

2009-2012 Comprehensive Resource Analysis
BPU Docket No. EO07030203

Comments on Energy Efficiency Programs
Submitted on behalf of the
New Jersey Department of the Public Advocate,
Division of Rate Counsel
May 6, 2008

1.0. Introduction

1.1. New Jersey currently operates a broad set of programs to encourage savings in the use of electricity and gas among the customers of its regulated utilities. For the most part these energy efficiency ("EE") programs are operated as part of the New Jersey Clean Energy Program ("CEP"). The CEP also supports increased use of energy from renewable resources, but these comments are addressed to its EE aspects. CEP's EE programs are grounded in the Electric Discount and Energy Competition Act.¹ By Order in this docket, the Board of Public Utilities ("Board", "BPU") established a schedule for a comprehensive resource analysis ("CRA") proceeding to include hearings on EE and renewable energy funding for 2009-2012.² The Order sets forth a number of issues concerning the nature of CEP programs and their relation to topics under consideration in the Governor's Energy Master Plan ("EMP") proceeding.

1.2. At the current time the ratepayer-funded CEP offers an array of energy-efficiency information, incentives, and services to customers of all types -- residential, business, and public and private non-profit customers. The CEP is funded through surcharges on all electric and gas ratepayers. The CEP is operated by the Office of Clean Energy ("OCE") in the Board of Public Utilities. The OCE uses several contractors to manage and deliver CEP offerings to customers.

1.3. Draft EMP objectives include reducing electricity and natural gas use in the State's buildings sector by 20% each by 2020, compared to the amount of usage forecasted for that year. Energy savings would grow each year until these objectives, which are ambitious, are attained in 2020.

1.4. Several different policies to achieve 20% reductions were discussed in the EMP process. Examples include new minimum standards for the energy-efficiency of appliances sold in the state, and requirements that new buildings in the state be constructed in a more energy-efficient manner. However, EMP analysts estimate that the majority of targeted energy savings must come from programs applied to energy use by

¹N.J.S.A. 48:3-49 et seq.

²BPU Docket No. EO07030203, Order Establishing Procedural Schedule Issues to Be Addressed, April 27, 2007.

customers of the electric and gas utilities, to induce them to voluntarily adopt more energy efficient equipment, buildings, and practices. We agree.

1.5. Rate Counsel believes that the Clean Energy Program must be the foundation of efforts to encourage energy savings among utility customers during the 2009-2012 period. Considerable effort has gone into structuring the CEP as a comprehensive suite of EE programs operated by competitively procured Market Managers under the direction of the OCE. Growing levels of cost-effective energy savings from the programs have been documented. Significant evolutionary progress from where the CEP stands now should be the primary EE strategy for the 2009 through 2012 period. Progress would consist of (1) reasonable growth in CEP goals and budgets, (2) enhancements to CEP programs, and (3) improvements to CEP management. These comments present specific proposals regarding the first two of these topics.

1.6. The New Jersey Global Warming Response Act enacted in 2007 empowers the BPU to adopt an "energy efficiency portfolio standard" ("EEPS") requiring regulated electric and gas utilities to "implement energy efficiency measures" leading to the 20% reductions cited in 1.3 above (see N.J.S.A. 48:3-87). These comments address the issue of an EEPS.

1.7. Legislation enacted to implement portions of the Regional Greenhouse Gas Initiative empowers the Economic Development Administration ("EDA"), the Department of Environmental Protection, and the Board to apply monies in a Global Warming Solutions Fund to several purposes relating to reduction of greenhouse gas emissions, including EE.³ This Act also allows electric and gas utilities to operate new EE programs, subject to Board regulation concerning program scope and cost recovery. These comments address the relationship of new governmental or utility EE projects to the CEP and to the CRA funding level and process for 2009 through 2012.

2.0. Setting CEP Goals and Budgets

2.1. Energy Master Plan analysts estimate that to attain goals of a 20% reduction in electricity and gas use in 2020, energy efficiency programs would have to yield savings of 16,390 GWH (electricity) and 54.64 trillion Btu (natural gas) in that year. In its CRA straw proposal for 2009-2012, OCE used 2020 reductions of 15,200 GWH instead of 16,390 GWH and 59.48 tBtu instead of 54.64 tBtu. Rate Counsel's analysis here uses the OCE figures. However, the approach to goal and budget setting recommended here can be adjusted to any year 2020 EE savings targets.

2.2. CEEEP's modeling conducted in support of the EMP process uses a linear phase in of 1490 GWH of incremental new electricity savings and 4.96 tBtu of gas savings in each of 11 years 2010 through 2020. In its CRA straw proposal for 2009-2020 (April 15, 2008), OCE discussed a linear phase-in over 12 years from 2009. However useful to motivate analysis, such linear phase-ins do not represent an achievable or affordable path for the State's ratepayers. A more gradual path is needed in practice.

³N.J.S.A. 26:20-45 et seq.

2.2. We propose annual rates of growth in EE goals for electricity and gas, which would cumulatively achieve the draft 2020 savings goals, instead of linear phase-ins. For electricity, a growth rate of 11.7 percent per year in annual goals from the Board's 2008 goals would, if realized, achieve the target 15,200 GWh of savings for 2020. For gas, an annual growth rate of 26 percent from the Board's 2008 goals would cumulatively achieve the target 59.48 tBtu of energy savings for 2020. The following table shows these recommended goals, and compares them with a straight-line growth. Rate Counsel's recommended goals numbers are in bold typeface.

**Table 1
Energy Efficiency Savings Goals for the CRA**

Year	Electricity (GWh)		Natural Gas (tBtu)	
	Goals Increase 11.7%/Year	Linear Phase-In	Goals Increase 26.0%/Year	Linear Phase-In
2008 (per Board Order)	576	576	0.82	0.82
2009	643	1267	1.04	5.0
2010	719	1267	1.31	5.0
2011	803	1267	1.65	5.0
2012	897	1267	2.08	5.0

Using the growth rate approach recommended here, the energy savings targets for 2020 would be achieved. Cumulative energy savings before 2020 would be somewhat less than with a straight-line approach, but the growth rate approach provides a path to meeting goals through successive improvements in CEP program scope and effectiveness. Graphs depicting the projected savings under the recommended growth rate, as compared to the linear approach, are presented in Appendix A.

2.3. The CEP budget for achieving these recommended goals for 2009-2012 EE savings may be based on the program costs incurred in other jurisdictions. A survey of the seven utilities or program administrators that achieved the largest EE savings in electricity in 2005 found that their median program cost of saved energy ("CSE") was \$170 per annual MWH saved.⁴ That cost is applied to the electricity savings goals recommended in Table 1 to yield the proposed electric EE budgets shown in Table 2. Similarly, a survey of natural gas EE found a median program cost of saved energy of \$15.40 per annual million Btu saved.⁵ In Table 2, that cost is applied to the recommended gas savings goals. There are indications that past program costs of the NJ CEP have been higher than these CSEs.⁶ However, the electric and gas EE program costs that we propose are based

⁴Summit Blue Consulting LLC, "Benchmarking 2005 DSM Results", presented by Randy Gunn, February 8, 2007.

⁵Suzanne Tegen and Howard Geller, *Natural Gas Demand-Side Management Programs: A National Survey*. Southwest Energy Efficiency Project, January 2006.

⁶See for example Summit Blue Consulting et al., *Assessment of Energy and Capacity Savings Potential in Iowa*, February 2008, page I-14.

on the experience of a wide range of organizations. In future, New Jersey should certainly be able to deliver EE at a comparable cost.

Table 2
Recommended CRA Budgets for Energy Efficiency

Year	Electricity	Gas	Total
2008 (per Board Order)	\$91,750,000	\$41,250,000	\$133,000,000
2009	\$109,378,000	\$16,016,000	\$125,394,000
2010	\$122,179,000	\$20,174,000	\$142,353,000
2011	\$136,476,000	\$25,410,000	\$161,886,000
2012	\$152,439,000	\$32,032,000	\$184,471,000
2009 through 2012	\$520,472,000	\$93,632,000	\$614,104,000

2.4. In the proposed four-year budget in Table 2, the relative amount of funding for gas EE is reduced, based on the actual program cost experience with comprehensive gas EE nationally. The four-year CRA funding totals for all EE, electric and gas, would be as follows:

2001 through 2004 (ordered): \$361.5 million
 2005 through 2008 (ordered): \$472 million
 2009 through 2012 (proposed per Table 2): \$614.1 million⁷

It might be argued that this proposed budget increase for 2009 through 2012 is modest given the challenge of deepening EE impacts. However, the proposed budget is based on experienced program costs linked to achievable goals. Moreover, it has proved difficult for the CEP to invest all the EE revenues collected to date (although that issue may be resolved as the new non-utility Market Managers increase levels of program participation). With good program design and delivery (section 5.0 below), the budgets proposed in Table 2 should put the state on a clear track to meeting 2020 goals.

2.5. In setting the four-year CRA budget for 2009 through 2012, the Board should establish a maximum amount of EE revenue that will come from ratepayers through all funding modalities. In addition to EE funding through the Societal Benefits Charge approach established in EDECA, recent legislation provides at least three other potential modalities for EE funding:

- Revenue from the Global Warming Solutions Fund
- Utility-specific EE programs authorized by the Board
- Any EEPS that may be established by the Board

The Board should explicitly provide that the CRA funding amount be decremented dollar-for-dollar for the value of EE funding from other sources such as these. This would mean that the amount collected through the SBC could be adjusted at least annually in order to reflect funding from other sources. If Table 2 were used to set the CRA budget, the four-year total of \$614 million would function as a maximum amount

⁷Note that this final recommendation of \$614 million is about 10% higher than the preliminary four-year EE budget recommendation cited by Dr. Nichols in his oral comments on behalf of Rate Counsel at the Board's CRA public hearing on April 22, 2008.

that could be collected through the SBC, in the event of no revenues are derived from the Global Warming Fund or new utility programs.

2.6. Under the current method used to allocate the costs of energy efficiency among ratepayers, as decided in the Board's CEP funding order for 2005 through 2008 period, a single volumetric charge is applied to all electric ratepayers, and a single volumetric charge is applied to all gas ratepayers. This approach is adequate and fair, because CEP energy efficiency initiatives result in system benefits for all ratepayers and afford all ratepayers opportunities, over time, to participate in the programs. Rate Counsel proposes no changes in that method. In particular, no class or subclass of ratepayers, such as large energy users, should be exempted from paying its share of energy efficiency costs during the upcoming four-year period.

2.7. In its CRA straw proposal, OCE suggests that the relative amount of EE funding budgeted to the commercial/industrial market, as compared to the residential market, should gradually be increased, until by 2011 funding would be allocated as follows by broad market segment: after deducting proposed budgets for low-income EE programs and for EE-related portions of a "Clean Energy Technology Fund", forty percent of EE funds would be dedicated to the residential market, and sixty percent to the non-residential market. This approach would increase the funding directed to the nonresidential market, where the most cost-effective EE opportunities exist, while still maintaining very adequate funding for the residential market. While this is a directionally appropriate shift compared with the current CRA period, it could be rigid to adopt this approach for the entire upcoming four-year CRA period. Productive opportunities for EE will change over time and may evolve differently between electric and gas end-uses. Rate Counsel suggests that this framework be adopted as a guideline which could be adjusted by the Board during the process of setting annual CEP budgets over the four-year CRA period.

3.0. Energy Efficiency Portfolio Standard

3.1. An EEPS is potentially another way to help attain draft EMP energy savings objectives. The Global Warming Response Act enacted in 2007 empowers the BPU to adopt an EEPS. The "efficiency measures" the Act refers to are expected to be the same kinds of voluntarily adopted energy efficient equipment, buildings, and practices as are now promoted through the CEP. Under an EEPS, however, the utilities would be obligated to ensure that energy savings in the aggregate meet a schedule of increasing annual savings levels. Presumably, the utilities would be responsible for adding to savings from other new policies and programs (such as the building codes, appliance standards, and the CEP cited above) a sufficient increment of savings to assure that the stated percentage reduction is reached. In Rate Counsel's view, EEPS is best seen as a possible supplement to the CEP and not, at least in the 2009-2012 time frame, a substitute for it. Moreover, given the need to focus on building the momentum and effectiveness of the CEP, we do not consider it urgent that the Board consider an EEPS in the near term.

3.2. The EMP may recommend that the BPU consider adopting EEPS, as now explicitly

authorized by statute. If an EEPS is investigated and adopted by the BPU, it may require the utilities to cause more energy savings that are available from the sum of other policies and programs. Two main modalities whereby that would occur have been discussed: utility-based customer programs, or a trading system based on energy savings certificates sometimes called "white tags". Utility-based programs are discussed in the next section, since the more recent RGGI legislation also authorizes them independently of any EEPS scheme that may be considered.

3.3. "White Tag" Trading Model

3.3.1. Under the state's renewable portfolio standard (RPS), renewable energy certificates ("RECs") are issued for each 1000 KWH of electricity generated from qualifying renewable energy resources. There are only two kinds of RECs -- SRECs for solar energy projects, and general RECs for other renewable resources, the main one being windpower. Electricity suppliers -- BGS or other third party power suppliers -- must obtain sufficient RECs to satisfy the RPS. Adopted by the BPU, the RPS requires an increasing percentage of electricity sales from renewable energy each year. RECs are traded in the market, so that the owners of facilities where renewable projects are installed can sell the RECs those projects generate into the market, where they are bought by the power suppliers subject to the RPS.

3.3.2. White tags are based loosely on the RPS model. White tags would be energy efficiency certificates that could be used by utilities to satisfy any EEPS requirements they become subject to. Each white tag might represent, for example, 1000 KWH of electricity saved or some number of therms of natural gas saved through qualifying energy efficiency measures. White tags would be sold by the owners of energy efficiency projects -- who might be utility customers at host facilities, or might be other parties who help customers implement qualifying EE measures. The BPU would have to create a white tag system as none exists now.

3.3.3. Expressing a preference for the a utility program based approach to any EEPS in its comments at the EMP meeting in Newark on September 5, 2007, Public Service Electric & Gas Company ("PSE&G") stated that a "white tag" approach is an "untested concept that requires considerable additional analysis and investigation." PSE&G was concerned that customers might not implement sufficient EE measures under a white tag approach. These are legitimate concerns.

3.3.4. There are cost risks with a white tag approach. In its draft report, the Rutgers Center for Energy, Economic and Environmental Policy ("CEEPP") found that this approach would cost more than the current approach used by the CEP, that of rebate incentives, for the same energy savings.⁸ This would be the case if white

⁸Rutgers Center for Energy, Economic and Environmental Policy, *Energy Efficiency Portfolio Standard: Initial Evaluation of Generic Alternatives*, Draft Report, August 27, 2007, page 30.

tags trade at marginal cost, as RECs do now, so that the cost to produce the last (and thus most costly) units of energy savings to meet an EEPS requirement would determine the market price of all tags issued in a given year. On the other hand, CEEEP also opined that if white tags were issued for each separate type of energy efficiency measure, the cost premium of the EEPS approach could be reduced. However, as there are many different types of EE measures, issuing different certificates by class of measure would introduce excessive regulatory administrative complexity into any trading system.

3.6. There are risks to both the utility-based program approach (see section 4 below) and a white tag approach. Overall, if the BPU considers an EEPS, the better course may be to focus on developing utility-based programs. There is more experience with this approach and it may be less costly and/or more administratively feasible than a white-tag based approach. In addition it may be easier to combine with an enhanced CEP that should continue to deliver the bulk of savings from statewide programs.

4.0. New Utility Programs

4.1. With or without an EEPS, utilities may develop and operate EE programs in their own service areas, as now explicitly authorized in the RGGI legislation. In this model, the gas and electric utilities would design customer programs to complement what the CEP offers. These programs might include additional customer information, additional incentives, and on-bill financing for the customer's costs to implement efficiency measures in his or her premises. The modest "Conservation Incentive Program" currently run by some gas utilities offers hints of what such programs could be like. PSE&G and Atlantic Electric have pending EE program proposals before the Board.

4.2. Utilities might propose to rate-base their efficiency program costs, or to expense them; but either way they would insist on cost recovery surcharges similar to or as part of the Societal Benefits Charge. Per the RGGI legislation, they may also propose net lost revenue recovery mechanisms, and propose performance incentives for savings achieved by their own programs. All else equal, provision of net lost revenue recovery or utility performance incentives would increase the cost to ratepayers of new EE programs, compared to comparable initiatives operated through the CEP. Additionally, several regulated utilities are advocating for rate decoupling, on the grounds that increasing energy use reductions will adversely affect their financial condition, and/or on the grounds that decoupling revenues from sales will remove financial disincentives to them more actively pursuing energy efficiency measures. Decoupling is not addressed in these comments.

4.3. If the budget, scale, scope, and effectiveness of CEP programs do not grow very substantially, then the utilities' complementary programs might have to be substantial in order to meet a schedule of increasing aggregate energy savings. However, the Board's first priority should be to expand the CEP and aggressively enhance its effectiveness. The CRA order should not presume any new utility programs that have not been reviewed and explicitly authorized by the Board.

5.0. Enhancing the Clean Energy Program

The energy efficiency aspects of the CEP should be enhanced through a variety of interrelated improvements. These improvements should be implemented insofar as possible during 2008, and in place for 2009 and subsequent years.

5.1. On-Bill Financing Services

5.1.1. Financing services should be available to help customers pay for efficiency measures they install. We refer specifically to a system whereby the utilities or third party lenders advance the money needed by the customer to invest in qualifying energy efficiency measures. The customer then repays these monies through the utility bill, typically with interest. The repayment schedule is sufficiently long that the customer comes out ahead each month --that is, the expected utility bill savings from the efficiency measure(s) are greater than the loan repayments.

5.1.2. Residential, small commercial, and non-profit customers lacking convenient access to capital may refrain from participating in CEP programs because, even after CEP rebate incentives, there typically is an incremental up-front cost to install efficiency measures. At present, financing services are planned or available only for some specific programs, such the Home Performance with Energy Star® program or South Jersey Gas's zero interest financing for a high-efficiency gas furnaces (the latter is not a CEP program). A broad on-bill financing program would increase CEP participation without adding significant program costs. All utilities would need to participate in the program.

5.1.3. The OCE should move to develop a financing program. As one option, the CEP might make use of an existing financing approach that has already been developed and has been pilot tested at a number of utilities. Here we refer to the Pay as You Save® system developed by the Energy Efficiency Institute. The PAYS® system enables building owners or tenants to obtain and install money-saving efficiency products with no up-front payment. Those who benefit from the resulting savings pay for the products through a tariffed charge on their utility bill. Should the occupant relocate, the obligation to repay remains with the account meter until discharged. Thus, the customer's PAYS obligation ends if occupancy ends. At the website <http://www.paysamerica.org/> more information about PAYS may be obtained.

5.2. To increase the CEP's EE impact in the commercial market, a turnkey direct installation track for small customers is being created, using selected delivery contractors and higher incentives than in the general commercial and industrial ("C&I") program. Budget to develop this program is included in the Board's order on CEP budgets for 2008. However, funding and priority for the program need to be increased in the 2009-2012 time period.

5.3. Also being rolled out in 2008 is the CEP's new "performance contracting" C&I program, whereby energy service companies are paid for measured and verified energy savings from efficiency projects at host facilities. The Energy Performance Contracting Assistance Program operated by the New York State Energy Research and Development Authority is the model for the program. Funding and priority for this program need to be increased in the 2009-2012 time period. Leveraging the ESCO business model may be a major way that additional EE can be obtained at lower than average program cost to ratepayers. In addition, this program will employ the whole building or integrated building approach that the OCE's CRA straw proposal rightly identifies as a strategic approach that will need to figure more centrally throughout the CEP going forward.

5.4. The CEP's current C&I program the rebate cap was recently increased from \$100,000 to \$200,000 per customer. In view of the need to increase energy savings from the CEP program, this cap too should be increased. Obviously the larger the rebate the more careful the administrative review procedure needs to be, but there is little reason to continue with a limit that constrains larger energy efficiency projects. Rate Counsel believes a cap of at least \$500,000 would be a more useful level. Ideally this change would be made during 2008 and thus be accomplished before the 2009 programs begin.

5.5. A void was created in New Jersey when the schools energy education programs operated by the utilities were suspended a few years ago. While schools can and do participate in CEP technology programs, leading states have an array of ancillary programs that help schools and schools related communities to build self-sustaining cultures and sets of tools to use on a continuing basis. Now, the CEP is in the process of fielding a schools energy & education program, Teaching Energy Awareness with Children's Help ("TEACH"). TEACH will provide a range of services to educate students, teachers, and staff, while simultaneously enhancing schools' ability to manage operational energy use and to comprehensively access Clean Energy Programs. Rather than directly delivering technologies, the program builds institutional and individual capacities to understand and implement energy and environmental concepts and measures in an ongoing fashion. Even while this pilot program is in process, the CEP needs to inventory options for a far more extensive suite of schools related programs for 2009 and subsequent years.

5.6. The CEP should not spend more on basic research and development per se, as those activities in most cases are best handled by national laboratories and research centers with federal and energy industry support. However, the CEP faces challenges in increasing the level of gas savings going forward. Therefore the CEP should examine emerging gas efficiency technologies -- both new technologies and those with a limited field track record. Pilot programs for those which show promise could be conducted. Such technologies may include condensing water heaters (both commercial and a new lower cost residential model), a new generation of gas heat pump, a USDOE-funded super boiler, a high efficiency infrared heater, drainwater heat recovery, super-efficient residential windows, and super-efficient residential new construction, for example. It is also important that the CEP develop new components specifically designed to

demonstrate best available electric technologies. Any Clean Energy Technology Fund that is established could be a source of support for some of these efforts.

5.7. The CEP should continue to promote combined heat and power ("CHP") projects subject to minimum CHP efficiency requirements and to periodic assessments of program cost-effectiveness. In line with the suggestion for paying special attention to emerging technologies (5.6 above), the CEP should assess the feasibility of a special CHP program track to promote microturbines. Commercialized largely in the last decade, microturbines complete with heat exchangers configured for CHP use are becoming more reliable and less costly. With low emissions and simplicity of design, microturbines may be a cost-effective CHP option for some types of installations during the 2009-2012 time frame.

5.8 A Clean Energy Technology Fund supported with CEP revenues is included in the OCE straw proposal for the CRA. Largely operated by the EDA, the fund would include \$7.5 million per year over the next four years. Unlike other CEP EE programs, this fund would not necessarily encourage direct energy consumer implementation of energy-saving measures. The Fund would support as yet unspecified economic development programs. It will be important to develop criteria governing the applications of this fund. One criterion we would suggest is that the projects or programs of such a Fund have a strong link to the overarching objective of reducing the State's energy use 20% by 2020. Specifically, applications of the Fund would directly or indirectly increase the scale, speed, or cost-effectiveness of implementing EE measures and realizing savings from EE.

FIGURE A-1: CUMULATIVE ELECTRIC EE SAVINGS

Rate Counsel's Recommended Growth Rate Approach vs. Linear Phase-In of Goals

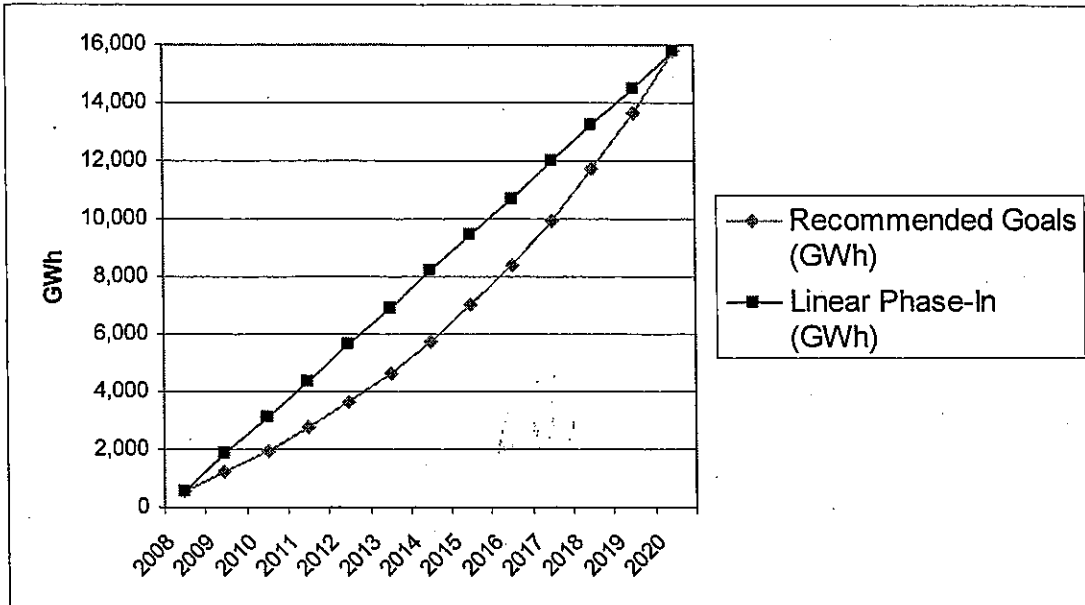


FIGURE A-2: CUMULATIVE GAS EE SAVINGS

Rate Counsel's Recommended Growth Rate Approach vs. Linear Phase-In of Goals

