give consideration to reward caps. In theory, with scalable metrics one might want to allow unlimited rewards for unlimited performance achievements. This generally will most consistently support goals in jurisdictions where the pursuit of all cost-effective efficiency is desired, and should be considered. However, unlimited rewards can present challenges in some regulatory structures by potentially permitting unlimited ratepayer contributions that can not be planned and approved in advance. For this reason, many PIs will cap the ultimate rewards, typically around 110%-125% of design level targets. The ultimate level of any cap imposed should be set in consideration of the stringency of the goals, the level of risk in meeting or exceeding them the utility faces, the process by which goals are set and evaluated, and the possibility of extraordinary overachievements.

PENALTIES VS. AWARDS

As discussed above, PIs can include both direct financial penalties and awards, and possibly other non-financial incentives.[5] Fundamentally, these can all be viewed the same way – the avoidance of paying a penalty can be seen as the same incentive as earning the correspondent amount, from a purely financial opportunity cost perspective. The regulatory and political environment will likely inform decisions about whether to offer a range of penalties and awards, or only one or the other. Many utilities will see penalties as unfair; however, it is likely they will create similar incentives for performance as awards, as avoiding spending a dollar should provide the same net result as earning a dollar.[6] Different stakeholders will have different views on this issue. Fundamentally, one must consider issues such as: if a utility spends all the budgeted ratepayer funds but fails to capture a reasonable amount of efficiency with it, should the shareholders be held responsible for some of this wasteful spending, or should ratepayers incur the full cost even though they received little benefit? Typically, full cost recovery of efficiency program expenditures is awarded to utilities unless clear evidence or imprudent action is uncovered. Therefore, regulators may decide that there should be some protection to ratepayers if utilities fall below some threshold level of performance.

MINIMUM CRITERIA

Another mechanism to consider in a PI framework is adoption of *minimum qualifying criteria*. While most metrics should allow for scalable rewards, there may be some policy objectives that are viewed as critical to the efficiency portfolio and therefore must be met for a utility to be eligible for *any* rewards. For example, a jurisdiction may want to ensure a relative level of geographic equity throughout its territory as a prerequisite for rewards. Or possibly a minimum

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[5] For example, Illinois utilities face a potential penalty of the State taking over delivery of EE programs if they fail to meet goals over a three year period. Legislation ILCS 5/8-103 (http://www.ilga.gov/legislation/ilcs/fulltext.asp?DocName=022000050K8-103)

[6] From a financial opportunity cost perspective, a utility should be indifferent between a dollar lost and a dollar gained. However, in actuality, it is likely utilities may respond more aggressively to avoid penalties than to earn awards simply because they perceive penalties as associated with failure, where awards are viewed as incentives for exceeding expectations. Of course, from a ratepayer perspective, penalties are preferable because they reduce the cost of EE and provide some funds back if the utilities fail to capture the planned EE.

level of effort targeted to low income customers. Often if there are important milestones that stakeholders want a utility to achieve (e.g., setting up a database, having independent evaluations performed, etc.) that may not by themselves warrant financial rewards, but are deemed necessary but not sufficient to successful performance. Minimum qualifying criteria can be viewed as a threshold level before which *any* awards are deemed earned. If used, minimum qualifying criteria should be designed carefully. Generally they should reflect things that are within the utilities control and don't have huge risk of failure. If a utility is unable to meet a minimum criterion and knows this, it can create a large perverse incentive in that it can render other metrics moot.

EVALUATION, MONITORING & VERIFICATION

While not specific to PI mechanisms *per se*, EM&V plays an important role in development and administration of PIs. As mentioned above, performance metrics should be clear, objective, measurable and verifiable. For PIs to be successfully designed, performance goals should be negotiated or set in a manner that ensures design level targets are aggressive but achievable, and supported by budgets at a reasonable level. If goals are significantly easy to achieve and exceed, PIs will lose their effectiveness at encouraging exemplary performance. The level of goals and utility capability should be considered when setting target levels for reward, as well as the overall scaling mechanism, caps, and financial reward levels.

Similarly, for PIs to be effective and ensure ratepayers are protected, it is important that an independent process is used to measure and verify final achievements and rewards. While typically utilities will self -report achievements, these reports should be based on independent evaluations, be transparent, and at a minimum undergo a detailed review and verification process to ensure accuracy and accountability.

TYPES OF PERFORMANCE INCENTIVE FINANCIAL AWARD MECHANISMS

Performance incentives are typically categorized as one of three types. Recently, Duke Energy has proposed a fourth type of incentive, called "Save-a-Watt," which provides a single mechanism for providing funding to administer the efficiency program, make up for lost revenue, and provide a shareholder incentive. So far, the Save-a-Watt model has only been implemented in Ohio, but Duke has applied to adopt the program in Indiana and Kentucky, and reapplied in North and South Carolina, after the initial application was rejected in both states. Fundamentally, these variations pertain to the way financial awards are calculated and applied. So, in theory all of the above issues can be addressed successfully under any of these models. However, while there is considerable flexibility within each type of PI as the amount, size, and manner in which the incentive is offered, each type has its own set of special considerations. The following table provides a brief overview of each of the four types of performance incentives in use in the United States.

Figure 2: Performance Incentive Comparison

Type	Description	# of States	Advantages	Disadvantages	Average incentive as a % of EE budget
Shared Savings	Incentive is given as a percentage of net benefits from EE	11[7]	• Incentive automatically scales continuously with net benefits. • Naturally awards for amount of net benefit produced, rather than amount spent	• Evaluating net benefits is not a science, and can be contentious, resulting in greater need for formal evaluations and potentially more disagreements • Can often lead to higher incentives than necessary to encourage utility performance • In practice tends to discourage focusing on other important objectives by setting award levels based on net benefits only. However, in theory other metrics could be designed and included, with the net benefits simply identifying the total pot of funds to potentially be awarded, rather than guaranteeing the amount just for obtaining net benefits.	14% of program spending

[7] Washington State has a shared savings and a performance target component to its incentive, and is included in both categories

Type	Description	# of States	Advantages	Disadvantages	Average incentive as a % of EE budget
Performance Target	Incentive is tied directly to various performance metrics. Total amount of eligible incentive typically developed prior to implementation and not a function of share of net benefits, rate of return, or some other formula.	6	• Straightforward to set multiple performance metrics based on multiple policy goals. • Easy to provide incentives for goals that are difficult to measure • The amount of the potential incentive is transparent and easily calculated • Allows regulators to set limits on incentive amounts and protects ratepayers from excessive and unanticipated earnings. Keeps earnings independent of other utility issues such as supply-side investments.	• Incentive amounts typically capped, so less incentive to continue to perform after reaching a maximum.	6% of program spending
Rate of Return	Allows the utility to earn their allowed rate of return or higher on EE program costs, or to earn a bonus rate of return based on EE performance	1	• Arguably puts efficiency spending on equal footing as supply-side investments • Can be attractive to utilities because can potentially provide large profits and most visible to shareholders and financial community	• Supply-side investments are often still more attractive, due to larger size. • Incentives calculations can become very complex. • Difficult to apply minimum performance metrics to incentive. • Incentive is not paid out immediately. • Potential for utilities to earn very large windfall profits exists if not designed very carefully because can tie to total utility earnings on a very large ratebase • Does not work for non-utility program administrators.	N/A

Type	Description	# of States	Advantages	Disadvantages	Average incentive as a % of EE budget
Save-a-Watt	Allows the utility to earn a percentage of their authorized rate of return on avoided supply-side costs due to EE programs.	1[8]	• A single mechanism provides for program costs, lost revenue recovery, and performance incentives • Arguably puts EE on a more equal footing with supply, by allowing utility to earn most of the value compared to what would have been spent on supply-side resources	• Can be much more expensive to ratepayers than other types of PIs. Typically provides most of the value of EE to shareholders rather than ratepayers, although in theory it could be designed to offer similar award amounts • Difficult to apply minimum performance metrics to program. • Incentive not paid out immediately • Potentially difficult to administer, as avoided costs and other factors can change, resulting in more potential for disagreements.	N/A

Shared Savings Model

The shared savings model is currently the most commonly implemented type of performance incentive. Under the shared savings model, utilities receive a percentage of the net economic benefits from the efficiency program. Key considerations when implementing a shared savings performance incentive include:

- **Performance Based:** A key advantage of the shared savings model is that it is inherently performance based. Since maximizing net economic benefits is the primary goal of most efficiency programs, shared savings incentives naturally align utility incentives with this major policy objective.
- **Multivariate:** Shared savings incentive mechanisms naturally encourage both savings and cost-effectiveness. This is because the more cost-effective an EE program, the greater the benefit (and thus the incentive) will be for the same amount of program spending. Adding other goals, for example relating to market transformation, is theoretically possible though rarely implemented. This is partly because it can be difficult to estimate the ultimate fiscal impact of, for example, increasing the percent of net benefits received. As a result, it is difficult to provide a balanced portfolio of policy incentives under this approach. For example, a shared savings model can encourage cream skimming at the expense of comprehensive savings. In theory, one can use the shared savings model simply to define the total amount of funds eligible for award, with multivariate metrics to encourage other objectives to earn a portion of the award. However, this approach effectively will end up similar to a performance target mechanism.
- **Scalable:** Shared savings incentives naturally scale linearly with the amount of economic benefits. In most implementations, the percentage of the benefits received also increases once certain savings thresholds are passed. For example, a utility may receive 6% or net benefits for achieving 85%-100% of the goal, but 8% of net benefits for achieving over 100% of the goal. To protect ratepayers from having to pay out very large amounts, the total incentive is often capped at a percent of program spending (as opposed to net benefits).
- **Evaluation, Monitoring & Verification:** The size of the incentive is highly dependent on evaluated net economic benefits. This creates many potential areas of contention, such as net-to-gross ratios, how non-energy benefits are included and calculated, the precise definition of net economic benefits, and how the third party EM&V process will be used to adjust savings claims. This is a key disadvantage of the shared savings model; in California, for example, the evaluators found much lower net-to-gross ratios than anyone had expected. The resulting reduction in net benefits created uncertainty as to whether the minimum performance threshold for an incentive was even reached, and the resulting controversy caused long program delays. In order

to avoid uncertainties such as this, it is important to set clear expectations as to how net benefits will be measured and how reported savings will be adjusted based on evaluation results. These issues apply to any model, however, tying incentive amounts directly to net benefits fundamentally raises the importance of some issues around uncertainty, such as avoided costs, cost-effectiveness calculations, certainty of non-energy benefits, etc.

Performance Target Model

The performance target model is the second most implemented type of performance incentive. Under this model, the total incentive amount is defined up front, and awards are dependent on the utility's ability to reach one or more performance metric such as energy savings. In practice, many jurisdictions set the total incentive amount as a percentage of EE portfolio funding; however, the earnings are tied to performance. Many of the leading states for efficiency use the performance target incentive due to its ability to transparently allocate incentives based on multiple performance metrics, and its ability to clearly define potential costs to ratepayers. Key considerations about the performance target model include:

- **Performance Based:** Although it is conceivable that a utility could receive a percent of total program costs regardless of its ability to reach performance goals, this does not happen. Indeed, the name Performance Target implies that the incentive is only available if some minimum performance is achieved. Care should be taken to avoid designing a PI mechanism that gives awards for simply performing certain actions rather than achieving measurable outcomes.
- **Multivariate:** It is very easy to apply multiple performance targets as a condition to getting the full incentive. For example, if the PUC believes that one goal is twice as important than a secondary goal, then, for a total incentive of 9% of efficiency spending, 6% would be available for meeting the primary target and the other 3% would be available for meeting the secondary target. As an added advantage, it is very easy for utilities and other stakeholders to calculate in advance how much money is at stake for meeting each target.
- **Scalable:** The performance target incentive is not quite as naturally scalable as the other incentive models. However, it is very easy to make the incentive scale with increasing performance in each metric, and this is typically done. Rhode Island's current PI mechanism is an example of this. See the Best Practices section for some examples of how this is done in practice.
- **Evaluation, Measurement, and Verification:** While similar controversies over net-to-gross ratios exist in the performance target model and the shared savings model, the contention is somewhat mitigated since the incentive amount is not typically so intertwined with net economic benefits. Further, issues regarding non-energy benefits, cost-effectiveness screening methodology, and avoided costs are often avoided entirely.

Rate of Return Model

The Rate of Return model was very common in the 1980s, but has fallen out of favor as efficiency expenditures are not typically capitalized anymore. This model was in use until recently in Nevada, where it has now been replaced by a lost revenue recovery mechanism, and in Wisconsin, where it only applies to a single low interest loan program for C&I customers, run by Wisconsin Power & Light. Under the rate of return model, all efficiency expenditures are capitalized over the average life of the measures installed, and earn a similar rate of return as supply-side investments. In Nevada, in addition to recovering program costs through rates, the utilities could earn a rate of return on the investment 500 basis points over the allowed rate of return for supply-side investments. The supposed benefit of this approach is that it puts efficiency on equal financial footing with new supply. However, many argue that supply side investments are still more attractive financially than efficiency, since supply side investments are usually much larger in size, and therefore offer much higher total potential earnings.

A twist on the above rate of return model that has been proposed does not capitalize EE investments as part of the ratebase utilities earn a rate of return on, but rather provides an incentive in the form of some additional basis points added to the current utility rate of return on its existing ratebase. This approach can be viewed as simply defining the total incentive award differently, and can be designed to look very similar to a performance target or shared savings model in practice. However, because a utility's total ratebase is typically far larger than EE investments, extreme care must be taken to ensure that the basis point adjustments are extremely small, and do not result in unanticipated large windfalls to utilities from small improvements in EE performance. For this reason, other models are generally preferred.

- **Performance Based:** While it is theoretically possible to make a rate-of-return incentive performance based, the formulae may get fairly complicated. Both states currently giving rate of return incentives give the same incentive regardless of actual program performance. As a result, these mechanisms tend to focus on spending rather than performance.
- **Multivariate:** While it is theoretically possible to create a multivariate incentive structure, the calculation will get fairly complex, and no examples currently exist.
- **Scalable:** Rate of return incentives scale with program spending, typically regardless of the actual savings. This potentially creates a situation where the utility has a financial incentive to run expensive but less cost-effective efficiency programs.
- **Evaluation, Measurement and Verification:** Since energy savings targets are not usually included in this incentive mechanism, any EM&V activities will not affect the size of the incentive.

Duke's Save-a-Watt Model

In 2007 in North Carolina, Duke Energy proposed a unique performance incentive mechanism it called "Save-a-Watt." Duke argued that in order for energy efficiency to be viewed as equivalent to supply-side investment, a utility would have to be compensated in an amount roughly equal to what it would have spent on supply-side resources in the absence of efficiency programs. Thus the proposed Save-a-Watt model would compensate Duke 90% of the net present value of the avoided costs of the efficiency program. This sum of money would be enough to cover program expenses, lost revenue recovery, and shareholder incentives. In essence, Duke proposed that 90% of the benefits of EE accrue to shareholders, with only 10% being retained by ratepayers.

The Save-a-Watt Model has the significant disadvantage that it makes efficiency almost as expensive as supply to the ratepayers. Further, this structure arguably makes efficiency much more financially attractive than supply-side investment, since most of the avoided costs represent costs for the materials and labor for power plants, and not profit for the utilities. Therefore, a large portion of the costs avoided thanks to efficiency that would otherwise have gone into the material, labor, and fuel for new supply, can now be kept as profit for the utilities. In theory, the model could be used with a lower portion of avoided costs accruing to shareholders, and designed to offer similar awards as other mechanisms. However, even then, this model can encourage cream skimming and result in other perverse incentives.

The original Save-a-Watt program got rejected by the PUCs of North and South Carolina. However, Ohio has adopted a version which enables Duke to receive 50% of avoided energy costs, and 75% of avoided demand costs. On top of this, Duke will receive lost revenue recovery for at least the first three program years. The model is quite controversial in Ohio, and the lost revenue recovery mechanism is currently being challenged by the Ohio Consumers' Counsel. Furthermore, measuring energy savings is extremely contentious under the Save-a-Watt model, as the entire premise of the model falls apart if the efficiency programs aren't actually avoiding new supply. Nevertheless, Duke is pushing ahead with implementation – it has applied to implement the program in Indiana and Kentucky, and reapplied in North and South Carolina.

- **Performance Based:** The size of the incentive is inherently tied to avoided costs, which increase directly with the kWh and kW savings. This creates a natural alignment of utility incentives and a major policy goal. Further, significantly under-performing efficiency programs have the potential to not even recover full program costs.
- **Multivariate:** Since the Save-a-Watt mechanism is designed to pay for program delivery, lost revenue recovery, and performance incentives, it can be very difficult to separate in advance the portion of the award that is profit to the utilities from the portion that is used for lost revenue recovery and program administration. Since the avoided costs are capitalized and earn a ROI, it is theoretically possible to increase the earned ROI based on performance in secondary metrics. However, these calculations can become

even more complex and opaque than in the rate-of-return model, since even the amount of funds to be capitalized is unknown in advance. This makes it very difficult to design a save-a-watt type mechanism that does not simply encourage cream skimming, or that focuses attention on other policy objectives.

- **Scalable:** The amount of money received from the Save-a-Watt model naturally scales with avoided costs, and thus kWh and kW saved. The Ohio version provides another layer of scaling by increasing the earned ROI on the capitalized avoided costs in tiers as the efficiency goals are met and exceeded. However, as noted above, if pursuing a multivariate approach that encourages addressing other policy objectives besides capturing maximum avoided cost benefits, scaling becomes difficult because the amount of money available is integrally tied only to a single metric.
- **Evaluation, Monitoring & Verification**: Since the "Save-a-Watt" model typically distributes a much greater portion of the benefits to shareholders, rather than ratepayers, it is vital that all stakeholders are confident that the benefits claimed are real, and that the efficiency programs are in fact avoiding supply-side costs. Under this model, the precise value of uncertain parameters such as net-to-gross ratios and avoided cost definitions can make an enormous difference to the utilities bottom-line, and thus the M&V process is likely to be quite contentious.

Distribution of Benefits

One important policy consideration when designing performance incentives is how much of EE's benefits should go to utility shareholders versus the ratepayers. The larger the incentive, the more of the net benefits from efficiency flow to the utility stockholders (or non-utility program administrators), rather than showing up as lower electric bills. Each type of incentive clearly has lots of flexibility as to how large the incentive will be. However, as commonly implemented, the four types of PIs show different approaches to distributing efficiency's benefits.

A 2008 LBNL study[9] quantitatively examined the effect of each performance incentive model, as commonly implemented, on utility earnings, and the total resource cost and benefits of efficiency programs. Some key findings include:

- Assuming equal performance of EE programs under all models, ratepayers see the most benefits with no performance incentive, followed by a performance target, cost capitalization, shared net benefits, and finally Save-a-Watt.

[9] Cappers, Peter, et. Al. Quantitative Financial Analysis of Alternative Energy Efficiency Shareholder Incentive Mechanisms. Ernest Orlando Lawrence Berkeley National Laboratory. 2008.

- Compared to EE without an incentive, the performance target model raises the total resource cost by 10%, cost capitalization model by 20%, Shared Net Benefits by 35%, and Save-a-Watt by 160%
- EE does not pass the total resource cost test under the Save-a-Watt model, and utility earnings under this model are significantly higher than what they'd be with no efficiency.[10]

It is important to note that the ACEEE findings are based on current practices, and in some cases the findings are not inherent in the models, so much as in the typical application of these models. For example, the Save-a-Watt model might show much more favorable results to ratepayers if the percent of avoided cost awarded to the utility were much smaller. However, it is not clear this would provide sufficient motivation to the utility, and the models do tend to lend themselves to fundamentally different approaches.

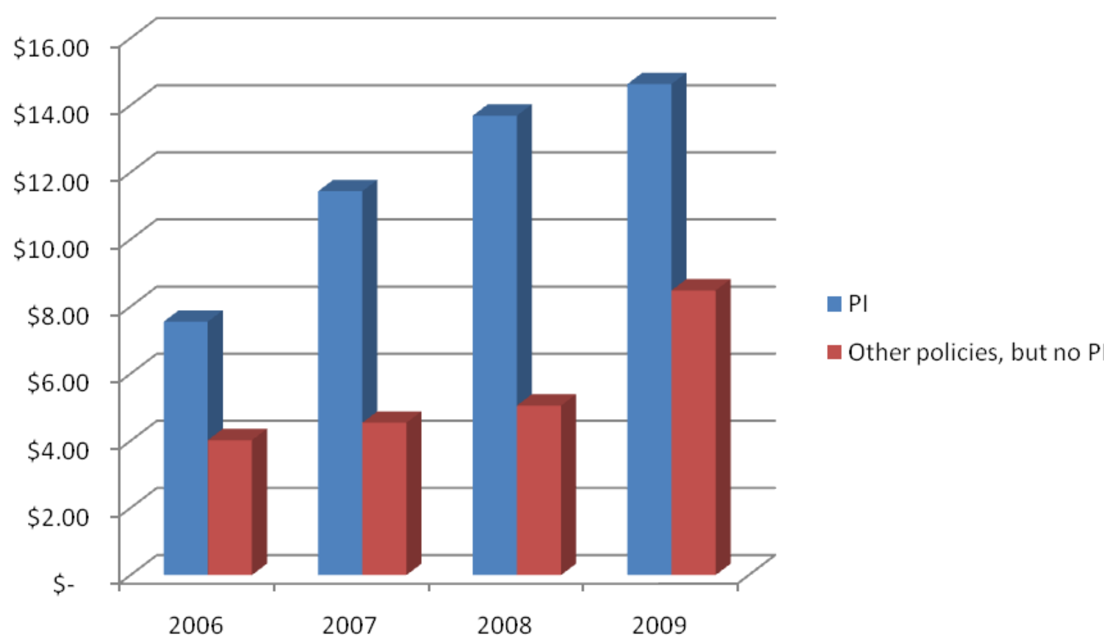
[10] Essentially, if one assumes the payments to the utility under Save-a-Watt reflect the "costs" of the program, then unless they are a small percentage of avoided cost benefits, the addition of customer contributions to efficiency tend to result in a total cost of greater than the avoided cost benefits. As a result, while the savings are cheaper than supply, the ratepayers ultimately spend more than supply to procure the savings.

RHODE ISLAND INCENTIVE APPROACH AND OTHER EXAMPLSE

SHAREHOLDER INCENTIVES AND EFFICIENCY SPENDING

Although it is very hard to separate the effects of a performance incentive mechanism from all other policies in the state, many of the states that are leading the way in efficiency programs have some form of performance mechanism in place, and there is a very strong correlation between having a performance incentive and the level of efficiency spending.[11] As Figure 3 shows, this correlation remains even when comparing states with a PI to states with decoupling or other policies meant to encourage EE, but no performance incentive[12]. The fact that this correlation persists even in comparison to states with other policies to encourage efficiency, but no shareholder incentive, is a strong indication that shareholder incentives greatly encourage increased funding for energy efficiency.

Figure 3: Utility EE Spending Per person (with and without PI)



[11] It is important to note, however, that correlation does not necessarily mean causality. It is certainly possible that those states with the most aggressive policy approach to funding and capturing EE resources are also the most likely to develop a PI mechanism to encourage utility performance. However, there is some evidence that PIs do indeed encourage greater program administrator performance. See, for example, Nadel, et. al., *Does the Rat Smell the Cheese?*, ACEEE 1992.

[12] Hayes, Sara, et al. Carrots for Utilities: Providing Financial Returns for Utility Investments in Energy Efficiency. ACEEE. January 2011.

INCENTIVE STRUCTURE COMPARISON AND OVERVIEW

This paper does not attempt to separate the effect of shareholder incentive with the effect of other EE related policies in the states. Rather, it examines the incentive mechanisms in place in states with leading EE programs and results. The table below gives an overview of the shareholder incentive structure in Rhode Island and these top states. Wisconsin is not given a detailed narrative, since it is rate-of-return incentive only applies to a very limited program. The majority of savings in Wisconsin come from the third-party administrator, Focus on Energy. However, investor owned utilities (IOUs) are allowed to run voluntary programs in addition to their required contributions to Focus on Energy. Expenditures on one such voluntary program, run by Wisconsin Power & Light for C&I customers, are allowed the same rate-of-return as WP&L's supply sight investments

Figure 4: Shareholder Incentive Comparison

	Rhode Island	New Hampshire	California	Connecticut	Massachusetts	New York	Wisconsin	Vermont
Type of Performance Incentive	Performance Target	Performance Target	Shared Benefit	Performance Target	Performance Target	Performance Target	Rate of Return	Performance Target in form of payments to 3rd party efficiency provider. Note the utilities do not implement programs in VT, so the need to overcome disincentives is removed. As a result, total financial levels are lower than might be the case under a utility model.

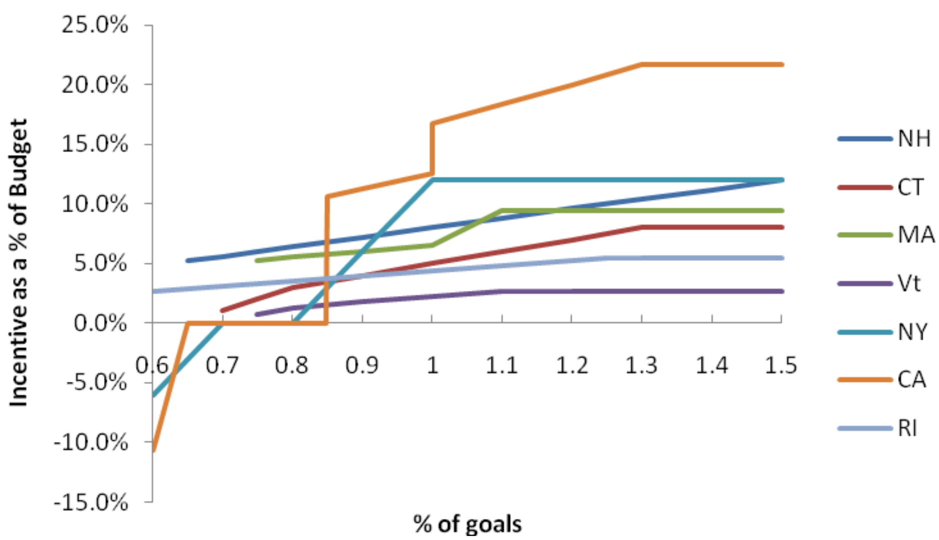
	Rhode Island	New Hampshire	California	Connecticut	Massachusetts	New York	Wisconsin	Vermont
Reward Metrics and Levels	Up to 5.5% of program costs	Up to 12% of program costs	up to 12% of net benefits	Up to 8% of program costs	Reward Structure varies by program; Up to 5.5% of program costs, based on performance in three categories: savings, cost-effectiveness, and program performance (contractors trained, buildings benchmarked, etc)	Up to approximately 20 basis points on the earned ROE, or 12% of program cost.	Wisconsin Power & Light receives the same rate of return on efficiency and supply side investments, regardless of energy savings achieved	Set in formulas for each 3-year contract with efficiency provider. 2006-2008 contract payment is based on 8 metrics such as energy and demand savings, geo-targeting, and participation rates.
Efficiency Goals	Legislative mandate for all cost effective efficiency. Annual goals set by utilities w/ approval from PUC and EERMC	Set by utilities, with approval from PUC.	Set by PUC; Slightly less than 1% of annual retail sales	All achievable potential	Set by legislature; All cost effective efficiency, or about 2.4% of sales a year starting in 2012	Set by legislature; about 0.5% of sales in 2008, ramping up by about 2% per year through 2015.	Set by PSC; ramping up to 1% of sales in 2013	Set by PSB; ~2% of sales

	Rhode Island	New Hampshire	California	Connecticut	Massachusetts	New York	Wisconsin	Vermont
Tiered incentive rates?	No; same $/kWh between 60% and 125% of goals.	No; 8% of budget for achieving goals, scales linearly up to 12% as goals are exceeded	9% of net benefits for 85-100% of sales; 12% of net benefits for >100% of sales	1% of costs for 70% of goal; 5% for 100% of goal; 8% for 130% of goal	Different incentive amounts for "threshold", "design", and "exemplary" performance for each of three categories and for each program	No; a flat rate of $38.85 per incremental MWh saved, from 80% of target to 100% of target.	WPL gets the same rate of return regardless of investment size	Yes, each metric has a threshold level (often 75% of goal) with a minimum incentive. Incentive scales linearly up to 100% of goal. There's a bonus incentive for exceeding the goals in multiple categories.
Minimum Criteria	60% of savings goals	65% of savings goals or 1.0 BCR	Must achieve 85% of savings goals	70% of savings goals	Must achieve 75% of goals	80% of savings goal	N/A	Each metric has a threshold level where they get a % of the full incentive for that category. Often 50% incentive at 75% of target.
Incentive Ceiling	5.5% of program costs	12% of program costs	$150 million per year (<1% of annual customer costs)	8% of program costs	5.5% of program costs post tax, or 8% pretax	100% of savings goal, approximately 12% of program costs	N/A	$2,632,000 from 2009-2011, or roughly 2.7% of estimated program costs

	Rhode Island	New Hampshire	California	Connecticut	Massachusetts	New York	Wisconsin	Vermont
Penalties	None	None	the greater of the negative net benefits, or $0.05/kWh and $25/kW below 65% of goals. Capped at $150 million/year	No	No.	Penalty of $38.85 per every MWh lower than 75% of goals.	N/A	No explicit mechanism. May be risk of not getting contract renewed.
Decoupling/Lost Revenue Recovery	Decoupling authorized in 2010. Utilities must submit proposals to PUC.	no	Decoupling	Decoupling	Decoupling	Decoupling	Decoupling piloted	Decoupling, although programs are not delivered by utilities so is not relevant to the PI mechanism in VT.
Actual Award as % of Program Costs (Latest Available Data)	4.6% (2006)	11.56%	7.5% (Subject to change pending evaluation results)	4.7% (planned)	5.16% post tax	Nothing received so far. 2009-2011 goals have been combined	N/A	3.63% for 2006-2008, out of 3.68% possible. Incentive has gone down as % of spending for 2009-2011.

The following chart provides a rough visualization of how the performance target type incentives listed in the table above scale as performance goals are met and exceeded. A number of simplifying assumptions are made; for example, in the case of multivariate incentives, all performance is assumed to reach the same percent of the goal for all metrics. Only states with performance target style incentives are included, due to the difficulty in comparing net benefits to total program budget.

Figure 5: Incentive Scaling with Performance by State



As seen above, the size of the Rhode Island incentive is fairly in line to that of other states, although relatively lower as a percent of program spending. Furthermore, the reward starts at a lower threshold (60% of goals) than any other state; New York and California utilities would both be forced to pay penalties at 60% of savings goal, as opposed to the 2.6% incentive that the RI utilities would receive. Further, the RI incentive structure is relatively flatter than the incentive for other states. Arguably, flatter incentives do less to encourage utility incentives than steeper incentives, even if the overall incentive is the same level. This is because the decision for the utility to pursue an additional kWh of savings is based on the marginal incentive per kWh, not the overall incentive. The steeper the slope in the graph above, the higher the marginal incentive per kWh saved, and thus the more motivated the utility will be to achieve the extra kWh in savings. The California data are very rough estimates, since the percent of program budget depends on the cost-effectiveness, but are in general quite generous. This generosity is balanced by the existence of a penalty, and by the aggressiveness of the CA goals, which will be discussed in greater detail below. The Vermont incentive does not have to be large as the other states, since efficiency programs are not run by utilities, and thus there is no disincentive to remove.

RHODE ISLAND PERFORMANCE INCENTIVE

	Financial Level?	Performance Based?	Multivariate?	Scalable?
Rhode Island	4.4% of efficiency spending for 100% of goals. Cap of 5.5% of spending.	Yes. Incentive based on energy savings. The kWh saved is measured based on planning assumptions, regardless of the findings from any evaluations.	No	Yes Scales linearly with MWh saved from 60% of goals to 125% of goals.

Rhode Island has a performance target style incentive with the single performance metric of kWh saved. The Rhode Island incentive per kWh saved is determined per sector, by dividing 4.4% of the efficiency budget by the kWh savings target, to find the $/kWh incentive rate in each sector. Since Commercial and Industrial programs are typically more cost effective than residential programs (more kWh saved per program dollars spent), this means that the incentive per kWh is lower for the C&I sector than for the residential sector. Below 60% of the annual savings goal, no incentive is given. At 60%, the incentive jumps to 60% x 4.4% = 2.64% of efficiency program spending. This scales with performance until utilities reach 125% of goals, or 5.5% of program spending. The table below shows the RI shareholder incentive calculations for 2011[13].

Sector	Spending Budget	Incentive Rate	Target Incentive - Annual kWh Savings	Annual kWh Savings Goal	Threshold kWh Savings	Target Incentive per KWh	Incentive Cap - Annual kWh Savings
Low Income Residential	$5,725,360	4.40%	$251,916	3,091,064	1,854,639	$0.081	$314,895
Non-Low Income Residential	$14,258,907	4.40%	$627,392	30,955,977	18,573,586	$0.020	$784,240
Commercial & Industrial	$25,300,109	4.40%	$1,113,205	68,580,392	41,148,235	$0.016	$1,391,506
Total	$45,284,376	4.40%	$1,992,513	102,627,433	61,576,460		$2,490,641

The RI shareholder incentive mechanism includes many of the aspects discussed in the previous section:

- **Performance Based:** The Rhode Island incentive is based on kWh. However, the threshold to achieve an incentive, at 60% of the kWh savings goals, is

[13] Rhode Island PUC. Docket 4209. Attachment 5, Table E-9.

fairly low. As will be seen in the next section the threshold for most states is in the 75%-80% range, with a nationwide average of 81% of the savings goals.

- **Multivariate:** The RI incentive is not multivariate – it is determined solely on the basis of kWh savings.
- **Scalable:** The size of the RI shareholder incentive scales linearly with performance, until actual performance reaches 125% of the goal. There are no tiers which cause the incentive amount to jump up once certain performance thresholds are passed.
- **Evaluation, Monitoring & Verification**: The performance metric used is both measurable and verifiable. However, although the programs are evaluated, the evaluation results are not used to adjust the reported savings and the shareholder incentive, but rather to inform the planning assumptions for the following year.

NEW HAMPSHIRE PERFORMANCE INCENTIVE

	Financial Level?	Performance Based?	Multivariate?	Scalable?
New Hampshire	0-12% of spending	Yes, but with limitations Incentive based on gross savings and cost-effectiveness combined. Can reach incentive with one and not the other. Focus on gross impacts ignores net performance	No. Omits important policy objectives and focuses on only two metrics. In addition, these two metrics are combined into a single award, and are highly correlated. Must achieve 65% of savings goals or a minimum 1.0 cost-effectiveness	Yes Scales linearly with ratio of actual results to goals.

New Hampshire has had a Performance Target style shareholder incentive since 2003. In the 2011-2012 CORE Program Settlement agreement[14], a working group was charged with further examining the structure of the incentive, to find ways it could be better aligned with energy efficiency goals. In addition, the incentive calculation was changed to be based on actual EE expenses rather than budgeted expenses, to avoid double counting if funds were carried over from one year to the next. The incentive will not be applied to expenses for more than 5% over the budget, although utilities can apply for exemptions on a case-by-case basis. The major aspects of the shareholder incentive, however, remain unchanged. It is calculated using the following formula:

$$Incentive = (4\%\ x\ Budget)x\left(\frac{BC_{Act}}{BC_{Pre}} + \frac{kWh_{Act}}{kWh_{Pre}}\right)$$

Where:

Incentive	= Shareholder Incentive
Budget	= Actual EE program expenditures (assuming not more than 5% over planned budget)
BC_{Act}	= Evaluated Benefit-to-Cost Ratio
BC_{Pre}	= Planned Benefit-to-Cost Ratio
kWh_{Act}	= Actual gross kWh savings achieved
kWh_{Pre}	= Planned gross kWh savings

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[14] NH PUC. Docket No. DE 10-188. http://www.puc.nh.gov/Regulatory/CASEFILE/2010/10-188/LETTERS,%20MEMOS/10-188%202010-12-15%20JT%20CORE%20&%20GAS%20SETTLEMENT%20AGREEMENT.PDF

In addition, the following conditions apply:

- The shareholder incentive is calculated separately for the residential and C&I sectors
- If the Benefit-to-Cost ratio is less than 1.0, there is no incentive associated with that metric
- If actual gross kWh savings is less than 65% of the goal, there is no incentive associated with kWh savings.
- The total incentives for the Residential and C&I sectors are capped at 12% of their respective budgets

The main differences between the New Hampshire mechanism and the Rhode Island mechanism include:

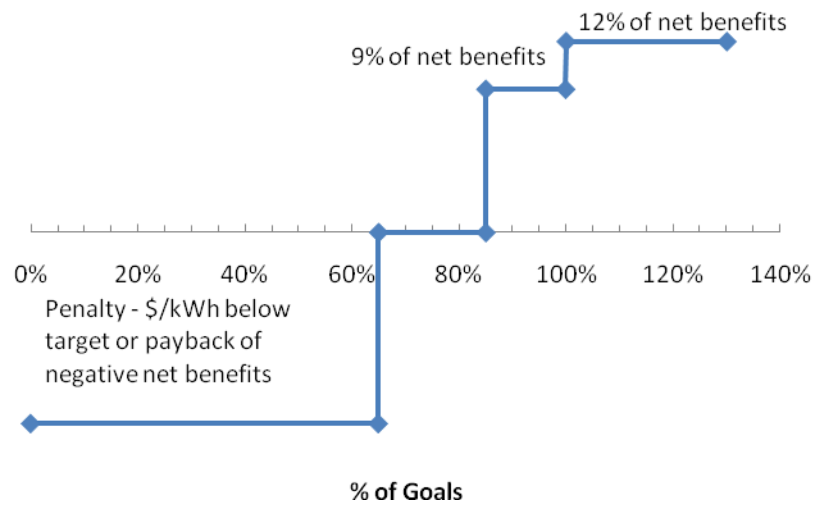
- **Incentive based on gross savings:** The New Hampshire incentive is based on gross savings, rather than net savings. This provides a strong incentive for the utility to focus on inexpensive measures with high savings, but also high market penetration and free-ridership rates.
- **Size of Incentive:** The New Hampshire incentive is significantly larger than the Rhode Island incentive, starting at 5.2% of spending at 65% of goals, and growing to 12% of spending at 150% of goals.

CALIFORNIA PERFORMANCE INCENTIVE

	Financial Level	Performance Based?	Multivariate?	Scalable?
California	$150 million per year penalty to a maximum of 12% of net benefits.	Yes. Based on evaluated net savings	Yes, with limitations. Must achieve a minimum of 80% of MW, GWh, and MMtherm goals AND an average of 85% of goals. However, incentive only scales with net benefits, and does not include secondary policy objectives.	Yes. scales with benefits, and incentive jumps from 9% of benefits to 12% once goals are reached

California has adopted a shareholder incentive mechanism for three year program cycles, starting in 2006-2008. In order to qualify for an incentive, the utility must meet a minimum of 80% of the goals for MW, GWh, and MMtherms, as well as 85% goals in all 3 categories, using a simple average. For this level of performance, the utility receives 9% of net benefits. This increases to 12% of benefits if 100% of the goals are met. The total incentive cannot exceed $450 million over 3 years. A penalty is incurred if the savings fall below 65% of goals. The penalty is the larger of a per unit charge per shortfall under goals, or all negative net benefits from the program, and is capped at the $450 million over three years. The figure below provides a visualization of how the incentive and penalty changes as performance increases in comparison to goals.

Figure 6: California Incentive Structure



The savings goals for this program cycle were extremely aggressive; the goals were set to be higher than had ever been achieved in the past, and even the penalty threshold of 65% of the savings goals was higher than the actual efficiency achieved in any year between 1995 and 2003.

The incentives are paid in annual installments, with the third installment of every 3-year program cycle containing a true-up based on the results of a third party evaluation. Considerable controversy occurred in the 2006-2008 evaluation, when evaluators found net to gross ratios low enough that it meant some programs did not even meet the minimum threshold. This has yet to be fully resolved, but the utilities will probably end up earning around 1-2% of total profits as a performance reward[15].

Key differences between California's mechanism and Rhode Island's mechanism include:

- **Savings adjusted based on evaluation results:** California's incentives or penalties are assessed on a 3-year program cycle basis. Actual savings are evaluated in every program cycle, and the rewards or penalties are trued-up based on the evaluated net savings. RI, by contrast, evaluates programs, but the results are not trued-up to be used to calculate the shareholder incentive.
- **Tiered Incentive Structure:** Once utilities achieve at least 100% of goals, the incentive jumps from 9% of net benefits to 12% of net benefits. These jumps provide significant extra encouragement for utilities to pass certain thresholds of savings.
- **Penalty for failure to achieve goal:** A scalable financial penalty is enacted once program savings fall below 65% of goal, and no incentive is given unless the utilities reach a minimum of 80% for all savings targets (kW, kWh, and therms) and an average of 85%. By contrast, RI utilities receive an award of 2.86% of budget at 65% of the savings goals.

15 http://switchboard.nrdc.org/blogs/dwang/cpuc_shows_progress_making_eff.html

CONNECTICUT PERFORMANCE INCENTIVE

	Financial Level	Performance Based?	Multivariate?	Scalable?
Connecticut	1%-8% of program budget.	Yes. Incentive dependent on measurable targets. Must achieve minimum of 70% of goals to achieve incentive.	Yes. Savings and cost-effectiveness goals consist of about 80% of the total incentive. The remainder is determined by program-specific goals.	Yes Scales with performance until savings exceed 130% of goal.

Connecticut's performance incentive is based on multiple goals for each EE program that are updated and evaluated yearly. Each goal is given a weighting factor based on the importance of the goal to the PUC, and calculated with:

$$Incentive = Total\ Spending\ (minus\ admin\ expenses) \times weight \times \%\ incentive$$

The program must achieve a minimum of 70% of the goal, at which the incentive rate is 1%. The incentive rate climbs to 5% for achieving 100% of goal and 8% for achieving 130%. See below for the approved 2011 performance metrics and weighting.[16] These performance metrics represent the roughly 80% of the incentive to be given for value. Note that although it looks like a whole ton of metrics, they are mostly built around getting savings and value, so they may not amount to much more than the savings metric used by RI. However, the other 20% of the incentive is based on program specific actions, and thus encourages utility action in a broader range of areas..

Description	**Approved Weight**	**Approved CL&P $(000)**	**Approved UI $(000)**
HES $/kWh	0.0124	$50.0	$12.1
HES $/kW	0.0124	$50.0	$12.1
RNC $/kWh	0.0124	$50.0	$12.1
RNC $/kW	0.0124	$50.0	$12.1
Performance Contract	0.0100	$40.4	$9.8
Long term Goals	0.0248	$100.0	$24.3
C&I code curriculum & Training for building trades	0.0100	$40.4	$9.8

[16] DPUC Docket 10-10-03

All Res. Programs Sector Budget	0.1448	$584.3	$141.8
Net Res. Electric Sys. Benefit	0.1448	$584.3	$141.8
C&I Programs Sector Budget	0.2105	$849.7	$206.2
Net C&I Electric Sys. Benefit	0.2105	$849.7	$206.2

It is worth noting that a recent investigative report to the Connecticut Legislature has suggested the utilities have too much control in setting goals (the IOUs almost always receive at least 5% of the budget) and in setting the EM&V process.

Key differences between the shareholder incentive mechanisms in Connecticut and Rhode Island include:

- **Multivariate:** The Connecticut mechanism awards performance in numerous metrics including, awareness and long term training goals. The RI shareholder incentive is based solely on kWh savings..

MASSACHUSETTS PERFORMANCE INCENTIVE

	Financial Level	Performance Based?	Multivariate?	Scalable?
Massachusetts	Up to 9.4% of program budget (pre tax)	Yes. Must achieve the threshold level for the specific metric.	Yes. Multiple performance metrics vary by program in three different categories	Yes. Incentive increases as performance in each category goes from "threshold," to "design", to "exemplary"

In 2010, Massachusetts utilities can earn up to 9.4% of program costs in a shareholder incentive. Performance metrics vary from program to program, but are generally based on three metrics: Savings, Value, and Performance. The weighting of each metric varies by sector; for C&I and Res programs, savings is weighted at about 45%, Value at about 35%, and Performance at about 20%. The savings and value components of the incentive increase linearly per unit of savings or value. Each performance metric has its own incentive level and scaling defined for threshold, design, and exemplary performance. Performance metrics vary by program, and include creating a comprehensive approach for duct sealing or creating an average reduction of 28% below code for lighting projects.

Metric Weighting		
Savings	Value	Performance
45%	35%	20%

Key differences from the Rhode Island approach include:

- **Performance targets based on evaluated net savings:** Basing goals on evaluated net savings encourages utilities to be continuously aware of changes in the market place and potential free-ridership rates.
- **Multivariate:** The Massachusetts mechanism awards 80% of the incentive to savings and cost-effectiveness, but reserves the remaining 20% to various metrics promoting depth of savings and market transformation efforts that may be in tension with the goal to maximize savings while minimizing cost. For example, some of the C&I performance metrics designed to create deep savings in projects include reaching an average lighting power density reduction of 28% below code, or including comprehensive measures in at least 11% of Small Business customers. These types of incentives are designed to discourage cream skimming – comprehensive measures may not be quite as easy to achieve or as cost-effective as common measures, but are still important to pursue in order to achieve efficiency's full potential. Some MA

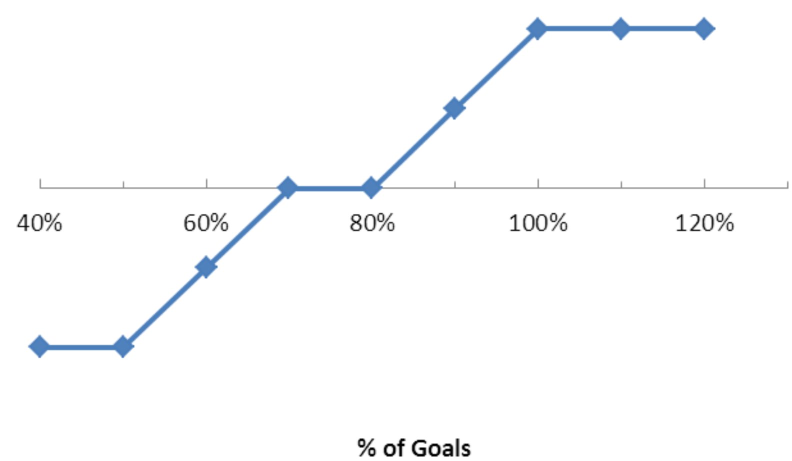
performance metrics meant to encourage market transformation include training at least 50% of regional HVAC contractors, and ensuring that at least 75% make improvements in their duct leakage rates, or to ensure that at least 30% of active builders sign at least one agreement to participate in the new construction program. Although actions such as these do not necessarily produce measurable energy savings, they help transform the market so that regional private actors are more aware of efficiency, and begin to implement best practices, even in the absence of the program.

NEW YORK PERFORMANCE INCENTIVE

	Financial Level	Performance Based?	Multivariate?	Scalable?
New York	$38.85 per incremental MWh saved or about 12% of program costs maximum.	Yes. Incentive based on ability to reach savings goals set by legislature.	No.	Yes. The award scales linearly from 80% of targets to 100% of targets.

In 2008, the New York Department of Public Service created a shareholder incentive mechanism. New York utilities earn $38.85 per MWh saved between 80% and 100% of the savings goals. This number was derived from the assumption that the maximum incentive earned should be no more than 20 basis points on the return on equity for New York's investor owned utilities. This also equates to about 12% of the efficiency program budget. At the same time, a penalty of the same amount was created for every MWh below 70% of the goals. There is a deadband between 70% and 80% of the goals in which neither penalty nor reward is received. This structure is depicted in the figure below.

Figure 7: New York Incentive Structure



The Department of Public Service (DPS) originally intended to set yearly goals, along with yearly incentives and penalties. However, due to delays in approving and ramping up efficiency programs, utilities have been struggling to meet goals (before this decision, most statewide efficiency programs were run by the New York State Energy Research and

Development Authority (NYSERDA), not utilities). As a result, the DPS first combined the 2009 targets with the 2010 targets, and then with the 2011 targets, to create a three-year 2008-2011 target. The DPS hopes to return to calendar year targets for 2012 and beyond.

Key differences from the Rhode Island approach include:

- **Penalty:** The main difference between the NY and RI incentive mechanism is the existence of a penalty in NY if a utility fails to achieve at least 70% of the goals. The DPS and other stakeholders believe that the incentive mechanism combining penalties and incentives have been successful in achieving the buy-in of a wide range of stakeholders, and capturing the attention of utility senior management. For comparison, if NY utilities achieve only 60% of the goal, a penalty is incurred, while RI utilities achieving 60% of goal are still eligible for an incentive of about 2.64% of program spending.
- **Incentive Level:** The maximum NY incentive level, at 12% of program spending, is more than twice as high as the RI maximum incentive. The generosity of the NY incentive is partly offset by the fact that penalties are incurred for performance of less than 70% of goals.
- **Higher marginal incentive rate:** As seen in Figure 5, the NY incentive starts rising later than the RI incentive, and rises at a much steeper rate. This higher marginal incentive rate provides a greater motivation for NY to achieve the next marginal MWh of savings once it is already achieving some incentive. This is significant because, in economic terms, people are motivated by the marginal return on investment, not the total award. Thus, a utility manager is more likely to pursue the next MWh of savings in the NY model than in the RI model due to the higher incentive per incremental MWh saved. The penalty in NY motivates utilities to achieve a minimum performance, and the steep incentive curve provides significant motivation to achieve the full goals.
- **No scaling above 100% of goals:** A negative aspect of the NY mechanism is that the incentive stops growing once 100% of goals are reached. This provides no motivation for utilities to display exemplary performance.
- **Utility Performance:** NY utilities are struggling to achieve enough savings to avoid a penalty. Indeed, the DPS has combined the goals of 2009-2011 so that, in 2011, the utilities can try and make up for low performance in 2009 and 2010 and avoid penalties for those years. Even so, it will be a struggle for utilities to meet the combined goals. The NY situation shows that the incentive/penalty mechanism has had success in getting the utilities to invest significant time and effort in ramping up their efficiency efforts and achieving savings.

VERMONT PERFORMANCE INCENTIVE

	Financial Level	Performance Based?	Multivariate?	Scalable?
Vermont	Maximum incentive of about 2.7% of program spending. However, EE programs are not run by the utilities, so there is less of a need to eliminate disincentives.	Yes. There are multiple measurable targets involved in determining the incentive amount	Yes. There are seven scalable performance metrics and five performance targets which must be achieved before any incentive becomes available..	Yes. The award for each performance metric scales up from a threshold to a maximum. The threshold and the scaling vary by metric.

Vermont's efficiency programs are not run by the electric and gas utilities, but rather a third party efficiency provider, Efficiency Vermont. Efficiency Vermont is currently run by the non-profit Vermont Energy Investment Corporation (VEIC), which contracts with PSB for three year terms in order to run Efficiency Vermont. A multivariate performance target incentive that amounts to about 2.7% of program spending is built into the contract between VEIC and PSB. The incentive is dependent on 7 different performance metrics, each with different threshold levels and scaling methods. These metrics include energy and demand savings, demand savings in capacity constrained areas, and increasing the share of savings coming from non-lighting measures. Furthermore, there are 5 different performance requirements that don't carry an explicit financial award, but can reduce or eliminate the total incentive. These requirements include a minimum BCR of 1.2, minimum amounts of residential and low income spending, and geographic enquty. For more detail about the Vermont incentive, see the PSB Contract, attachment N.

Key differences from the Rhode Island approach include:

- **Performance targets based on evaluated net savings:** Basing goals on evaluated net savings encourages utilities to be continuously aware of changes in the market place and potential freeridership rates.
- **Multivariate:** The Vermont mechanism explicitly rewards performance for specific policy goals, and looks a 12 different metrics. In Rhode Island, only kWh savings go into determining the size of the incentive.
- **Incentive level:** Vermont's maximum performance incentive of 2.2% is the lowest of any state. This is appropriate because it is a performance-based contract with a non-profit entity, rather than the utility. Therefore, the

program administrator has no disincentives to perform as well as possible, and its non-profit structure also lessens the need for large rewards.