The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 11-120   November 29, 2011

Investigation by the Department of Public Utilities on its own Motion into Updating its Energy Efficiency Guidelines.

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<u>VOTE AND ORDER OPENING INVESTIGATION</u>

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I.   INTRODUCTION

On July 2, 2008, the Governor signed the Green Communities Act[1] into law. The goal

of the Green Communities Act is to significantly enhance the development of renewable energy

and energy efficiency in Massachusetts. Green Communities Act, preamble. To expand

existing energy efficiency efforts, the Green Communities Act requires all electric and gas

distribution companies ("distribution companies") and approved municipal aggregators

(together, "Program Administrators") to develop energy efficiency plans that will "provide for

the acquisition of all available energy efficiency and demand resources that are cost effective or

less expensive than supply." G.L. c. 25, § 21(b)(1).

In Massachusetts, energy efficiency programs date back to regulatory policies the

Department established in the 1980s. See, e.g., Investigation into Pricing and Ratemaking

Treatment of New Electric Generating Facilities which are not Qualifying Facilities,

D.P.U. 86-36-F at 7-36 (1988). In 1997, following the passage of the Electric Restructuring

Act,[2] the Department established a set of energy efficiency guidelines ("98-100 Guidelines")

covering the methods and procedures for reviewing and evaluating energy efficiency programs.

Investigation to Establish Methods and Procedures to Evaluate and Approve Energy Efficiency

Programs, D.T.E. 98-100 (2000).

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[1]   An Act Relative to Green Communities, Acts of 2008, chapter 169, section 11.

[2]   An Act Relative to Restructuring the Electric Utility Industry in the Commonwealth,
         Regulating the Provision of Electricity and Other Services, and Promoting Enhanced
         Consumer Protection Therein, Acts of 1997, chapter 164, section 37.

After the passage of the Green Communities Act, the Department opened an
investigation to update the 98-100 Guidelines to ensure that they were consistent with the
Green Communities Act. Investigation by the Department of Public Utilities on its own
Motion into Updating its Energy Efficiency Guidelines Consistent with An Act Relative to
Green Communities, D.P.U. 08-50 (2008). On October 26, 2009, the Department issued
revised energy efficiency guidelines ("08-50 Guidelines" or "Guidelines"), which address:
(1) funding sources; (2) budgets; (3) cost-effectiveness test; (4) evaluation plans;
(5) performance incentives; (6) review of three-year plans; and (7) mid-term modifications.
D.P.U. 08-50-B at 44-57 (2009); Guidelines § 3. The Department also approved: (1) an
energy efficiency plan filing template; (2) a rate and average bill impact model;[3] and (3) an
energy efficiency annual report filing template. D.P.U. 08-50-B at 12, 20; D.P.U. 08-50-C
at 21 (2011).

On January 28, 2010, the Department issued Orders approving the electric and gas
three-year energy efficiency plans for the period 2010 through 2012. Electric Energy
Efficiency Three-Year Plans, D.P.U. 09-116 through D.P.U. 09-120 (2010); Gas Energy
Efficiency Three-Year Plans, D.P.U. 09-121 through D.P.U. 09-128 (2010).

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[3]   The rate and bill impact model working group is considering updates and refinements to
        the model. See D.P.U. 09-116 through D.P.U. 09-128, Hearing Officer Memorandum
        (April 1, 2010).

By April 30, 2012, the electric and gas Program Administrators are required to submit to the Energy Efficiency Advisory Council ("Council")[4] a joint statewide electric energy efficiency plan and a joint statewide gas energy efficiency plan, covering the period 2013 through 2015. G.L. c. 25, § 21(c). By October 31, 2012, the Program Administrators must submit their respective three-year energy efficiency plans, together with the Council's approval or comments, to the Department. G.L. c. 25, § 21(d).

The Department opens this investigation to examine issues associated with the three-year energy efficiency plans. In this first phase of the investigation, we will examine the following issues associated with energy efficiency program benefits that are included in the cost-effectiveness determination: (1) the method used to calculate program net savings; and (2) the method used to calculate reasonably anticipated environmental compliance costs, in particular those associated with the emission of carbon dioxide ("CO_2"). In identifying these issues, it is not our objective to signal that a change to our long-standing treatment of these benefits is either necessary or appropriate at this time. Instead, it is our objective to solicit comment from interested persons on these topics in order to determine whether such changes are necessary and, if so, when and how such changes should be incorporated into the measure

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[4]	The Council was created by the Green Communities Act. Acts of 2008, chapter 169, section 22A. The Council consists of eleven voting members and includes one non-voting member from each Program Administrator. The Green Communities Act creates separate yet complementary responsibilities for the Council and the Department, with the Council process shaping the development of the three-year energy efficiency plans. G.L. c. 25, § 21(b).

of cost-effectiveness. In a second phase of the investigation, we will examine issues associated

with mid-term modifications to the three-year energy efficiency plans.[5]

II.   ISSUES ASSOCIATED WITH ENERGY EFFICIENCY PROGRAM BENEFITS

          A.   Introduction

          As noted above, the Green Communities Act requires the three-year energy efficiency

plans to provide for the acquisition of all available energy efficiency and demand resources that

are cost-effective or less expensive than supply. G.L. c. 25, § 21(b)(1). The Department's

long-standing precedent is to use the Total Resource Cost ("TRC") test to measure the

cost-effectiveness of energy efficiency programs. See 98-100 Guidelines §§ 3.2, 3.3;

Guidelines § 3.4.3. The TRC test includes all costs and benefits associated with both the

energy system and program participants. Guidelines § 3.4.3. If a program's benefits exceed

its costs, the program is deemed cost-effective.

          Energy system costs include program implementation costs and shareholder

performance incentives. Guidelines § 3.4.5. Energy system benefits include the following:

(1) avoided electric generation and gas supply costs; (2) avoided transmission costs (electric

programs only); (3) avoided distribution costs; and (4) energy and capacity demand-reduction

induced price effects (electric programs only). Guidelines §§ 3.4.4.1(a), 3.4.4.2(a).[6] For each

category, a program's energy system benefits are calculated as the product of: (1) the electric

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[5]   The Department will issue a Phase II Order in this proceeding.

[6]   Program benefits also include reductions in all costs to the distribution company
          associated with reduced customer arrearages and reduced service terminations and
          reconnections. Guidelines §§ 3.4.4.1(a)(viii), 3.4.4.2(a)(iv).

and gas savings that are attributable to the program (the "net savings") as informed by the evaluation, measurement, and verification studies undertaken by the Program Administrators; and (2) a category-specific avoided cost factor. Avoided cost factors take into account environmental compliance costs that are reasonably projected to be incurred in the future. Guidelines §§ 3.4.4.1(a)(v), 3.4.4.2(a)(iii).

Program participant costs include all expenses incurred by a participant as a result of participating in an energy efficiency program. Guidelines § 3.4.5.3. Participant benefits are categorized as resource benefits and non-resource benefits. Participant resource benefits account for the avoided costs of natural gas (for electric energy efficiency programs), electricity (for gas energy efficiency programs), oil, propane, wood, kerosene, water, sewage disposal, and other resources for which consumption is reduced as a result of implementation of an energy efficiency program. Guidelines §§ 3.4.4.1(b)(i), 3.4.4.2(b)(i). These benefits are calculated as the product of: (1) the reduction in consumption of the identified resource and; (2) a resource-specific avoided cost factor. Guidelines §§ 3.4.4.1(b)(i), 3.4.4.2(b)(i). Participant non-resource benefits include, but are not limited to: (1) reduced costs for operation and maintenance associated with efficient equipment or practices; (2) the value of longer equipment replacement cycles and/or productivity improvements associated with efficient equipment; (3) reduced environmental and safety costs, such as those for changes in a waste stream or disposal of lamp ballasts or ozone-depleting chemicals; and (4) all benefits associated with providing energy efficiency services to low-income customers. Guidelines §§ 3.4.4.1(b)(ii), 3.4.4.2(b)(ii).

The avoided cost factors for the energy system and participant resource benefits are

developed under the direction of the Avoided Energy Supply Component ("AESC") Study

Group, which includes the energy efficiency Program Administrators from the six New

England states as well as non-utility parties and their consultants. On a biennial basis, the

AESC Study Group engages a contractor to develop avoided cost factors for the energy system

and participant resource benefits enumerated above. The most recent avoided cost factors are

included in the "Avoided Energy Supply Costs in New England: 2011 Report" ("2011 AESC

Study").[7] In addition to determining the avoided cost factors identified above, the 2011 AESC

Study calculates costs associated with air emissions that result from electricity production,

including CO_2.

As the Program Administrators pursue the goal of acquiring all available cost-effective

energy efficiency resources, it becomes increasingly important to ensure the accuracy and

reliability of the benefits included in the analysis of program cost-effectiveness. In our Orders

approving the electric and gas energy efficiency three-year plans, the Department observed

that:

> In the future, as the Program Administrators pursue the goal of acquiring all
> available cost-effective energy efficiency resources, benefit cost ratios for some
> programs will likely be considerably lower than presented here. This potential
> trend heightens the importance of ensuring the reliability of the benefits included
> in the TRC test.

D.P.U. 09-116 through D.P.U. 09-120, at 51; D.P.U. 09-121 through D.P.U. 09-128,

at 120-121. In this proceeding, the Department will investigate the following issues associated

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[7]   The 2011 AESC Study was prepared by Synapse Energy Economics, Inc.

with the reliability of program benefits: (1) the method used to calculate program net savings;

and (2) the method used to calculate reasonably anticipated environmental compliance costs.

An additional issue has been raised by the American Council for an Energy Efficient

Economy ("ACEEE") associated with accuracy and reliability of program benefits -- the

measure of program participant benefits used in the TRC test.[8] Recently, ACEEE released a

study that calls into question the manner in which states that rely on the TRC test to determine

energy efficiency program cost-effectiveness account for participant benefits ("ACEEE

Study").[9] The ACEEE Study concludes that participant non-resource benefits are difficult to

measure and quantify, with the result that regulators rarely accept these benefits as a legitimate

factor to be included in cost-effectiveness analyses (ACEEE Study at 5-303-306). However,

the ACEEE Study identifies Massachusetts as an exception to this observation, recognizing that

the Department has encouraged Program Administrators to conduct studies of non-resource

benefits and include the value of such benefits in their cost-effectiveness screening (ACEEE

Study at 5-304). Accordingly, in light of the Department's current treatment of participant

non-resource benefits, we will not consider in this proceeding the measure of program

participant benefits used in the TRC test. See, e.g., Guidelines §§ 3.4.4.1(b), 3.4.4.2(b);

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[8]   ACEEE is a nonprofit organization dedicated to advancing energy efficiency as a means
        of promoting economic prosperity, energy security, and environmental protection
        (http://www.aceee.org).

[9]   Kushler and Neme, Is it Time to Ditch the TRC? Examining Concerns with Current
        Practice in Benefit-Cost Analysis, 2010 ACEEE Summer Study on Energy Efficiency
        in Buildings (August 16, 2010).

D.P.U. 09-121 through D.P.U. 09-128, at 48-49; Massachusetts Electric Company and

Nantucket Electric Company, d/b/a National Grid, D.P.U. 09-63, at 2-4 (2010).

### B.	Determination of Net Savings

#### 1.	Introduction

Energy efficiency program (and measure) savings may be reported in terms of gross

savings, adjusted gross savings, and net savings estimates. Program Administrators determine

measure-specific gross savings estimates based on objective technical factors, using

mathematical equations (or algorithms) that incorporate a measure's characteristics (see

Massachusetts Technical Reference Manual for Estimating Savings from Energy Efficiency

Measures: 2011 Program Year – Plan Version at 6, 18, 347 (October 2010) ("TRM")).[10]

Gross savings estimates are adjusted by applying impact factors that are intended to

reflect the expected performance of the installed energy efficiency measures (TRM at 18).

These impact factors include: (1) in-service rates, which take into account the percentage of

energy efficiency measures installed and operating; (2) savings persistence factors, which

represent the percentage of first-year savings expected to persist over the life of the energy

efficiency measure; (3) realization rates, which take into account the results of impact

evaluation studies; and (4) summer and winter peak demand coincidence factors, which

represent the percentage of demand savings that are expected to occur at the same time as the

system peak (TRM at 18, 345).

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[10]	The TRM documents the savings from the installation of energy efficiency measures and also provides methods, formulas and default assumptions for estimating energy, peak demand and other resource impacts for each measure (TRM at 6).

The adjusted gross savings estimates are further adjusted to yield net savings estimates

by applying impact factors that incorporate the effect of free-riders[11] and spillover,[12] and

net-to-gross ratios[13] (TRM at 18-19). The resulting net savings estimates represent the level of

savings that can be directly attributed to the implementation of an energy efficiency program

(TRM at 18-19). The Department requires electric and gas[14] Program Administrators to use

net savings to determine whether an energy efficiency program is cost-effective. See, e.g.,

D.P.U. 09-63, at 3-4.

Program Administrators participate in a variety of evaluation studies to estimate net

savings, using methods that include: (1) reports by, surveys of, and interviews with program

participants, vendors, and delivery staff; (2) market sales data analysis; (3) econometric

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[11]   A free rider is a customer who participates in an energy efficiency program (and
        receives an incentive) but who would have installed some or all of the same measures
        on his or her own, with no change in timing of the installation, if the program had not
        been available (TRM at 19). The free-ridership rate is the percentage of savings
        attributable to participants who would have installed the measures in the absence of
        program intervention (TRM at 19).

[12]   The spillover rate is the percentage of savings attributable to a measure or program in
        addition to the gross savings of a program (TRM at 19). Spillover includes the effects
        of: (1) participants in the program who install additional energy efficient measures
        outside of the program as a result of participating in the program; and
        (2) non-participants who install or influence the installation of energy efficient measures
        as a result of being aware of the program (TRM at 19).

[13]   The net-to-gross ratio is the ratio of net savings to the adjusted gross savings (TRM
        at 409).

[14]   Gas Program Administrators did not use net savings in their analyses of program
        cost-effectiveness prior to 2009. See, e.g., Boston Gas Company, Colonial Gas
        Company, and Essex Gas Company, d/b/a National Grid, D.P.U. 08-109, at 15-16
        (2009); see also D.P.U. 09-121 through 09-128, at 124-125.

modeling, pricing, and elasticity analysis; (4) stated or revealed preferences; (5) structured

expert judging; and (6) billing analysis. See, e.g., D.P.U. 09-63 (2008 Energy Efficiency

Annual Report, App. 6, Study 9, at 4-8). The method chosen to estimate savings depends on:

(1) the structure of the energy efficiency program; (2) the availability of market sales data and

meaningful comparison groups; and (3) the likelihood of substantial upstream effects (e.g.,

effects at the manufacturer and distributor level) that would be unknown to end-use

participants. See, e.g., NSTAR Electric Company, D.P.U. 09-64 (2010) (2008 Energy

Efficiency Annual Report, Att. DPU-2-1(g) at 2-6).

2.   Discussion

The determination of net savings for an energy efficiency program requires the isolation

of program effects from other influences. Citing extensive prior program activity, new

strategies adopted to meet aggressive savings goals, and the existence of additional influences

promoting efficiency that make it more difficult to isolate the impact of program activities, two

recent studies question the extent to which the traditional approaches to determining net savings

continue to produce reliable and accurate results: (1) "Net Savings Scoping Paper,"[15]

submitted to the Northeast Energy Efficiency Partnerships ("NEEP"): Evaluation,

Measurement, and Verification Forum ("NEEP Study");[16] and (2) "Pursuit of Aggressive

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[15]   NMR Group, Inc.; Research Into Action, Inc., Net Savings Scoping Paper (Final)
       (November 13, 2010). The Program Administrators participated in this study.

[16]   Since 1996, NEEP has been facilitating regional partnerships to advance the efficient
       use of energy in homes, buildings and industry in the Northeast and mid-Atlantic states.
       The purpose of the evaluation, measurement and verification forum is to support the
       development and use of consistent protocols to evaluate, measure, verify, and report the

Energy Savings Targets: Aligning Program Design and Evaluation, 2010 ACEEE Summer

Study on Energy Efficiency in Buildings" ("ACEEE Study").[17]

These studies assert that it is difficult to measure cumulative energy efficiency program

effects over time (NEEP Study at 33-34; ACEEE Study at 5-244). For example, the NEEP

Study postulates that for programs that were implemented before the year being studied, the

earlier program activity may have created spillover effects during the study year (NEEP Study

at 33-34). As a result, current participants who appear not to have been directly influenced by

the energy efficiency program may have been influenced by the program in prior years (i.e.,

spillover from program activity in previous years may be identified as free ridership in the

current program year) (NEEP Study at 33-34). In addition, the ACEEE Study suggests that

programs designed to achieve aggressive energy efficiency goals may target savings

opportunities that will take several years to materialize from the program's initiation to its

completion, resulting in a greater overlap between savings achieved in a current program year

and those achieved in past and future years (ACEEE Study at 5-244).

These studies also suggest that the existing approaches to measuring net savings fail to

account for the synergistic impacts of the portfolio of programs offered by Program

Administrators (NEEP Study at 35-36; ACEEE Study at 5-242-244). The ACEEE Study

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savings, costs, and emission impacts of energy efficiency and other demand-side
resources (http://www.neep.org).

[17]   Mahone and N.Hall, Pursuit of Aggressive Energy Savings Targets: Aligning Program
         Design and Evaluation, 2010 ACEEE Summer Study on Energy Efficiency in
         Buildings (2011).

suggests that Program Administrators may adopt a broad range of strategies to meet aggressive

new savings goals, including: (1) upstream initiatives targeted at manufacturers and

distributors; (2) multi-year or comprehensive retrofit strategies; (3) behavior change initiatives;

(4) enhanced codes and standards; and (5) statewide and national awareness programs[18]

(ACEEE Study at 5-242-244). As a result, the ACEEE Study suggests that interactive effects

and synergies among these strategies could result in greater savings levels, with one program's

participants being another program's free riders (ACEEE Study at 5-242-244). The ACEEE

Study concludes that the traditional methods of measuring net savings will fail to adequately

take into account this dynamic (ACEEE Study at 5-242-244).

Finally, the NEEP Study asserts that reductions in consumption can be affected by

factors outside of the energy efficiency programs implemented by the Program Administrators,

including programs implemented by other entities, economic business cycles, changes in

energy prices, concerns about climate change, and ongoing advances in technology[19] (NEEP

Study at 63-64). The NEEP Study concludes that the presence of these external factors

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[18] For example, in the electric three-year plans, the electric Program Administrators proposed several initiatives, including enhanced public education, marketing, outreach, community-based measures, workforce training and development, as well as incentives and financing mechanisms, that are intended address four major market barriers -- awareness, availability, accessibility, and affordability -- that the Program Administrators stated need to be bridged in order to achieve all available cost-effective energy efficiency. See D.P.U. 09-116 through D.P.U. 09-120, at 26, 149-150.

[19] In addition, the NEEP Study suggests that a certain subset of program participants may install energy efficiency measures as a result of their own psychological characteristics rather than the Program Administrator's rebate or program efforts (NEEP Study, at 21, 38-41, 49).

exacerbates the difficulty of isolating the impact of program activities on customer behavior (NEEP Study at 63-64). While acknowledging the importance of measuring net savings in assessing energy efficiency program performance, the NEEP Study suggests that it is appropriate to consider alternate approaches to estimating net savings (NEEP Study, Executive Summary at I).

In light of the issues discussed above, the Department will investigate in this proceeding the extent to which the existing approaches to estimating net savings produces accurate and reliable results. If the Department concludes that the existing approaches are deficient in this regard, this investigation will examine alternate ways to determine net savings estimates.

C.   Environmental Compliance Costs

1.   Introduction

The reduction in CO_2 emissions that results from the implementation of energy efficiency programs is included as a benefit in determining the cost-effectiveness of such programs.[20] The electric Program Administrators currently value those benefits based on costs associated with purchasing CO_2 allowances under the Regional Greenhouse Gas Initiative ("RGGI")[21] in the near term, and the costs of purchasing such allowances under a presumed federal cap and trade program in the future, as calculated in the 2011 AESC Study (2011 AESC at 1-18, 2-15, 6-100).

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[20]   Gas Program Administrators currently do not include the benefits of avoided CO_2 emissions in their cost-effectiveness analyses.

[21]   RGGI is a mandatory cap and trade program for greenhouse gas emissions in which all six New England States currently participate. G.L. 21A, § 22; see also Regional Greenhouse Gas Initiative Memorandum of Understanding (December 20, 2005).

In light of the greenhouse gas ("GHG") emissions reductions mandated by the Global Warming Solutions Act[22] ("GWSA") and the Massachusetts Clean Energy and Climate Plan for 2020 ("2020 Plan"),[23] the current method of calculating the benefits of avoided CO_2 emissions may understate the actual benefits and, therefore, understate the cost-effectiveness of energy efficiency programs. Accordingly, the Department will investigate as part of this proceeding, the appropriate method to calculate the benefits of avoided CO_2 emissions.

2.   Background

The Department first addressed the valuation of benefits associated with reduced emissions in Procedures by Which Resources Are Planned, Solicited and Procured by Electric Companies, D.P.U 86-36-F at 22 (1988). In D.P.U. 86-36-G at 79-80 (1989), the Department stated that "electric utilities' evaluation of alternate energy resource options must take into account environmental externalities to avoid the selection of resources that impose high costs not internalized in the prices bid by competing resource developers."

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[22]   Global Warming Solutions Act of 2008, Acts of 2008, chapter 298, and as codified at G.L. c. 21N.

[23]   In compliance with the GWSA, the 2020 Plan was issued by the Secretary of the Massachusetts Executive Office of Energy and Environmental Affairs ("EEA") on December 29, 2010. See G.L. c. 21N, § 4. EEA coordinated the development of the 2010 Plan, which involved numerous state agencies, public input, and consultant analyses.

In Rules to Implement Integrated Resource Management Practices, D.P.U. 89-239, at 85 (1990), the Department established environmental externality values[24] associated with certain emissions including, but not limited to, CO_2.[25] Those values were calculated based on the assumption that the cost of pollution control is an indication of the price society is willing to pay to reduce pollutants. D.P.U. 89-239, at 64, 83.

The Department reaffirmed these externality values in Environmental Externalities, D.P.U. 91-131, at 44-45, 120 (1992). However, on appeal of that Order, the Supreme Judicial Court held that, without direct authority from the Legislature, the Department could not require electric distribution companies to consider the costs of environmental externalities unless reasonably foreseeable future circumstances would impose costs on the utility and its ratepayers.[26] Massachusetts Electric Company v. Department of Public Utilities, 419 Mass. 239, 246 (1994).

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[24]   The Department defined the cost of environmental externalities as the cost of environmental damages caused by a project or activity for which compensation to affected parties does not occur. D.P.U. 86-36-G at 77; D.P.U. 89-239, at 51.

[25]   The other emissions were nitrogen oxides, sulfur oxides, volatile organic compounds, total suspended particulates, carbon monoxide, methane, and nitrous oxide. D.P.U. 89-239, at 85.

[26]   The Supreme Judicial Court found:

> The [D]epartment does not have responsibility for the protection of the environment. It has regulatory authority over an electric utility's rates, and reasonable costs to be incurred in protecting the environment, whether mandated or voluntary, may be reflected in a utility's approved rates. In its rate regulatory function, therefore, the [D]epartment may direct the avoidance of conditions that a utility might experience, provided that reasonably anticipated future circumstances will impose

3. Current Valuation Method

Consistent with the Supreme Judicial Court's decision regarding environmental externalities, the 08-50 Guidelines require Program Administrators to include as a program benefit the avoided costs of related environmental compliance that are reasonably projected to be incurred in the future because of state or federal laws and/or regulatory requirements that are currently in effect or are projected to take effect in the future. Guidelines §§ 3.4.4.1(a)(v), 3.4.4.2(iii). The electric Program Administrators currently value those benefits using the internalized cost approach included in the 2011 AESC Study (2011 AESC Study at 1-18, 2-15, 6-100).

The 2011 AESC Study calculates the internalized costs of CO_2 emissions based on costs associated with purchasing CO_2 allowances[27] under RGGI through 2017, and the costs of purchasing such allowances under a presumed federal cap and trade program beginning in 2018

> costs on the utility that will be detrimental to the interests of ratepayers. Thus, if it reasonably appears that the current emission of a pollutant in lawful amounts will be affected in the foreseeable future by a prohibition, new restrictions, costly regulation, or pollution penalties or taxes, for example, the [D]epartment has the authority as a rate regulator to consider the appropriateness of avoiding that reasonably foreseen change and requiring that the utility pursue a course likely to be less costly to ratepayers in the long term.

419 Mass. at 246.

[27] Electric generation plants in the New England region must purchase one allowance per ton of CO_2 emitted (see, e.g., 310 C.M.R. § 7.70; RGGI Model Rule at 45). The 2011 AESC Study assumes that generators include the cost of purchasing these allowances when submitting bids into the regional wholesale energy market administered by the Independent System Operator-New England. Accordingly, the 2011 AESC Study includes these costs in the generation dispatch it uses to calculate avoided energy costs.

(2011 AESC Study at 2-15).[28] According to the 2011 AESC Study, the internalized cost of

CO_2 emissions will be \$1.89 per ton of CO_2 emissions in 2012, increasing to \$18.28 in 2019,

and \$36.13 in 2025 (2011 AESC Study Exh. 6-57).

4. Emissions Reduction Mandates

a. Global Warming Solutions Act

The GWSA took effect in August 2008 and mandates the following reductions in GHG

emissions[29] in the Commonwealth: (1) ten to 25 percent from 1990 levels by 2020; and (2) at

least 80 percent of 1990 levels by 2050. G.L. c. 21N, § 4(a). To implement these reductions,

the GWSA required the Secretary of EEA to establish the 2020 Plan.[30] G.L. c. 21N, §§ 3(b),

4(a). Finally, agencies such as the Department are required to consider reasonably foreseeable

climate change impacts, including additional GHG emissions, when considering and issuing

administrative approvals or decisions. G.L. c. 30, § 61.

b. Massachusetts Clean Energy and Climate Plan for 2020

Pursuant to the GWSA, the Secretary of EEA established a limit on GHG emissions for

the year 2020 at 25 percent below 1990 levels (2020 Plan at ES-7; Secretary of EEA

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[28]   The 2011 AESC Study also calculates the costs of CO_2 emissions using a control cost
         approach (2011 AESC Study at 6-95).

[29]   The GWSA defines GHGs as: "any chemical or physical substance that is emitted into
         the air and that the [Department of Environmental Protection] may reasonably
         anticipate will cause or contribute to climate change including, but not limited to, CO_2,
         methane, [nitrogen oxide], hydrofluorocarbons, perfluorocarbons and sulfur
         hexafluoride." G.L. c. 21N, § 1.

[30]   The GWSA also requires the Secretary of EEA to develop interim 2030 and 2040
         emissions limits, to "maximize the ability of the [C]ommonwealth to meet the 2050
         emissions limit." G.L. c. 21N, § 3(b).

Determination of Greenhouse Gas Emission Limit for 2020 (December 28, 2010)). This limit

is based on an analysis of: (1) 1990 GHG emissions and projected 2020 business-as-usual

emissions; (2) estimated GHG reductions from state and federal policies enacted since 2007;

and (3) estimated GHG reductions from the implementation of additional cost-effective policies

through 2020 (2020 Plan at 88-92).

The 2020 Plan contains a portfolio of more than 25 policies that are designed to provide

a roadmap for meeting the 2020 goal. For each policy, the 2020 Plan establishes an estimated

expected GHG reduction below 1990 levels (2020 Plan at ES-6).[31] The 2020 Plan projects that

the implementation of energy efficiency policy will provide the largest reduction in GHG

emissions -- a reduction of approximately 7.1 percent below 1990 levels (i.e., five percent

from electric energy efficiency programs and 2.1 percent from gas and oil energy efficiency

programs) (2020 Plan at ES-6, 18). These reductions assume a continued level of significant

investment in energy efficiency, totaling $10.2 billion through 2020 and resulting in

$17.5 billion in net benefits (2020 Plan at ES-6, 18).

5.   Scope of Investigation

In D.P.U. 08-50-A at 17, the Department found that existing state law, including the

GWSA and expected federal measures to control greenhouse gases, will result in "reasonably

anticipated environmental compliance costs that will be reflected in future electric prices in the

Commonwealth." Consequently, the Department stated that we expect Program

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[31]   The policies cover five categories: buildings, electricity, transportation, non-energy
         emissions, and cross-cutting (2020 Plan at ES-6).

Administrators to "include estimates of such compliance costs in the calculation of future

avoided energy costs." D.P.U. 08-50-A at 16-17.

In light of the required GHG emissions reductions set forth in the GWSA and the

2020 Plan, the Department will investigate the extent to which the current approach of

calculating the benefits associated with reduced CO_2 emissions (i.e., the internalized cost

approach included in the 2011 AESC Study) may undervalue the actual benefits. If the

Department concludes that the current method understates actual benefits, we seek to identify

whether and, if so, how the reasonably anticipated costs of complying with the GWSA and the

2020 Climate Plan can be incorporated into the cost-effectiveness analyses for both electric and

gas energy efficiency programs.

III.   PUBLIC PARTICIPATION IN THIS INVESTIGATION

The Department invites all interested persons to participate in this investigation into the

issues associated with energy efficiency program benefits discussed in Section II, above. With

respect to the determination of net savings estimates, interested persons are encouraged to file

comments and, in particular, to address: (1) the extent to which the existing approaches to

estimating net savings produce accurate and reliable results; and (2) alternate ways to

determine net savings estimates that may improve upon the existing approaches. With respect

to the determination of benefits of reduced CO_2 emissions, interested persons are encouraged to

file comments and, in particular to address: (1) the extent to which the current approach to

calculating these benefits undervalues the actual benefits, in light of the required GHG

emissions reductions set forth in the GWSA and the 2020 Plan; and (2) whether, and if so

how, the reasonably anticipated costs of complying with these emission reduction requirements can be incorporated into the cost-effectiveness analyses for both electric and gas energy efficiency programs.

The Department anticipates that a number of persons will be interested in this proceeding. Therefore, the Department encourages interested persons to present consensus positions and submit comments jointly, when possible. Written comments must be filed no later than the close of business on January 11, 2012. Comments may not exceed 30 pages in length. All comments must be accompanied by an executive summary. One original and seven copies of all comments should be filed with Mark D. Marini, Secretary, Department of Public Utilities, One South Station - 5th Floor, Boston, Massachusetts 02110.[32] The Department will determine the appropriate next steps after reviewing the initial comments.

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[32] All documents should also be submitted to the Department in electronic format using one of the following methods: (1) by e-mail attachment to dpu.efiling@state.ma.us and the hearing officer jeffrey.leupold@state.ma.us or (2) on a CD-ROM. The text of the e-mail or CD-ROM label must specify: (1) the docket number of the proceeding (D.P.U. 11-120); (2) the name of the person or company submitting the filing; and (3) a brief descriptive title of the document. The electronic filing should also include the name, title, and telephone number of a person to contact in the event of questions about the filing. All documents submitted in electronic format will be posted on the Department's website: http://www.mass.gov/dpu.

IV.   ORDER

Accordingly, the Department

VOTES: To open an investigation into Updating its Energy Efficiency Guidelines; and

it is

ORDERED: That the Secretary of the Department shall publish notice of this

investigation in a statewide paper of daily circulation within the Commonwealth; and it is

FURTHER ORDERED: That the Secretary of the Department shall serve a copy of

this Order upon all persons on the Department's official service list.

By Order of the Department,

/s/
Ann G. Berwick, Chair

/s/
Jolette A. Westbrook, Commissioner

/s/
David W. Cash, Commissioner