BEFORE THE STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

IN THE MATTER OF THE PETITION OF NEW JERSEY NATURAL GAS COMPANY FOR APPROVAL OF REGIONAL GREENHOUSE GAS INITIATIVE PROGRAMS AND ASSOCIATED COST RECOVERY MECHANISMS PURSUANT TO N.J.S.A. 48:3-98.1	)	**BPU DOCKET No. GR10030225**

DIRECT TESTIMONY OF DAVID NICHOLS
ON BEHALF OF THE
STATE OF NEW JERSEY DIVISION OF RATE COUNSEL

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I. STATEMENT OF QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION.

A. My name is David A. Nichols. My business address is Synapse Energy Economics, Inc. ("Synapse"), 22 Pearl Street, Cambridge, Massachusetts 02139. I am a senior consultant at Synapse.

Q. PLEASE DESCRIBE YOUR BACKGROUND AND EXPERIENCE.

A. For three decades, I have professionally assessed the costs and benefits of energy efficiency ("EE") and energy conservation to utility ratepayers; designed energy efficiency and conservation programs; reviewed and evaluated energy efficiency and conservation programs of electric utilities, gas utilities, and state agencies; and analyzed utility cost recovery claims associated with such programs. I have also worked in other energy areas such as rate design, resource planning, and renewable resources. I have presented analyses on these matters in testimony before regulatory commissions in two dozen U.S. states and before the U.S. Federal Energy Regulatory Commission, as well as in Canadian provinces. On behalf of Rate Counsel, I testified before this Board in matters relating to EE on eleven occasions, beginning in 1982. Further information on my background and experience is provided in the Appendix to this testimony (Exhibit DN-1).

II. SCOPE AND PURPOSE OF TESTIMONY

Q. WHAT IS THE SCOPE AND PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I was retained by the New Jersey Division of Rate Counsel ("Rate Counsel") to conduct a review and analysis and present testimony in the matter of the petition of New Jersey Natural Gas Company ("NJNG" or "the Company") for approval of Regional Greenhouse Gas Initiative ("RGGI") programs. My testimony addresses the scope, scale, design, and budget for the three Energy Efficiency programs that NJNG proposes. NJNG's renewable energy program proposals are

addressed in the testimony of Rate Counsel witness Dr. David Dismukes. Cost recovery for NJNG's proposed programs is addressed in the testimony of Rate Counsel witness Andrea Crane.

III. SUMMARY OF FINDINGS AND RECOMMENDATIONS

Q. ON WHAT MATTERS DO YOU PRESENT FINDINGS?

A. My findings address the following matters:

1. NJNG's current EE program.
2. Proposed new program--overview.
3. State energy goals.
4. Benefits of the proposed EE program.
5. Costs of the proposed EE program.
6. Cost/benefit analysis.
7. Proposed residential EE.
8. Proposed nonresidential EE.
9. Proposed low-income EE.
10. Evaluation of the proposed programs.
11. Post-approval program modification.
12. RGGI factors for cost recovery.

Q. PLEASE SUMMARIZE YOUR FINDINGS.

A. My findings may be summarized as follows. They are more fully explicated in Section IV of my testimony.

1. NJNG's current program. NJNG conducts EE activities approved by the Board in 2009 in Docket Nos. EO09010056 and GO09010057. The Company refers to these as the "SAVEGREEN" or "E3" program. NJNG's E3 program provides additional incentives and services to customers who participate in New Jersey's ongoing Clean Energy Program ("CEP"). Board Order Docket Nos. E009010056 and E009010057 (7/1/09). E3 is nominally a one-year program with a projected investment of $16.7 million. In 2010, $7 million of that total NJNG investment was dedicated to paying the CEP's customer incentives for Home Performance with Energy Star ("HPES"), leaving some $9.7 million in budget for other program services Docket No. E007030203 6/18/10). Those services are:

- Zero percent, 10-year financing for net customer costs to implement HPES measures.
- An extra customer incentive of $900 in addition to the CEP "Warm Advantage" incentives for efficient residential gas furnaces and boilers.
- Free HPES home energy audits, performed by NJNG personnel, required as a condition of taking the foregoing incentive.

Additionally, NJNG ratepayers are subject to collections for the CEP as a result of the Societal Benefits charge ("SBC"), established pursuant to N.J.S.A. 4 8:3-49 et seq.and, the Board's 2008 Order in Docket No. EO07030203.

2. NJNG's proposed EE program. In the present Petition, NJNG seeks to extend the scope, scale, and duration of the E3 program. Total utility program costs for the new EE would be over $75 million over three years. Key program offerings would be:

- Zero percent or 2.99 percent 10-year financing for net customer costs to implement HPES measures.

- New incremental incentives relating to gas/solar water heaters, electric air conditioning, and HPES air sealing work which would be in addition to customer incentives and CEP centives for efficient furnaces & boilers..
- Free HPES home energy audits, performed by NJNG personnel, required as a condition of taking the foregoing incentives.
- NJNG paying certain HPES incentives currently paid by CEP in order to provide more budget for that CEP program.
- A pilot program ("OPOWER") relying on information rather than incentives to encourage customer pursuit of efficiency.
- A pilot program ("Access to Affordable Energy") for customers eligible for the low-income CEP EE program, providing free conversions from electric to gas heating systems.

The above elements address residential customers. For nonresidential customers, NJNG would provide a range of incentives additional to those available through the CEP for heating, cooling, and water heating equipment, and for on-site combined heat and power ("CHP").

3. State energy goals. In the testimony of Company witness Thomas Massaro, NJNG states that the proposed programs support State energy goals. He cites:

- The Global Warming Response Act's goal of reducing greenhouse gas ("GHG") emissions to 80 percent of the 2006 level by 2050.
- The Energy Master Plan ("EMP"), which seeks to reduce the State's reliance on fossil fuels and conventionally generated electricity.

However, in neither Mr. Massaro's testimony nor the balance of its Petition does NJNG seek to quantitatively link the amount of energy savings or GHG reductions expected from its new EE proposals to goals set forth in the EMP or in State law.

4. Program savings and benefits. NJNG identifies several program savings and benefits from its proposed new EE program. These include gas savings, electricity savings, GHG reductions, job impacts, and net energy cost savings. Because NJNG has not properly quantified these benefits, its estimates of their magnitude are of little use in assessing the merits of the Company's proposal. One fundamental problem is that NJNG has not attempted to distinguish the level of customer participation in EE with and without the Company's proposals. However, an additional NJNG program is only justified to the extent it produces savings above and beyond those that will result from the continuation of the CEP or other programs, and does so at reasonable additional cost. With no estimate of the increase to CEP participation when NJNG's proposals are added, the basic case for NJNG's plan is lacking.

5. Program costs. NJNG identifies the program costs that it proposes. Its proposal for recovery of those costs, including amortization and return, is not addressed here, but is treated in the testimony of Rate Counsel witness Andrea Crane. NJNG proposes a very large program that would expend $22.8 million in year 1 (which I assume to be 2011), $25.4 million in year 2, and $27.5 million in year 3. As a percentage of the Company's retail revenue requirements, these expenditures exceed two and even three percent. NJNG's proposed EE commitment as percentage of revenue is far greater than any major gas utility I am aware of. EE spending in excess of 1% of retail revenue requirements exceeds gas utility averages and in my view requires very sound justification. Moreover, when the CEP's own spending on EE is included, total ratepayer-funded spending on EE in NJNG's area is even greater.

If NJNG's proposal to amortize its new program costs over ten years were accepted, the amount collected from ratepayers would be spread over time. The table below shows amounts for EE proposed to be collected from NJNG ratepayers for the CEP, the E3 program, and the proposed new programs, for the period through 2013 only. "Revenue requirements" in the table represent those from the E3 Order plus those for proposed new EE as proposed by NJNG. As

shown in Table 1, even with amortization the impact on ratepayers of the CEP and NJNG collections is excessively high.

Table 1

Energy Efficiency Collections from NJNG Ratepayers (Millions)

	2010	2011	2012	2013
CEP (estimated)	$8.7	$10.9	$13.6	--
NJNG (revenue requirements)	$8.1	$12.1	$14.8	$18.2
Total Collections	$16.8	$23.0	$28.4	$18.2
Collections/Revenue	2.2%	2.9%	3.6%	2.3%

The Company's estimates of savings from its proposed EE programs are suspect for several reasons, including the fact that no attempt was made to relate proposed expenditures to incremental savings, beyond what the CEP alone would produce. But even those apparently over-estimated savings do not begin to justify the Company's proposed program expenditures. In fact, NJNG's proposal has the poorest savings per program dollar of any gas utility EE program I am aware of, as discussed and documented in Section V.E of my below testimony.

6. Cost-benefit analysis. It is useful to assess the likely costs and benefits of EE proposals. Prospective cost-benefit analysis ("CBA") provides estimates of the aggregate economic benefits and costs of EE from various perspectives. However, the cost-benefit analysis that NJNG presented is flawed in several respects, as follows:

- NJNG's CBA does not measure the costs or benefits of its program but only of the joint NJNG/CEP program. To measure the costs or benefits of its program, it needs to begin with an estimate of the incremental participation and savings that would be realized compared with a CEP-only program.
- The CBA fails to include the incremental costs required to amortize program

costs with a return, as opposed to expensing them.

- Some of the proposed programs would entail Company investments in services and meters for new customers or new loads resulting from program participation, but no such costs are included in the CBA.
- The CBA includes federal tax credits as a benefit, and permits double-counting of those benefits, even though they are scheduled to expire before the program begins.
- The CBA optimistically assumes that none of the energy savings from the proposed programs would have occurred in its absence, even though it is best practice in CBA to estimate the underlying level of naturally occurring efficiency gains that would be realized even without a program.

Because of these serious limitations, every one of which contributes to over-estimating the net benefits of the program, the Board cannot rely on the NJNG CBA as an indicator of economic costs and benefits to be expected from the proposed program. Apart from the CBA, however, the excessive program costs per unit of energy saved, and the fact that under this program average gas customer bills would go up instead of down, show that the program is cost-ineffective on its face.

7. Proposed residential EE. NJNG's proposal includes rebate incentives that would be offered to customers, over and above CEP incentives. In addition to continuing the extra $900 incentive for furnaces and boilers in its present E3 program, NJNG would add additional incentives for gas water heaters, solar water heating systems, and electric air conditioning and heat pumps. All these incentives would more than double what the participating customer currently receives based on the CEP program alone, and some would more than quadruple that amount. Some of the incentives would exceed the average incremental cost of the qualifying equipment to the customer. All of them would greatly exceed efficiency incentives seen elsewhere in the utility industry. These high rebate levels are problematic. Additionally, EE incentives for electric equipment are

unusual in the gas utility industry. NJNG has not made a case explaining or documenting the need for any of the new incentives proposed.

My additional findings regarding the residential program are:

- Zero percent or 2.99 percent financing arrangements for net customer costs to implement HPES measures are useful inducements to customer participation.
- The Company proposes HPES home energy audits performed by NJNG personnel, at no charge to qualifying customers and at a modest fee to others. This may be helpful in generating customer interest in HPES.
- The concept of NJNG's paying certain HPES incentives currently paid by CEP in order to provide more budget for that CEP program, as NJNG proposes, is not a sustainable approach to coherent budgeting for the CEP or for EE.
- The OPOWER pilot program relying on information rather than incentives to encourage customer pursuit of efficiency is important to developing approaches that increase the impact of EE programs at reasonable cost to the ratepayers.

8. Proposed nonresidential EE. NJNG's program would offer its supplementary residential incentives to commercial customers whose equipment is in the residential size range. It would also offer matching incentives to supplement those available through the CEP's nonresidential "Smart Start" program, thus doubling the incentives available to the customer. Some of the new program elements would save electricity, not gas. As with the residential program, NJNG has not made a case explaining or documenting the need for the new incentives proposed.

9. Proposed low-income EE. "Access for Affordable Energy" would convert participant homes from electric heat to "efficient" gas heat before customers enrolled in the CEP's existing comprehensive low-income EE program, "Comfort Partners". Thus Access would afford no way to determine whether installation of efficient electric heat pumps would be more cost-effective. This program should not go forward. NJNG should instead support modification of Comfort Partners so that fuel switching can be considered as part of an optimal efficiency solution in that program.

10. Evaluation of the proposed programs. Systematic evaluation of EE programs is necessary to provide program administrators and regulators with information as to how well they are performing and to analyze the actual field impact of programs on energy use. A program of the scope and scale proposed here must be accompanied by an evaluation plan with a supporting budget. Neither is included in the Petition.

11. Post-approval program modifications. EE programs must respond to market experience that cannot be fully predicted. Additionally, the structure of 2011's CEP, on which NJNG's EE would "piggy-back", is unknown at this time. Therefore, it is important that any regulatory approval of the proposed programs include some degree of flexibility for the utility to modify both programs and budgets, as well as a process whereby interested parties can provide input on potential modifications. NJNG proposes that modifications should require Board approval and provide an opportunity for Parties to provide input concerning proposed changes, along the lines of the Stipulation in the E3 matter. However, the Company also proposes that if there is a decrease to funding in CEP budgets for programs that align with NJNG's programs, NJNG will increase its incentive payments correspondingly. This latter proposal limits the ability of the Parties and the Board to review program and budget modifications, and should be rejected.

12. RGGI factors for cost recovery. The RGGI Law states that in considering cost recovery for a proposed program the board may take into account job creation, environmental benefits, the effect of programs on competition, and the availability of similar programs.[1] As summarized above and explained further in the body of my testimony, the Company has not shown net job creation and has not documented environmental benefits that the program would produce. Moreover, the Company has not shown that its proposal would add significant savings relative to programs already available in the market. Additionally, the program costs NJNG proposes are not reasonable.

Q. WHAT ARE YOUR RECOMMENDATIONS?

A. In summary, my recommendations are as follows:

1. In view of the many severe and interrelated difficulties summarized above and analyzed further in the body of my testimony, the Board should deny in its entirety.
2. Following rejection of this Petition, NJNG could refrain from preparing any further EE program proposal until the Board has opened a proceeding to consider the transition of CEP EE to the utilities. Waiting may increase the chances for an approach that is similar across the State's several utilities to emerge.
3. Alternatively, in the interim, there may be a role for a limited extension of the E3 program, which in my view could be pursued via a new and properly documented Petition. This would provide for continued support of the HPES program until the issue of the transition of EE to the utilities has been addressed by the Board. Additionally it would permit the

[1] N.J. S.A 48:3-98.1 ("RGGI Law"), at N.J. S.A 48:3-98.1(b)

OPOWER pilot program to proceed. Any extension of the Company's E3 program should embody the following elements:

a. Extend the residential EE components of E3 for one year.

b. Retain NJNG's role providing HPES financing, possibly with the modifications suggested in the present Petition.

c. Continue to provide the combination of extra furnace and boiler incentives at $900, plus free HPES energy audits by NJNG staff.

d. Possibly provide HPES audits to other customers for a fee.

e. Roll out and operate the OPOWER pilot.

f. Retain existing provisions in the E3 Order and Stipulation for program reporting, budget/program modification, and program evaluation, as appropriate.

g. Include a one-year program budget sufficient to support the preceding elements, but not greater than $10 million in total.

The balance of my testimony explicates the above findings and recommendations. It should be noted that at the time this testimony was prepared, the Company had not responded to some discovery requests. My findings and recommendations may be updated based on responses to outstanding discovery, or based on additional issues that may arise in the litigation phase of this proceeding.

IV. ANALYSIS OF NJNG'S PROPOSED ENERGY EFFICIENCY PROGRAMS

A. NJNG's Present Energy Efficiency Program

Q. PLEASE DESCRIBE THE ENERGY EFFICIENCY PROGRAMS CURRENTLY OFFERED BY NJNG.

A. NJNG currently manages a suite of EE programs called the E3 programs, which were approved by the Board in 2009 in Docket Nos. EO09010056 and GO09010057. NJNG's E3 program provides additional incentives and services to customers who participate in New Jersey's CEP. E3 is nominally a one-year program with a projected investment and operating cost of $16.7 million. One important factor underlying the NJNG E3 program was Governor Corzine's October 2008 Economic Assistance and Recovery Plan, which called for one-time investments in EE by the state's regulated energy utilities as part of an economic stimulus program formulated in the midst of a national economic crisis. In 2010, some $7 million of NJNG's total E3 investment of $16.7 million was dedicated to customer incentives for Home Performance with Energy Star ("HPES") which were previously paid through the BPU's CEP, leaving less than $10 million in its E3 budget for other NJNG EE customer services that are additional to the EE measures provided through the CEP.[2] NJNG's E3 offerings which go beyond the CEP are:

- Zero percent, 10-year financing for net customer costs to implement HPES measures.
- An extra customer incentive of $900 over and above CEP "Warm Advantage" incentives for efficient residential gas furnaces and boilers.
- Free HPES home energy audits, performed by NJNG personnel, required as a condition of taking the foregoing incentive.

Notably, NJNG ratepayers are subject to the Societal Benefits Charge ("SBC") a portion of which funds the CEP NJSA 48:3.49 the Board's Order in in Docket No. EO07030203. A portion of the SBC funds support renewable

[2] Board Order, Docket No. E007030203 (6/18/10).

energy, while most supports EE. NJNG is required to collect $11.2 million through SBC charges in 2010, $13.4 million in 2011, and $15.9 million in 2012.[3]

B. NJNG's Proposal

Q. PLEASE DESCRIBE WHAT IS BEING PROPOSED IN THE COMPANY'S PETITION.

A. In the present Petition, NJNG seeks to extend the scope, scale, and duration of the E3 program. The Petition is filed pursuant to N.J.S.A. 48:3-98.1, the requirements of which are clarified in the Board's May 8, 2008 Order in Docket No. EO08030164. The proposed programs would involve $102 million in energy efficiency and renewable energy program investments over three years. Of this amount, $60 million would be for EE (Schedule DPY-1). With operating costs added, the total three-year cost for NJNG's EE proposals would exceed $75 million (Petition Exhibit NJNG-11).

The EE programs for which NJNG seeks approval include the Residential Energy-Efficiency Program ("REEP"), the Access to Affordable Energy Pilot Program ("AAEPP" or "Access"), and the Commercial Energy-Efficiency Program ("CEEP"). NJNG structured its proposals to complement the CEP.

As proposed, NJNG's residential EE programs will transition directly from NJNG's existing SAVEGREEN and E3 programs. REEP dominates the Company's residential EE proposals, since NJNG proposes to make investments in REEP totaling $51 million over three years (Petition Exhibit NJNG-11). REEP would offer enhanced rebates to residential customers participating in the NJCEP WARM and COOLAdvantage programs. Key elements of REEP include:

- Discounted 10-year financing for net customer costs to implement HPES measures.

[3] See Appendix to the Order Establishing 2009-2012 Funding Level, Docket No. EO07030203.

- Additional customer incentives over and above CEP incentives for efficient furnaces and boilers, gas/solar water heaters, electric air conditioning, and HPES air sealing work.
- Free HPES home energy audits, performed by NJNG personnel, required as a condition of taking the foregoing incentives.
- NJNG paying certain HPES incentives currently paid by CEP in order to provide more budget for that CEP program.
- A pilot program ("OPOWER") that would encourage customer pursuit of efficiency by providing customers with information about their usage patterns.

The rebates, financing, and other aspects of REEP are discussed further in section G of my testimony.

For commercial customers, NJNG seeks approval of CEEP, which would provide a range of incentives additional to those available through the CEP for heating, cooling, and water heating equipment, and for on-site gas-fired combined heat and (electric) power ("CHP") units. Proposed total investments in the CEEP amount to $7 million in the 2011 to 2013time frame (Petition Exhibit NJNG-11). The rebates, financing, and marketing aspects of CEEP are discussed further in Section H of my testimony.

The Company also proposes a pilot program, called "Access", for residential customers eligible for the low-income CEP EE program, Comfort Partners. The Access program would provide free conversions from electric to high-efficiency gas heating systems to home owners who receive at least $50 per month for electricity benefits from the state's Universal Service Fund Program ("USF"). Participants in the Access program would be referred to Comfort Partners for additional energy-efficiency measures. NJNG proposes to make investments in this program of $1.5 million over three years (Petition Exhibit NJNG-11). The Access program is discussed further in Section I of my testimony.

NJNG also seeks approval for the implementation of the FEED program, which will provide financial assistance for energy-efficiency and economic development opportunities for commercial customers. NJNG does not seek cost recovery for the FEED program, and it is not discussed further here.

NJNG envisions that its proposed programs will complement the CEP. It is important to note that the design of CEP programs after 2010 is unknown, and there is no known budget for the CEP after 2012. Further, the State's October 2008 Energy Master Plan ("EMP") calls for transitioning the state-run CEP to the utilities, but the Board has not yet commenced a proceeding to consider or effect such a transition.

C. State Energy Goals

Q. HOW DOES THE COMPANY'S ENERGY EFFICIENCY PROPOSAL RELATE TO STATE ENERGY GOALS?

A. NJNG states that its proposed EE and renewable energy programs support State energy goals, and vice versa. In particular, Mr. Massaro's direct testimony cites the Global Warming Response Act and the State EMP.

The Global Warming Response Act (N.J.S.A. 26:2C-45) promulgates a goal of reducing in-State greenhouse gas ("GHG") emissions to 80 percent of the 2006 level by 2050. With respect to the latter element, the GHG reduction goal, I found no discussion in the Company's Petition quantifying the amount by which GHG emissions from its customers would need to be reduced to attain their share of the GHG goal, the amount by which other programs and policies put into place since the Act was passed will reduce GHG emissions, and most importantly in the present context, the amount of needed GHG reductions that its proposed programs would contribute. GHG emissions are estimated by the Company—though, as explained below, not correctly. However, the Company has not related its estimated emission reductions to the State's GHG reduction goal in a quantitative way.

On May 12, 2008, the Board issued an order ("RGGI Standards Order", Docket No. EO08030164) establishing the required elements of utility petitions to offer EE and conservation programs under the RGGI Law (N.J.S.A. 48:3-98.1). The RGGI Standards Order also set forth the goal of maximizing program benefits and cost-effectiveness.

The State Energy Master Plan ("EMP") was issued in October 2008. The EMP seeks to reduce the State's reliance on fossil fuels and conventionally generated electricity, while easing energy costs and assuring that energy is competitively priced. Among its specific goals, the EMP proposes a 20 percent reduction in energy use by 2020. However, in neither Mr. Massaro's direct testimony nor the balance of its Petition does NJNG seek to quantitatively link the amount of energy savings expected from its new EE proposals to goals set forth in the EMP. There are a number of existing and new programs and policies that contribute energy savings, such as the CEP, the State's energy-efficiency building code, federal monies, NJNG's Conservation Incentive Program ("CIP"), State appliance efficiency standards, State government in-house efficiency improvements, etc. If NJNG believes these must immediately be supplemented by its additional EE proposal if it is to achieve its pro-rata share of the 20% goal, it presents no argument to this effect.

Thus, while the Company cites certain goals, it fails to link its EE proposal to those goals in a meaningful way. The Company cannot establish whether its proposals constitute necessary, useful, or cost-effective contributions to meeting State energy goals without first establishing clear linkages between its proposals and those goals.

D. Program Benefits

Q. WHAT PROGRAM BENEFITS ARE COMMONLY ANALYZED IN SUPPORT OF A PROPOSAL FOR ENERGY EFFICIENCY PROGRAMS?

A. EE programs have benefits in terms of energy saved among participants, as well as the societal benefits of reduced expenditures on electricity and gas transmission and distribution infrastructure, reduced electricity market clearing prices, reductions in power plant emissions (including the value of any emissions reduction credits, as well as health and environmental benefits beyond those internalized by the emissions reduction credit program), and impacts on employment as a result of the EE programs.

Analysis should estimate the benefits that arise from the proposed program alone as well as combined with other programs targeting the same energy usage. Without consideration of the unique benefits of the proposed programs, including energy savings and other benefits discussed below, justification for the magnitude of the programs overall and the budget allocation amongst them is incomplete and insufficient. Although the required analysis is complex, projections of incremental program savings are a basic part of utility EE filings in other states and can be done with the help of experts.

Q. HAS THE COMPANY QUANTIFIED THE ENERGY IMPACTS OF ITS PROPOSED PROGRAM?

A. Yes. In response to RCR-EE-2, NJNG provided lifetime gas and electricity savings. During the June 17, 2010 discovery conference it was confirmed that these energy savings estimates include the benefits of both the CEP and NJNG's proposed programs. As I understand it, actual benefits of the proposed programs must be identified pursuant to the Board's order establishing the required elements of petitions under N.J.S.A. 48:3-98.1 The RGGI Standards Order states that the utility shall "quantify and deduct from the energy and capacity savings any free rider effects and the business as usual benefits from homeowners and businesses installing Energy Efficiency or Renewable Energy without the

N.J.S.A. 48:3-98.1 benefits or incentives."[4] Since the CEP was developed prior to the RGGI Law and pre-dates the Company's instant proposal, it would be more appropriate to include the CEP in the baseline against which the energy savings and other attributes of the Company's proposed programs would be evaluated. In any event, it is essential that a proper evaluation be conducted in order to meaningfully assess the Company's proposals.

Q. DOES NJNG PROJECT NATURAL GAS SAVINGS BEYOND THE LEVEL OF CEP?

A. No. But even if what NJNG proposes may provide more gas savings than CEP alone would, based on NJNG's estimates the level of additional gas savings would be very small. I estimate that NJNG projected saving amounts to about 0.21% of its total gas sales. This does not include the impact of fuel switching measures (e.g., CHP and heating fuel switching from electric to gas) that increase natural gas usage and reduce electricity consumption. In contrast, it appears that natural gas volume reductions attributable to the CEP alone in 2009 amounted to about 0.2% of statewide annual natural gas sales, and the CEP is projected to save about 0.6% of total annual natural gas consumption if committed projects not yet installed in the same year are included (see attached Exhibits DN-2 and DN-3). Thus, while we cannot assume that the CEP would have performed at this level in NJNG's service territory in 2009, it appears that NJNG's proposed program would not add a significant amount of incremental natural gas savings.

Q. HAS THE COMPANY QUANTIFIED THE EMISSIONS IMPACTS OF ITS PROPOSED PROGRAM?

A. NJNG provided estimates of emissions reductions attributable to its proposed EE programs in RCR-EE-2. However, since the Company's emissions reduction projections are based on its estimated energy savings, it appears that NJNG did

[4] RGGI Standards Order, p.6..

not distinguish between the benefits of the CEP alone and the benefits attributable to its proposed programs.

Q. HAS THE COMPANY QUANTIFIED THE JOB IMPACTS OF ITS PROPOSED PROGRAM?

A. The Petition includes direct employment impacts in Schedule NJNG-16. However, these estimates do not account for economic multiplier effects. These include the effect on in-state employment when ratepayers have less disposable income due to tariff charges for EE. Economic multiplier effects also include the extent to which employment directly effected by the program (by NJNG, contractors performing the work, etc.) increases those workers' consumption and, indirectly, leads to increases in employment and income outside of the program. The impact on job retention at companies that have reduced bills as a result of participating in the program was also not estimated. In this economic climate, it is even more important to weigh the full employment benefits of the proposed programs against the full employment costs of reduced disposable income resulting from an increase in the cost of energy consumption.

E. Program Costs

Q. PLEASE DISCUSS THE COMPANY'S PROPOSED EE BUDGET.

A. I will discuss the program costs that NJNG proposes. Its proposal for recovery of those costs, including amortization and return, is not addressed here, but is treated in the testimony of Rate Counsel witness Andrea Crane. NJNG proposes a very large program, particularly when the costs to its ratepayers of the CEP are considered alongside the new costs it proposes here. The following table summarizes NJNG's costs for the present year, 2010, and for the years in its new program, which I take to be 2011, 2012, and 2013. It also includes those costs as a percentage of retail revenue.

Table 2

Energy Efficiency Expenditures by NJNG Programs

($ in Millions)[5]

	2010 (E3)	2011	2012	2013
NJNG (approved and proposed)	$16.7	$22.8	$25.4	$27.5
Expenditure/Revenue	2.1%	2.9%	3.3%	3.5%

NJNG's proposed EE spending as percentage of retail revenue is in the range of 2-4%, which is far greater than any major gas utility I am aware of.[6](Moreover, when CEP's spending on EE is considered, total ratepayer-funded spending on EE in NJNG's area is even greater. EE spending in excess of 1% of retail revenue requirements exceeds gas utility averages and requires very sound justification. I view the relative costs of other gas utilities' EE as a pattern emerging from fielding effective EE programs over many more years than NJNG's experience.

Another perspective on the Company's budget proposal can be gained by examining amounts to be collected from ratepayers to fund it. Table 3 below presents the amounts for EE collected from NJNG's ratepayers for (a) the CEP, (b) NJNG's E3 program, and (c) NJNG's proposed new programs, for the period through 2013 only. The "Revenue requirements" figures in Table 3 represent the revenue requirements set forth in the E3 Order, plus those for new EE programs proposed in NJNG's instant Petition. As shown in Table 4, the impact on ratepayers of the rate recovery for both CEP and NJNG's existing and proposed

[5] Approved E3 expenditure for 2010 taken from Exhibit NJNG-5 page 2, Stipulation approved by Board Order, Dockets No. EO09010056 and EO09010057.

Proposed expenditure for 2011-2013 taken from Exhibit NJNG-11 of the Petition in this matter.

To estimate expenditures/revenue, the revenue shown in Exhibit NJNG-4 of the Petition in this matter was used, after deducting off-system sales.

[6] See, for examples, Exhibit DN-3.

EE programs is unreasonably high.

Table 3

Energy Efficiency Collections from NJNG Ratepayers

($ in Millions)[7]

	2010	2011	2012	2013
CEP (estimated)	$8.7	$10.9	$13.6	--
NJNG E3 revenue requirements	$8.1	$4.7	$4.2	$4.1
NJNG proposed new EE revenue requirements	--	$7.4	$10.6	$14.1
Total Collections	$16.8	$23.0	$28.4	$18.2
Collections/Revenue	2.2%	2.9%	3.6%	2.3%

I have also compared the energy savings realized by several other gas utilities to their EE program expenditures, and expressed their savings as Mcf of gas saved per year per million dollars of utility EE program expenditures. As Figure 1 below shows, if its proposed EE programs are included, NJNG has the worst savings per program dollar of any of the utilities illustrated. Note that the next to last bar on the graph in Figure 1 shows NJNG's proposed program costs and savings, with electricity savings incorporated based on their gas equivalent.

[7]CEP collections are estimated based on the annual funding levels for NJNG appended to NJBPU's Order Establishing 2009 – 2012 Funding Level, Docket No. EO07030203, and the funding ratios between EE and renewable energy presented on page 51 of the Order.

NJNG E3 revenue requirements are from Exhibit NJNG-5 page 1, Stipulation approved by Board Order, Dockets No. EO09010056 and EO09010057.

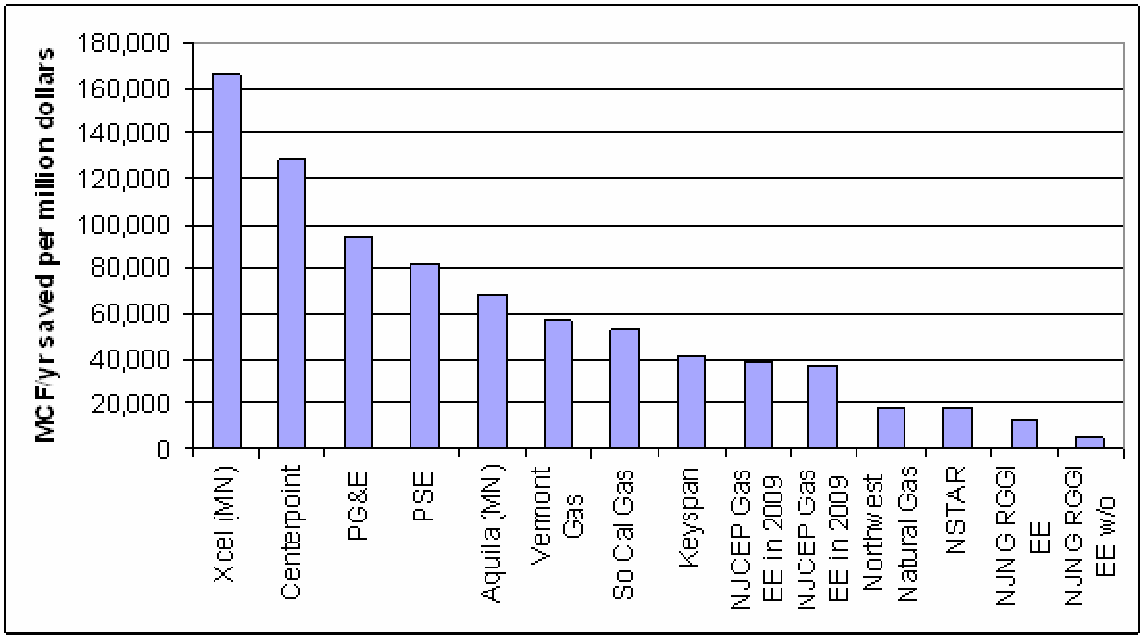
NJNG proposed revenue requirements are from Exhibit DPY-5 of the Petition in this matter.

To estimate collections/revenue, the revenue shown in Exhibit NJNG-4 of the Petition in this matter was used, after deducting off-system sales.

The last bar excludes program costs and savings for electric EE.

Figure 1

Energy Saved vs. Utility Program Expenditures for EE[8]



Q. IS THE EE PROGRAM PROPOSED BY NJNG COST-EFFECTIVE COMPARED WITH GAS EE PROGRAMS IN OTHER JURISDICTIONS?

A. No. NJNG has proposed to increase the level of rebates significantly over and above the current rebates provided under the CEP without any corresponding analysis of the optimum level of rebates for program participants. It appears that the Company's unsupported approach to rebates would result in providing excessive amounts of rebates overall and making NJNG's proposed RGGI programs very cost-ineffective. This is evident by looking at how NJNG plans to spend money and save energy as compared with what other utilities have achieved to date. Leading gas EE programs, including CEP programs, are saving gas equivalent to somewhere between 0.2% to 1% of annual gas sales. NJNG projects that savings from its new EE fall within this range, as explained in

[8] Sources for this figure are described in Exhibit DN-3. The lower of the two NJCEP bars includes future commitments made in 2009, while the other bar does not.

Exhibit DN-2. However, EE spending for the other entities' program shown in Figure 1 falls in a range from 0.35% to 1.6% of annual revenue, while NJNG's proposed program costs are above the high end of this range.[9] As shown in Figure 1, it is obvious that NJNG is proposing to spend far too much for the level of energy savings it promises to deliver.

F. Cost-Benefit Analysis

Q. DID THE COMPANY CONDUCT A COST-BENEFIT ANALYSIS OF ITS ENERGY EFFICIENCY PROPOSAL?

A. Yes. The results of NJNG's prospective cost-benefit analysis ("CBA") are presented in Exhibit NJNG-14 of its Petition, and updates thereto. It is useful to assess the likely costs and benefits of EE proposals. Prospective CBA provides estimates of the aggregate economic benefits and costs of EE from various perspectives. In my view the main perspective is the Total Resource Cost ("TRC") perspective. Other perspectives that I consider important in determining whether to proceed with EE are the Utility perspective and the Ratepayer perspective. Brief descriptions of these perspectives are:

- The Total Resource Cost ("TRC") test predicts the net benefits of EE based on its combined effects on both the customers participating and those not participating in a program. The benefits are the net "avoided" costs of supplying and delivering the energy that would have been consumed absent EE, including those environmental benefits that have a monetary value in the market. The costs are the program costs paid by both the utility and the participants.

- The Utility (or "Program Administrator") Test measures the net costs of a program as a resource option based on the costs incurred by the program administrator. The benefits are the same as in the TRC.

[9] See Exhibits DN-2 and DN-3.

- The Ratepayer Impact Measure ("RIM") Test measures the aggregate long-run change in customer rates due to the EE program. The costs are the program costs incurred by administration of the program, the incentives paid to the participant, decreased revenues for any periods in which load has been decreased and increased supply costs for any periods when load has been increased. The benefits are the same as in the TRC.

The CBA that NJNG performed includes estimates of the costs and benefits of its EE proposals from the TRC, Utility, Ratepayer, and other perspectives. However, the Company's CBA cannot be relied on as an indicator of prospective costs and benefits because it has several serious flaws that affect the validity of reported results from all three of the perspectives I emphasize.

The major flaws in NJNG's CBA are as follows:

- As discussed above, NJNG's CBA does not measure the costs or benefits of its program but only of the joint NJNG/CEP program. To measure the costs or benefits of its program, NJNG's CBA should begin with an estimate of the incremental participation, costs and savings that would be realized compared with a CEP-only program. Otherwise, one cannot assess the meaning of this proposed program and it is impossible to find out if the program would waste ratepayer funds or benefit ratepayers in the long run.

- Cost-benefit analysis of DSM programs must also include shareholder incentives, which are a real cost of delivering EE from a TRC, Utility, or Ratepayer perspective. In NJNG's case, shareholder incentives take the form of earnings on the EE "investment" over its proposed amortization period. In fact, all of the incremental costs associated with amortizing program costs and recovering them at the Company's cost of capital—as opposed to expensing those costs—must be included in the CBA. However, these costs are not included in NJNG's analysis. The Company's approach results in underestimating the cost of the program and thus overestimating net benefits.

- Some of the Company's proposed EE programs would entail additions to the Company's distribution system in the form of services and meters for new customers or new loads resulting from program participation, per the Company's response to discovery requests RCR-EE-27, 28, and 29. No such costs are included in the CBA, resulting in underestimating the cost of the program and thus overestimating net benefits.

- NJNG includes federal tax credits for residential energy efficiency measures as a benefit. This is problematic on two levels. First and foremost, while federal tax credits are currently scheduled to expire at the end of this year, NJNG is assuming several energy efficiency appliances receive the same level of federal tax credits from 2011 to 2013. Second, while the maximum limit of federal tax credit per household is $1,500 over two consecutive years, NJNG is assuming that $1,500 is the maximum amount each year per unit for several measures including HPES TIER III, Gas furnace, boiler, A/C SEER 16. If individuals participate in more than one measure per year, or in two successive years, or both, NJNG's approach will double, or more than double, the benefit attributable to tax credits. This approach overestimates the benefits of the program.

- Finally, NJNG assumes that there is no level of naturally occurring EE, that is, no participants who would have installed EE program measures without the program. This assumption is "optimistic" and is in contrast to utility CBAs in other jurisdictions, which realistically assume some level of naturally occurring efficiency gains. Once again, the approach overestimates the benefits of the program.

On a cumulative basis, these several limitations are quite serious. In my view, the Board cannot rely on the NJNG CBA in its present form as an indicator of economic costs and benefits to be expected from the proposed program.

In the absence of a useful CBA, there are other indicators of whether a gas utility EE program is cost-effective to ratepayers as a whole. One basic indicator

is whether average bills go down as a result of the program. Typically, gas utility EE raises rates somewhat. It is equally typical that average bills go down, because the reduction in consumption from EE measures that save gas produces total bill savings despite the rate impact of EE. However, in NJNG's case, both average bills and average rates go up (Company response to RCR-EE-32). This simple fact indicates that the proposed program is cost-ineffective.

G. Residential EE Program Proposal

Q. PLEASE PRESENT YOUR ASSSESSMENT OF THE COMPANY'S EE PROPOSALS FOR RESIDENTIAL CUSTOMERS.

A. The Company's Residential EE Program proposal entails rebate incentives that would be offered customers, over and above those already available through the CEP. In addition to continuing the extra $900 incentive for furnaces and boilers in its present E3 program, NJNG would add incentives for gas water heaters, solar water heating systems, and electric air conditioning and heat pumps. All these incentives would more than double what the participating customer receives based on the CEP program alone, and some would more than quadruple that amount.

The incentives proposed by NJNG would exceed efficiency incentives seen elsewhere in the utility industry. For example, Vermont Gas and National Grid ("NGrid") in Massachusetts, two leading gas utilities in efficiency programs for many years, provide significantly different incentives, as listed in the Table 5 below. The range of incentive levels by these utilities apply to equipment at different efficiency levels. The only incentive offered by these utilities that even approaches NJNG's proposed total incentive is National Grid's $1,000 rebate for a high efficiency boiler with at or above 90 AFUE. A conventional but efficient boiler with 82% AFUE qualifies for a rebate of only $200 from NGrid, and a higher efficiency boiler with 85% AFUE receives $500. In contrast, NJNG offers rebates of $900 in addition to the $300 CEP rebate, for a total incentive of $1,200.

Table 4

Comparison of Gas Efficiency Incentive Levels[10]

Equipment	NJNG+ CEP rebate	Vermont Gas	National Grid Massachusetts
Furnace	$1200 - 1300	$100 - 400	$400 - 650
Boiler	$1200	$150 - $600	$200 - $1000
Water Heater, Tier I Energy Factor >= .67	$225	$100	$50 (>=.62)
Water Heater Tier II Energy Factor >= .82	$1,300		$700
Solar Domestic Hot water	$3,200	n/a	15% of total cost, $1,500 maximum

Further, a survey recently conducted by U.S. DOE on the level of rebates on central air conditioning ("CAC") units from numerous utilities across the nation reveals that the level of incentives proposed by NJNG for central AC units far exceeds typical incentive levels in utility efficiency programs.[11] The Company proposed to expand the level of CAC rebates currently provided by CEP, which would result in a total incentive of $1,500 for a unit at or above SEER 16, $1,000 for a unit at or above SEER 15, and $750 for unit at or above SEER 14.5.[12] In contrast, the U.S. DOE survey show that the median incentive level for CAC units with performance range from SEER 14 to 16 is $300 over numerous cases, as shown in Figure 2 below. Note that each point represents a rebate level for a certain SEER A/C unit offered by one utility.

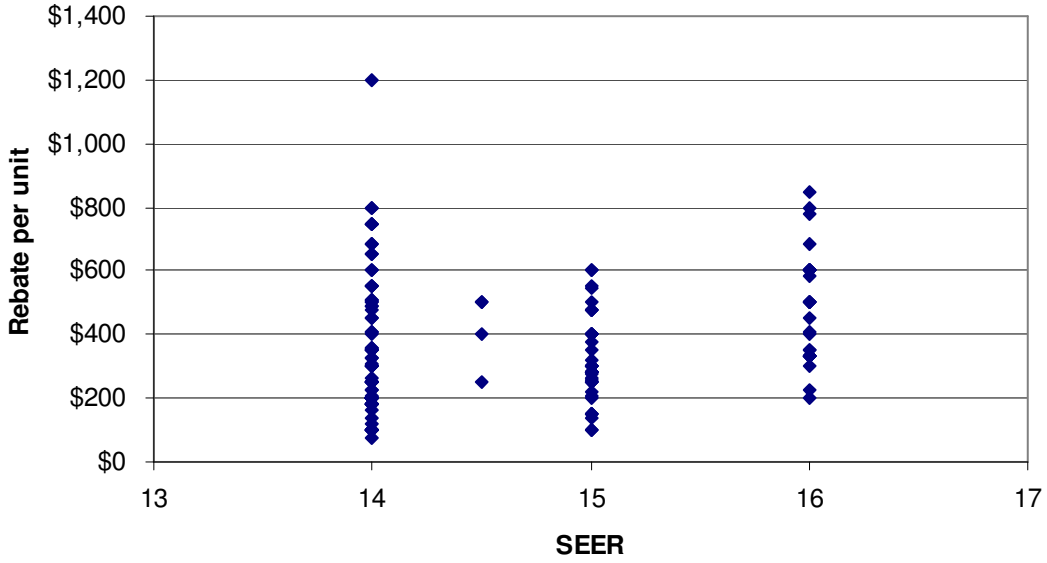
[10] Schedule TJM-1; Vermont Gas's residential program rebates, http://www.vermontgas.com/efficiency_programs/res_programs.html; National Grids' residential program rebates, http://www.masssave.com/residential/heating-and-cooling/find-incentives/incentive-details-gas-networks-hehewh.aspx?q=5c0bf5b8-86d5-4857-a78e-bd4986fa1149; National Grid's solar hot water program rebate, https://www.powerofaction.com/media/pdf/solar.pdf

[11] U.S. DOE 2010. *Preliminary Technical Support Document: Energy Efficiency Program for Consumer Products and Industrial Equipment: Residential Central Air Conditioners and Heat Pumps.* Appendix 3a. Utility Rebate Programs for Central Air Conditioners and Heat Pumps, available at http://www1.eere.energy.gov/buildings/appliance_standards/residential/cac_tsd_031010.html

[12] Schedule TJM-1 in Mr. Massaro's direct testimony.

Figure 2

CAC Rebates in Utility Efficiency Programs in the U.S.[13]



In general, customer efficiency incentives should be set at a levels which, when combined with education and marketing concerning the advantages of efficiency, help induce a significant increase in customer investment in efficiency. However, it is generally accepted that customers should have some personal stake in the investment decision, so that incentives should not approach the average incremental costs of efficiency measures, let alone exceed them. By contrast, NJNG's assumption, as revealed in their cost-benefit analysis, is that the incentives they offer will equal the full incremental cost of efficiency measures. The Company offers no documentation whatever of this assumption. However, independent data on measure costs suggest that some of NJNG's incentives even exceed the full expected cost of efficiency investments to customers. For example:

- For a residential water heater with an Energy Factor equal to or greater than .82, NJNG would provide a $1000 rebate on top of the CEP's $300,

[13] This graph was constructed from the data in the DOE source cited in footnote 11, excluding about 10 percent of the rebate data what were provided in $ per ton.

for a total rebate of $1300. According to the Efficiency Vermont technical data base, the average incremental cost for this measure is $450.[14]

- For an efficient residential boiler, NJNG would provide a $900 rebate on top of the CEP's $300, for a total rebate of $1200. According to the Efficiency Vermont technical data base, the average incremental cost for this measure is $642.[15]

- For a residential central air conditioner with an efficiency rating of at least SEER 16, NJNG would provide a $900 rebate on top of the CEP's $600, for a total rebate of $1500. According to the Connecticut utilities' technical data base, the average incremental cost for this measure is $945.[16]

It is NJNG's responsibility to research and document the average incremental costs for the efficiency measures it wishes to incentivize, and to show the relationship of the incentives it proposes to the capital cost premium for those measures. This quite simply has not been done. The result is unjustifiably large participant incentives.

In sum, NJNG's proposed rebate levels are seriously problematic. What the CEP's participant incentives would be in 2011 is unknown, but even if they were zero, those that NJNG proposes would be too high. Additionally, setting a single rebate level for both furnace and boiler appears simplistic. Both Vermont Gas and National Grid, for example, have several different incentive levels for efficient furnace and gas boilers. Their incentives are differentiated to address the difference in the incremental costs for appliances with different efficiency levels.

[14] *Technical Reference User Manual*, Efficiency Vermont, 2010.

[15] *Ibid.*

[16] *UI and CL&P Savings Documentation for 2009 Program Year*, United Illuminating Co. & Connecticut Light & Power, 2008.

My additional findings regarding NJNG's proposed residential program are:

- EE incentives for electric equipment are unusual in the gas utility industry. NJNG has not made a case describing, explaining, or documenting the need for the incentives proposed.
- Zero percent or 2.99 percent financing arrangements for net customer costs to implement HPES measures are useful inducements to customer participation, if they are part of a program that is reasonable overall.
- The Company proposes HPES home energy audits performed by NJNG personnel, at no charge to qualifying customers and at a modest fee to others. The Company's audit proposal may be at least as useful in generating customer interest in HPES as are the audits otherwise available through HPES.
- NJNG proposes to simply pay certain HPES incentives currently paid by CEP in order to provide more budget for that CEP program. While such an approach may have been defensible in the context of an urgent economic stimulus program such as E3, it is not a sustainable approach to coherent budgeting for the CEP or for EE. It amounts to an "end run" around the CEP budget levels that were set by the Board in the last CRA proceeding, effectively charging ratepayers more for the CEP than was decided.
- The OPOWER pilot program relying on information rather than incentives to encourage customer pursuit of efficiency is important to developing approaches that increase the impact of EE programs at reasonable cost to the ratepayers, and should be pursued.

The Access to Affordable Energy residential EE program proposal is addressed separately in a subsequent section of this testimony.

H. Commercial Program

Q. PLEASE PRESENT YOUR ASSSESSMENT OF THE COMPANY'S EE PROPOSALS FOR NONRESIDENTIAL CUSTOMERS.

A. The Company's proposal for nonresidential EE has three elements:

- Nonresidential customers with domestic-sized equipment needs could access the residential equipment incentives that NJNG proposes be available to residential customers. However, unlike residential program participants, participants in NJNG's proposed nonresidential EE programs would not be required to accept a building energy audit.
- NJNG proposes to simply double the CEP incentives currently available, in mid-2010, for gas cooling systems, boilers, and water heaters --a set of eight equipment incentives in all. (See Exhibit TJM-1 page 5 in the Company's Petition.) Further, as explained below, if the CEP incentives are unavailable or are reduced after 2010, the Company intends to increase its program incentives correspondingly, so that its proposed total incentives equal to double the present CEP levels will continue.
- NJNG will also double the current CEP incentive for on-site CHP. The maximum CEP incentive of $1 million would be matched by an NJNG incengtive of $1 million, per Exhibit TJM-1 page 6. Again, the intent is to ensure a total incentive double the current CEP incentive.

My basic concerns about the Company's non-residential proposal are as follows:

- The Company has not explained why doubling or more than doubling participant incentives is desirable or necessary. There is absolutely no analysis showing by how much increases in incentives may increase participation.
- The Company has not estimated the incremental energy savings that their program would yield, over and above the savings that will be realized if just the existing level of CEP incentives are available.
- The Company has not estimated the level of energy savings that would

occur if there were no EE programs at all. This issue is relevant for all measures, but may be particularly relevant for CHP. According to the initial evaluation of the CEP program, fifty percent of CHP systems participating in the program would have been installed even without the program.[17]

- All the EE incentives the Company proposes are higher than others in the gas utility industry.

Additionally, I note that two of the measures noted above – CHP and gas cooling—would entail reducing grid-supplied electricity load while increasing the use of natural gas.

I. Access Program

Q. PLEASE PRESENT YOUR ASSSESSMENT OF THE COMPANY'S "ACCESS TO AFFORDABLE ENERGY" PROPOSAL.

A. The Access for Affordable Energy would convert participant homes from electric heat to "efficient" gas heat before customers enrolled in the CEP's comprehensive low-income EE program, "Comfort Partners". As I understand the Company's proposal, the conversion decision would precede participation in Comfort Partners. Under this approach, Access would afford no way to determine whether installation of efficient electric heat pumps, rather than a gas furnace, would be more cost-effective for the participants or from a TRC perspective. This program should not go forward. I would suggest that NJNG should instead support modification of Comfort Partners, so that fuel switching can be considered as part of an optimal efficiency solution in that program.

[17] See KEMA Inc., *Combined Heat & Power Program Impact Evaluation, Final Report*, February 2009.

J. Program Evaluation

Q. HOW DOES THE COMPANY PLAN TO EVALUATE THE ENERGY EFFICIENCY PROGRAMS IT PROPOSES?

A. Systematic evaluation of EE programs is necessary to provide program administrators and regulators with information as to how the programs perform. Impact evaluation analyzes the effect of programs on energy use, so that actual energy savings can be compared with expectations. Process and market evaluation analyze how well programs are being managed and delivered, and how effective they are in the markets they attempt to change.

A program of the scope and scale proposed by NJNG should be accompanied by an evaluation plan with a supporting budget. However, neither was included in NJNG's Petition. In response to discovery request RCR-EE-23, the Company explains that because it sees its program as integrated with the CEP, its only role is to "support the information needs for an independent evaluations [sic] that NJCEP may choose to perform…."

NJNG's $75 million, three-year EE program must be accompanied by an evaluation plan. The matters that such an evaluation plan must address include such elements as the following:

- The effectiveness of NJNG's program marketing, administration and delivery services, with any recommendations for improvement based on field experience.
- The actual post-installation energy and GHG savings from the measures in the program.
- The level of participation in program measures that would have occurred under three scenarios – no EE program, the CEP only, and the NJNG program.
- The degree of market transformation resulting from the program.

I would also note that process evaluations would need to be conducted of several unique, non-CEP components of NJNG's proposal, including the provision of independent HPES audits by NJNG staff, the OPOWER pilot program, and the Affordable Access pilot program. All of these evaluations need to be carried out by independent, professional evaluation experts. The evaluation plan needs to include adequate budget for the required studies and analyses.

Notably, the Order and Stipulation approving NJNG's E3 proposal includes a provision specifying that the Rutgers Center for Energy, Economic, and Environmental Policy conduct an impact evaluation and retrospective cost-benefit analysis of the E3 program. It is not known whether there would be adequate budget for this approach in the future. More fundamentally, that simple "E3" provision is not adequate to the more complex and ambitious proposal that NJNG now presents. Instead, an evaluation plan must spell out the kinds of evaluations to be performed, as pointed out above.

K. Program & Budget Flexibility

Q. DOES THE COMPANY PROPOSE FLEXIBILITY TO MODIFY ITS ENERGY EFFICIENCY PROGRAM AND BUDGET ONCE THEY ARE APPROVED?

A. Yes. In his direct testimony, Mr. Massaro proposes to use the same procedural format for modifications that is contained in the E3 Stipulation and Order. Under the E3 procedure, any proposed modification to programs or program budgets is submitted to the Parties with supporting documentation, and if any Party objects within forty-five days, then the change requires Board approval. If there is no such objection and no commissioner requests Board review, the Company can proceed with the requested change(s). Changes that involve more than 10 percent of the entire program package budget or more than 20 percent of an individual program's budget require Board approval in any event.

That E3 procedure provides a reasonable basis to consider what may be an appropriate modification process for NJNG's present proposal. EE programs

must respond to market experience that cannot be fully predicted. Additionally, the structure of the CEP after 2010, on which NJNG's EE would "piggy-back", is unknown at this time.

The Company also requests "authority to increase the incentive offered to customers to match [any] decrease in NJCEP funding" (Petition, point 9, page 9.) Mr. Massaro states that "if there is a decrease to or elimination of funding in the current or future NJCEP budgets in programs that align with NJNG's RGGI Programs, NJNG will automatically increase its incentive payments by a comparable amount" (Exhibit P-2, page 14, lines 4-7). This provision is unacceptable. It would thoroughly undermine any otherwise satisfactory process for input by relevant Parties and regulatory review of proposed modifications.

Another problem with this provision is that incentives would increase to make up for CEP incentive reductions, regardless of the cause for the reduction in CEP incentives. There are a number of reasons why incentives in the CEP or its successor program might be reduced, yet a corresponding increase in the NJNG incentives would not be appropriate. For example, if a CEP measure is found not to be cost effective, or the market is found sufficiently developed that the measures under the EE program no longer require incentives. As proposed, the NJNG incentives would increase even if the CEP incentives were reduced because the market is overheated, e.g., as could happen with the residential HPES and nonresidential "Direct Install" programs.

L. Relationship to Some RGGI Law Factors

The RGGI Law states that in considering cost recovery for a proposed program the board may take into account job creation, environmental benefits, the effect of programs on competition, and the availability of similar programs. N.J.S.A. 48:3-98.1(b). As explained above, the Company has not shown net job creation and has not documented environmental benefits it program would produce.

Moreover, the Company has not shown that its proposal would add significant energy savings relative to programs already available in the market. Additionally, the RGGI Law defines program costs as costs that are reasonable and prudent to develop and implement or other programs. As I have explained, I do not believe NJNG's proposed EE program costs are reasonable or cost-effective.

V. RECOMMENDATIONS

Q. WHAT ARE YOUR RECOMMENDATIONS REGARDING THE CURRENT PETITION?

A. In summary, my recommendations are as follows:

In view of the many serious difficulties with the Company's proposals that I have described above, the BPU should deny the present Petition.

This does not mean NJNG should forego future EE efforts. However, any future proposal should present programs that are well designed and whose effects and cost-effectiveness are well documented.

One possibility is for NJNG to refrain from preparing any new EE program proposal until the Board has opened a proceeding to consider the transition of CEP EE to the utilities. Waiting could reduce the uncertainty that attends the Company's present proposal, with its presumptions as to future CEP program designs. Waiting could also increase the chances for an EE approach that is similar across the State's several utilities to emerge.

Another possibility is that there may be a near-term role for a one-year program that largely consists of extending the residential components of the Company's existing E3 program. The commercial element of the E3 program consisted largely of subsidizing CEP budgets and has been little used to date. The extension could provide for continued support of the HPES program while the issue of the transition of EE to the utilities is being addressed by the Board. Additionally, it would permit the promising OPOWER pilot program to proceed.

The Company could consider proposing a one-year extension that would have the following five elements:

1. Retain NJNG's role providing HPES financing, possibly with the modifications suggested in the present Petition.
2. Continue to provide the combination of extra furnace and boiler incentives at $900, plus free HPES energy audits by NJNG staff.
3. Provide HPES audits to other customers for a fee.
4. Roll out and operate the OPOWER pilot.
5. Retain existing provisions in the E3 Order and Stipulation for program reporting, budget/program modification, and program evaluation, as appropriate.

If the Company chooses to propose such a one-year E3 extension, it should file a new Petition that includes an estimate of the incremental savings that its E3 extension would yield, compared to savings if the CEP has no NJNG resources to rely on. The new Petition should propose a one-year program budget to support the preceding five elements. The accompanying budget should be as lean as possible consistent with supporting the five elements listed above, and in no case should exceed $10 million in total. As noted above, the amount of the original E3 budget, less the $7.4 million that was recently made available to pay CEP incentives, equals $9.3 million. Therefore, a budget cap of $10 million should more than suffice to support continuation of E3 activities, while making monies available for the OPOWER pilot. $10 million would also approach the monies being collected from the Company's ratepayers for CEP EE in 2011. Thus, I suggest this amount as a maximum, not as a recommended budget.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does. However, I reserve my right to amend my testimony subject to updated information from the Company.

EXHIBITS

DAVID NICHOLS
PROFESSIONAL BIOGRAPHY

David Nichols is a senior consultant with Synapse Energy Economics of Cambridge, Massachusetts, USA. For 25 years Nichols was a vice president of Tellus Institute in Boston, of which he was a cofounder. Before that he was associate professor at the State University of New York (Albany).

Nichols works throughout the U.S., as well as internationally. His energy work includes efficiency studies, technology assessment, cost benefit analysis, design and evaluation of demand-side load response and efficiency programs, and policy analysis. He has testified before regulatory commissions in the U.S. and Canada on energy efficiency, renewable energy, rate design, performance-based ratemaking, and other issues. Current and recent work includes:

- Consultant to the New Jersey Division of Rate Counsel for: the Renewable Energy Task Force, the Clean Energy Council, the Energy Master Plan, design and administration of renewable energy and energy efficiency programs, and gas and electric utility recovery of demand-side management costs; as well as off-tariff rate applications. This work has included testimony in several Board of Public Utilities dockets.

- Training of midlevel professionals in India and Indonesia on electric resource planning and demand-side management. This work was done for the U.S. Agency for International Development through the Institute of International Education.

- Comprehensive reports on states' policy and regulatory treatment of energy efficiency and renewable energy for the American Council for an Energy-Efficient Economy, the Colorado Governor's Office of Energy Management, E-Source, and others.

- Study of the achievable potential from new electric energy efficiency and load response measures in Utah, completed for an Advisory Group to the Public Service Commission.

- Heading the team that developed performance indicators for the Climate Change programs (renewable energy and energy efficiency) of the Global Environmental Facility.

- Lead author for the World Commission on Dams' *Thematic Review of Planning Approaches*, focusing on enabling participation in multi-stakeholder planning, avoiding adverse impacts though energy and water conservation, and better siting and operating practices.

- Analyses of utility cost recovery and incentives for ratepayer-funded energy efficiency for the Regional Environmental Councils of Quebec, West Kootenay Power Co., Enbridge Gas Ltd., Southern Alliance for Clean Energy, and others, including related testimony before several regulatory commissions.

Nichols has participated in task forces, advisory groups, collaborative processes, workshops, working groups and settlement discussions on oil, gas, and electric energy efficiency, as well as rate design. In these working group processes he assisted such stakeholders as energy utilities, commission staffs, consumer advocates, energy offices, and environmental agencies.

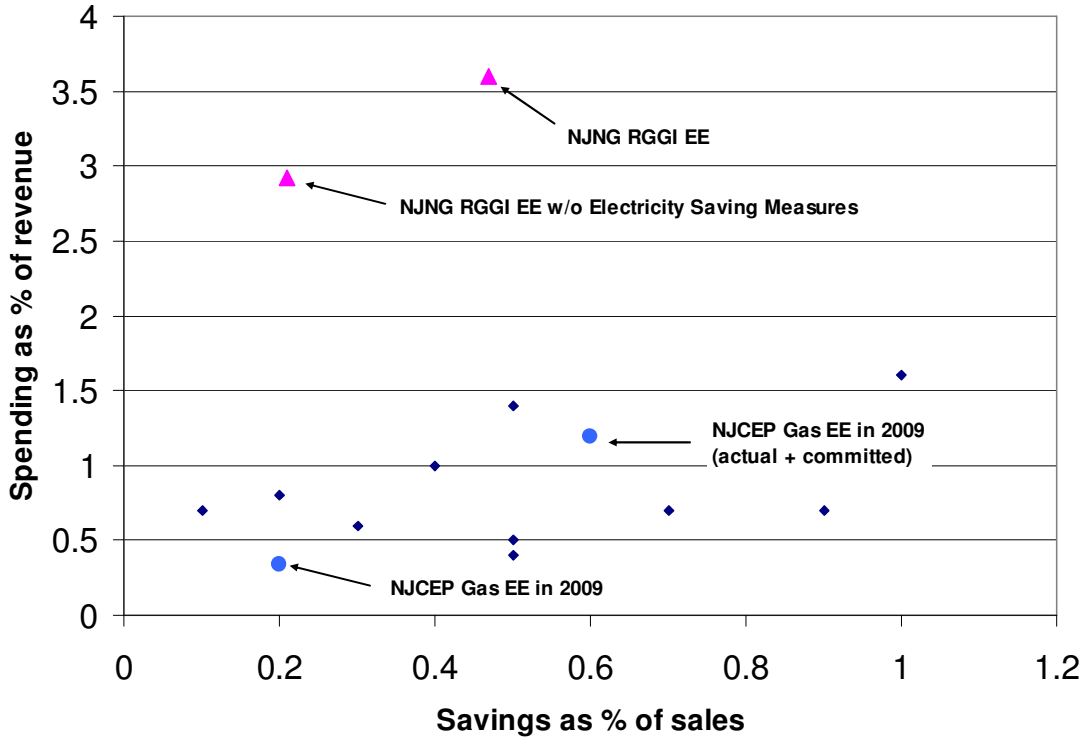
Nichols' energy-related articles have appeared in *Electricity Journal*, *Industry and Environment Review*, *Pace Environmental Law Review*, *Polity*, and conference proceedings published by the American Council for an Energy Efficient Economy, Electric Power Research Institute, and others. He was educated at Clark University, the University of Chicago, and Massachusetts Institute of Technology, where he received his Ph.D.

DAVID A. NICHOLS
TESTIMONY BEFORE REGULATORY COMMISSIONS

JURISDICTION	APPEARANCES		JURISDICTION	APPEARANCES	
	DSM	Other		DSM	Other
Arizona		1	North Carolina	1	
Colorado	2		Nova Scotia	3	
Connecticut	4	1	Ohio	3	
Delaware	1		Oklahoma		1
US Federal Energy Regulatory Commission	2	2	Ontario	3	1
Kansas		3	Pennsylvania	1	
Maine	3		Rhode Island	1	2
Maryland		1	South Carolina	1	1
Massachusetts	3	1	Texas		2
Missouri		1	Utah	1	2
Nevada		2	Vermont	3	1
New Hampshire		1	Virginia	1	
New Jersey	11	2	Wisconsin	2	
New York	2	3			
				Total DSM 48	Total Other 27

DSM: Demand-side management, including energy conservation, energy efficiency and demand response.
Other: Planning, rate design, other energy analysis.
Table does not include testimony that was filed but not heard.

Cost and Savings of NJNG Proposed RGGI Programs Vs. Other Programs



The chart above compares the cost and performance of natural gas energy efficiency programs proposed by NJNG under its RGGI filing with those by several other natural gas programs across the United States including NJCEP programs. The savings on X-axis represents natural gas savings as percent of annual natural gas sales. The spending on Y-axis represents program spending or budget as a % of annual revenue. In addition to NJNG RGGI proposals and the NJCEP 2009 program, there are cost and performance data from 10 leading natural gas companies on their EE programs in 2004. These data are directly taken from a study ("SWEEP 2006") conducted by the Southwest Energy Efficiency Project published in 2006.[1] NJNG's RGGI EE proposal is by far the most expensive program among all programs in this analysis.

There are two data points for NJNG RGGI EE program proposals. One is "NJNG RGGI EE", which includes all of the energy impacts including net natural gas savings from the adoption of efficiency measures, fuel switching measures and CHP, as well as electricity savings. Electricity savings were converted to gas by adjusting them upward by 30% for the energy loss that occurs in the process of power production, transmission, and delivery. The other data point is "NJNG EE w/o Electricity Savings Measures". This only includes natural gas savings and excludes program costs associated with measures that increase natural gas consumption and/or save electricity. Both savings and costs are annual averages over the three year program period.

[1] Study ("SWEEP 2006") by the Southwest Energy Efficiency Project (2006) entitled: *Natural Gas Demand-Side Management Programs: A National Survey.*

Program costs include the budget proposed by NJNG for its RGGI program, plus the portion of CEP program costs that overlap with NJNG's proposed program. The cost data are taken from Schedule NJNG-11 in the Petition and NJNG's CBA workbooks for its "REEP, Access, and CEEP" programs.[2] Revenue data used to estimate EE cost as % of revenue are 2009 data available in Schedule NJNG-4 (less off-system sales). Sales data are from the NJNG response to RCR-EE-41.

There are also two data points for NJCEP 2009 program results. These represent the gas portion of the statewide CEP program. One data points, "NJCEP Gas EE in 2009", includes actual natural gas savings. The other data point, "NJCEP Gas EE in 2009 (actual + committed)", includes actual energy savings in 2009 plus committed energy savings to be delivered in the next or following years. These data are taken from the CEP report "2009 New Jersey's Clean Energy Program Report submitted to the New Jersey Board of Public Utilities". Because this report does not break out spending for EE by gas vs. electric utilities, this analysis allocates spending using the CEP funding allocation between natural gas and electric utilities, available in the NJ Board of Public Utilities Order Establishing 2009-2012 Funding Level, Docket No. EO07030203.[3] Note that though the NJCEP program is not the best performing of the gas efficiency programs in this exhibit, its savings and spending trends are similar to what other entities have achieved.

[2] Those file names are "residential CBA Aggregate May 28.xls", "Residential CBA AAEPP.xls", and "Commercial CBA Aggregate March 26 v2.xls".

[3] Per page 50 of this order, 31% of the total funding level was allocated to gas utilities.

Savings and Costs of NJNG RGGI EE Programs Compared with Other Programs across the Nation

	Program spending (million $)	% of retail revenues	Gas savings (MCF/yr)	% of gas sales saved	MCF/yr saved per million dollars
Xcel (MN)	4.0	0.7	663,000	0.9	166,000
Centerpoint	5.6	0.5	720,000	0.5	129,000
PG&E	21.7	0.7	2,040,000	0.7	94,000
PSE	3.8	0.4	311,000	0.5	82,000
Aquila (MN)	2.1	1.4	146,000	0.5	69,000
Vermont Gas	1.1	1.6	57,000	1	57,000
So Cal Gas	21.0	0.6	1,100,000	0.3	53,000
Keyspan	12.0	1	490,000	0.4	41,000
NJCEP Gas EE in 2009 (Actual)	15.8	0.34	619,614	0.2	39,105
NJCEP Gas EE in 2009 (Actual + Committed)	54.7	1.2	2,051,974	0.6	37,523
Northwest Natural Gas	4.7	0.7	85,000	0.1	18,000
NSTAR	3.9	0.8	71,500	0.2	18,000
NJNG RGGI EE including Electric Savings	22.8	3.6	293,157	0.47	12,849
NJNG RGGI EE w/o Electric Savings Measures	28.1	2.92	132,441	0.21	4,717

Note: All of the data except NJCEP and NJNG RGGI EE highlighted in the table above are taken from SWEEP 2006 cited in Exhibit DN-2. The methods and references used to estimate program spending, % of retail revenue, gas savings, % of gas sales saved are discussed in Exhibit DN-2.

Cost-Effectiveness of Natural Gas Savings by Different Gas Efficiency Programs