

Staff Straw Proposal for the NJCEP 2009 through 2012 funding levels – Comprehensive Energy Efficiency and Renewable Energy Resource Analysis

BACKGROUND

On February 9, 1999, the Electric Discount and Energy Competition Act, N.J.S.A. 48:3-49 et al. (EDECA or the Act) was signed into law. The Act established requirements to advance energy efficiency and renewable energy in New Jersey through the societal benefits charge (SBC), at N.J.S.A. 48:3-60a(3). EDECA further directed the Board of Public Utilities (Board) to initiate a proceeding and cause to be undertaken a comprehensive resource analysis of energy programs currently referred to as the comprehensive energy efficiency and renewable energy resource analysis. After notice, opportunity for public comment, public hearing, and consultation with the New Jersey Department of Environmental Protection (NJDEP), within eight months of initiating the proceeding and every four years thereafter, the Board would determine the appropriate level of funding for energy efficiency and Class I renewable energy programs (now called New Jersey's Clean Energy Program) that provide environmental benefits above and beyond those provided by standard offer or similar programs in effect as of February 9, 1999.

As required by the Act, in 1999 the Board initiated its first comprehensive energy efficiency and renewable energy resource analysis proceeding. At the conclusion of this proceeding, the Board issued its initial comprehensive resource analysis order, dated March 9, 2001, Docket Nos. EX99050347 et al. (hereinafter referred to as the March 9th Order). The March 9th Order set funding levels for the years 2001 through 2003, established the programs to be funded and budgets for those programs. By Order dated July 27, 2004, Docket Nos. EX03110945 et al. the Board adopted a final 2004 funding level set out in the table below

Year	Total (\$ million)	Energy Efficiency	% of Total	Renewable Energy	% of Total
2001	\$115	\$86.25	75%	\$28.75	25%
2002	\$119	\$89.25	75%	\$29.75	25%
2003	\$124	\$93	75%	\$31	25%
2004	\$124	\$93	75%	\$31	25%
Total	\$482	\$361.5	75%	\$120.5	25%

By Order dated May 7, 2004, Docket Nos. EX03110946 and EX04040276, the Board initiated its second comprehensive EE and RE resource analysis proceeding and established a procedural schedule for the determination of the funding levels, allocations and programs for the years 2005 through 2008. In this proceeding the Board directed the OCE to review the programs and budgets with advice from the Clean Energy Council. The Board also directed OCE to hold hearings and meetings to discuss programs and budgets.

By Order dated December 23, 2004, Docket No. EX04040276, the Board concluded its second CRA proceeding, set funding levels for the years 2005 through 2008, and approved 2005 programs and budgets. The Board approved funding levels as set out in the table below:

Year	Total (\$ million)	Energy Efficiency	% of Total	Renewable Energy	% of Total
2005	\$140	\$103	74%	\$37	26%
2006	\$165	\$113	68%	\$52	32%
2007	\$205	\$123	60%	\$82	40%
2008	\$235	\$133	56%	\$102	44%
Total	\$745	\$472	63%	\$273	37%

As set forth at N.J.S.A. 48:3-60a(3), EDECA provides that after the eighth year the Board shall make a determination as to the appropriate level of funding for energy efficiency and Class I renewable energy programs. Furthermore EDECA provides that the Board shall determine, as a result of a comprehensive analysis, the programs to be funded by the SBC and the level of cost recovery and performance incentives for old and new programs. As a result of the requirements in EDECA and the aforementioned Orders, the Board directed OCE to initiate a third proceeding and public hearings on program funding and funding allocations for the comprehensive energy efficiency and renewable energy resource analysis programs for years of 2009-2012.

The Board in its April 12, 2007 Order DOCKET NO. EO07030203 requested comments on how New Jersey's Clean Energy Program can support the proposed goals and objectives in the Energy Master Plan (EMP) and the changes to programs and funding levels needed to achieve these goals and objectives.

As set forth in the April 12, 2007 Order the 2009 through 2012 funding levels must support and implement the goals and strategies of the EMP. **It is anticipated that the Draft EMP will be released in the next few months and finalized thereafter. BPU is also working with the Northeast Energy Efficiency Partnerships (NEEP) to determine how best to provide the energy efficiency program to achieve the goals that have been set for the EMP.** In summary, the energy efficiency (EE) and renewable energy (RE) EMP goals are:

1. to reduce electricity consumption 20% by 2020
2. to produce 22.5% of electricity demand through renewable resources by 2020.

The NJCEP 2009-2012 funding levels must also be coordinated with those energy savings measures in the EMP that it does not directly fund, including the majority of combined heat and power and demand response. The EMP goals for these initiatives are as follows:

1. 2200 MW of demand response (DR), and
2. 1500 MW of combined heat and power (CHP)

The funding for the above initiatives and goals--including DR, CHP, EE and RE--must be developed in a coordinated and integrated manner, particularly in the delivery and marketing/education/communication of these specific programs and incentive measures.

The major objective of the straw proposal for the NJCEP 2009-2012 funding levels is to assist New Jersey customers in achieving the EMP goals in the most efficient and effective manner. This 4-year funding level is designed in part to begin to implement the EMP goals to reduce energy use and demand, increase clean energy generation, reduce the environmental impacts of energy generation and use, increase energy related jobs, and lower energy costs. The energy infrastructure decisions that are made today will either assist or hinder the state in achieving these energy reduction and clean generation goals.

It is important to commence the discussions of the next 4-year funding levels even though the EMP and NEEP work is ongoing. It is likely that the final decisions made in these processes will influence the future funding levels, especially in the later years. However, in order to continue program momentum it is necessary to put in place the next 4-year funding level, while recognizing that they may be revisited based on the work currently being conducted.

The 2009 through 2012 funding level must also assist in achieving the Governor's Greenhouse Gas (GHG) Emission requirements for 2020 and 2050 set forth in the New Jersey Global Warming Response Act. The goals of this Act are as follows:

1. Achieve 1990 GHG emission levels by 2020, and
2. 80% reduction in 2006 GHG emission levels by 2050.

As initially estimated by DEP in their GHG reporting, approximately 80% of the anticipated savings in GHG emission levels to achieve the 1990 GHG reduction goal by 2020 will come from EE and RE measures. In order to meet the 80% reduction provision in 2006 GHG levels by 2050 New Jersey will have to be approach a carbon neutral energy infrastructure in its transportation, electricity, and heating usage. The actions we take today have to begin to put us on the right track to achieve this goal.

In order to achieve the EE EMP goals, in the next year we will have to double the savings achieved through NJCEP over the last six years combined. This means that delivery of the EE programs will have to increase approximately six-fold.

This could be achieved by either additional NJCEP SBC funding in current programs or fully revising the program's incentive delivery mechanism.

The solar transition provides a potential roadmap for revisions to the EE programs. The current contract with the Market Managers and the Program Coordinator also provides additional resources for EE. The solar transition took over a year to develop and regulations fully implementing the changes will likely take another year to complete. It is anticipated that a similar time period would be needed to transition to a different model for advancing EE.

Currently, we have achieved the following annual and cumulative lifetime savings or renewable energy generation:

	Electric	Natural Gas	Renewable Energy	Renewable Energy
	kWh	therms	kW	kWh
2001 – 2Q07	1,557,362	2,844,394	64,848	295,789
Annual average	239,594	437,599	9,977	45,506
Maximum	328,513	640,179	27,825	11
Minimum	50,672	243,146	8	181,123
Cumulative Lifetime 2001 -2Q07	21,540,874	50,487,771	NA	4,051,026

The above savings have been delivered by the following participants in the energy efficiency and renewable energy programs:

	2001	2002	2003	2004	2005	2006	2Q07
Residential EE	23,388	28,873	55,109	62,589	50,227	41,498	9,737
Low income	5,848	5,937	6,661	6,706	6,403	8,552	3,610
C&I EE	1,650	9,163	4,209	3,983	2,387	2,094	357
Renewable Energy	6	46	58	284	496	1,005	1267
Total	30,892	44,019	66,037	73,562	59,513	53,149	13,971

Renewable Energy

The solar transition program for financing solar through solar RECs coupled with any additional securization as needed and the changes in the net metering and interaction requirements will in large part assist in meeting the EMP solar goals. However, there is still a need to promote and advance the following types renewable energy for development and operations in New Jersey:

1. Small scale PV
2. Biomass – grid connected and on-site systems
3. Offshore Wind
4. Onshore Wind – grid connected and on-site systems
5. Clean Energy Technology Fund

The EMP objectives for construction and operations of wind and biomass in New Jersey are:

1. 1000 MW of offshore wind by 2020
2. 200 MW of on-shore wind by 2020
3. 900 MW of biomass

Given the current higher capital cost for off-shore wind, onshore wind and biomass compared to the marginal cost of fossil fuel electric generation facilities, we estimate that the funding levels listed below will be needed in order to begin to meet the EMP goals for wind and sustainable biomass Class I renewable energy. This estimate assumes the continuation of the federal investment tax credit, a fair electric and capacity market in PJM, and a vibrant good REC trading market for wind and sustainable biomass. OCE is proposing the following:

1. \$15 Million per year for sustainable biomass, and
2. \$25 Million per year for wind (both offshore and onshore)

The above proposed funding would include incentives for both customer on-site projects and larger renewable energy power plants. Over the next 4 years this is:

1. \$60 Million for sustainable biomass, and
2. \$100 Million for wind

Within the Solar ACP order, OCE is proposing the funding level for rebates for small solar projects as follows:

Year	CORE Rebates for Small Systems
2009	\$21.00 m
2010	\$13.50 M
2011	\$12.00 M
2012	\$ 6.75 M
Total	\$53.25 M

OCE is proposing that small solar projects be defined as 20 kW or smaller.

This estimate assumes the continuation of the federal investment tax credit, a fair electric and capacity market in PJM, and a vibrant SREC trading market for solar.

OCE is proposing, based on a comparative analysis as performed by OEG and EDA of other state Funds used for similar purposes a \$15 million per year fund for the Clean Energy Technology Fund to promote and advance New Jersey EE and RE R&D and manufacturing businesses. The funds for this program would be derived from a 50 – 50 allocation from the EE and RE programs, or \$7.5 per year million for RE for 4 years.

The above results in the following funding level for RE for 2009 through 2012:

Year/ Program	Wind	Biomass	Clean Energy Tech Fund	Small Solar Project 20 kW	Total
2009	\$25 M	\$15 M	\$7.5 M	\$21.00 M	\$68.50 M
2010	\$25 M	\$15 M	\$7.5 M	\$13.50 M	\$61.00 M
2011	\$25 M	\$15 M	\$7.5 M	\$12.00 M	\$59.50 M
2012	\$25 M	\$15 M	\$7.5 M	\$ 6.75 M	\$54.25 M
Total	\$100 M	\$60 M	\$30 M	\$53.25 M	\$243.25 M

Energy Efficiency

The EMP objectives for electric and natural use energy reduction through EE are approximately:

20 million MWh of electric savings by 2020; and
77.24 million dekatherms of natural gas savings by 2020

Of the 20 million MWh, 2.5 million MWh will be achieved through energy efficiency appliance standards for residential and C&I appliance and equipment and 2.3 million MWh through advanced energy building codes for residential and C&I buildings. This leaves 15.2 million MWh to be achieved through the NJCEP.

Of the 77.24 million dekatherms, 7.27 million dekatherms will be achieved through advanced energy appliance standards for residential and C&I appliance and equipment and 9.83 million dekatherms will be achieved through advanced energy building codes for residential and C&I buildings. This leaves 59.48 million dekatherms to be achieved through the NJCEP.

As reported above, between 2001 and 2006 the NJCEP assisted in avoiding 1.2 million MWh of electricity and 2.7 million dekatherms of natural gas usage. 68.5% of the electricity savings were achieved through the C&I EE program and 31.2% were achieved through the residential EE program. 77.3% of natural gas savings were achieved through the residential EE program and 27.4% through the C&I EE programs.

Between 2001 and 2006 66.3% of the EE budget was expended on the residential program of which 28.9% of the residential program was expended on the Low Income programs including Comfort Partners, DCA Weatherization and Seniors Weatherization. The Low Income programs achieved only 11.1% of the residential electric savings and only 1.8% of the residential natural gas savings.

However, while these programs may not be cost effective as other Clean Energy programs, they are necessary and needed programs from a societal perspective and are consistent with EDECA. Without the Low Income programs the residential EE represents 58.6% of the EE expenditures between 2001 and 2006 and the C&I EE program represent 41.4% of the EE expenditures between 2001 and 2006.

Every dollar expended in the C&I EE program resulted in approximately \$11 in customer savings and every dollar expended in the residential EE program results in approximately \$4 in savings. This does not include the societal savings of avoided infrastructure and environmental impact.

It is estimated that approximately 60% of the current 2001 through 2006 EE budgets were expended for electric EE program savings and 40% for natural gas savings.

Through linear trend analysis of the current program expenditures and savings, the attached charts show the projected annual and cumulative savings needed to achieve the EMP EE goals noted above. These charts also project as a linear trend, the energy savings for electricity and natural gas through that same period if the current Clean Energy programs were continued at the same level through this period. In addition, the charts “estimate” the expenditures needed to achieve the EMP EE objectives based on the KEMA report’s anticipated savings, which projected that every dollar in EE spending would generate a dollar in EE savings.

Based on the current expenditures and savings in the natural gas and electric EE program over the last 6 years it is estimated the following EE budgets would be needed in 2009 through 2012 to achieve the EMP savings, given linear savings and costs as assumed in the KEMA study.

Year	Estimated EE Budgets
2009	\$ 393 M
2010	\$ 498 M
2011	\$ 602 M
2012	\$ 707 M
Total	\$2,190 M

However, a one to one relationship between the budget and savings is probably not a correct assumption. In addition, even if it were, the NJCEP could not be ramped up to meet the increase in the EE budget from \$133 million in 2008 to \$393 million in 2009, a 300% increase or to \$707 million by 2012 a 500% increase.

It is not realistic to expect to triple the performance of the current NJCEP in one year or increase it 5 times in this short period of time. In addition, the rate impact on this increase could be up to a 5% total rate impact for the overall EE programs.

These cost and rate impact estimates are part of the reason NEEP is working to analyze other approaches to the delivery of EE that would lessen the impact on ratepayers. A key concept to further explore is whether more of the EE program can be funded from the actual energy savings that occur through implementation of efficiency measures.

One option would be to maintain the 2008 funding level using the reduced RE funding level to fund additional investments in EE programs. The 2008 RE funding level was \$102 M. Because of the solar transition, the 2009 RE program funding level is proposed to drop to \$68.5 M, a decrease of \$33.5 M. This difference could contribute to an approximate 25% increase in the EE funding level for 2009, which is an achievable increase in annual performance.

Expanding the existing programs at an annual increase of 25% in EE funding level would result in the following annual budgets:

Year	Total EE Funding
2009	\$166.5 M
2010	\$208.0 M
2011	\$260.0 M
2012	\$325.0 M
Total	\$958.5 M

This proposed funding level for EE would result in an approximate total rate impact for EE of under 3% in 2012 and no change in the rate impact for 2009 as compared to present levels. The incremental rate impact for EE would be less than 1% over the 4 years. **These proposed budget levels will be revisited as the EMP and NEEP work is completed.**

OCE is proposing, as set forth in the Table below that the total EE funding level be split 60%-40% between C&I and residential, as based on retail sales after the deduction of the low income programs (\$30 million) and the Clean Energy Tech program (\$7.5 M)

	C&I	Residential	Total
2009	\$ 77.4 M	\$ 51.6 M	\$129.0 M
2010	\$102.3 M	\$ 68.2 M	\$170.5 M
2011	\$133.5 M	\$ 89.0 M	\$222.5 M
2012	\$172.5 M	\$115.0 M	\$286.5 M
Total	\$485.7 M	\$323.8 M	\$809.5 M

The Table below lists the total EE funding level as proposed by OCE with the C&I, residential, the low income programs and the Clean Energy Technology Fund programs.

	C&I	Residential	Low Income	Clean Energy Tech Fund	Total
2009	\$ 77.4 M	\$ 51.6 M	\$ 30.0 M	\$ 7.5 M	\$ 166.5 M
2010	\$102.3 M	\$ 68.2 M	\$ 30.0 M	\$ 7.5 M	\$ 208.0 M
2011	\$133.5 M	\$ 89.0 M	\$ 30.0 M	\$ 7.5 M	\$ 260.0 M
2012	\$172.5 M	\$115.0 M	\$ 30.0 M	\$ 7.5 M	\$ 325.0 M
Total	\$485.7 M	\$323.8 M	\$120.0 M	\$ 30.0 M	\$ 959.5 M

In order to meet the goals in the EMP, existing buildings--including both C&I and residential buildings--will have to be retrofitted and upgraded to meet significantly higher energy efficiencies than those currently in place. There are approximately 3.2 million residential homes and 500,000 C&I buildings. In order to achieve the EMP goals, most of the state's existing building stock will have to be upgraded on a whole building or integrated building approach.

The proposed model is an integrated whole building approach. The first step of this approach is to rate the building based on an energy assessment of the performance of the building's energy usage compared to an average baseline. CEP is proposing to use the HERS system for rating residential buildings and the USEPA Energy Star Portfolio Management system for rating C&I buildings.

The next step is to deliver an integrated whole building upgrade within a set plan, including:

1. Building shell upgrades
2. Energy systems upgrades including CHP
3. Appliance and fixtures upgrade
4. Demand response
5. Renewable Energy

The final step is developing a system to monitor/verify the savings tied to the overall financing of the upgrade.

The proposed model would provide the building owner with a report of the cost effective measures needed to accomplish the EE/RE/DR upgrade. The report would also provide a schedule so that the building owner could develop a long term plan based on available financing to upgrade the buildings efficiency or lower its demand in order to achieve a zero energy building with a zero emissions greenhouse gas footprint.

The OCE proposal for the EE programs would include a whole building approach and individual appliance/equipment upgrades or replacements to address worn-out equipment both separately and within the integrated whole building approach.

We are estimating that approximately one third of the upgrades could be available through an individual, upgrade or replacement of an appliance or equipment, while the other two thirds would be allocated through the integrated whole building approach as follows:

C&I	Replacement	Whole Building
	2009	\$25.54 M
2010	\$33.76 M	\$ 68.54 M
2011	\$44.06 M	\$ 89.44 M
2012	\$56.93 M	\$115.57 M
Total	\$160.29 M	\$325.41 M

Residential	Replacement	Whole Building
	2009	\$17.03 M
2010	\$22.51 M	\$45.69 M
2011	\$29.37 M	\$59.63 M
2012	\$37.95 M	\$77.05 M
Total	\$106.86 M	\$216.94 M

The above model highlights one key issue: that rebates or incentives alone cannot provide for the sole means of upgrading the overall energy efficiency or reduced energy usage to meet the goals of the EMP.

This means that changes to the NJCEP need to focus on market transformation, which must include getting manufacturers to increase the supply of products and encouraging retailers to increase the availability (and thereby lower the cost) of energy efficiency appliances and equipment without upfront rebates or incentives. The other component to be considered in this proposed transition is a shift from upfront incentive rebates to an EE financing program, as was accomplished with the solar transition.

NEEP is considering options for such a transition as part of their ongoing effort. As decisions are made, it may be necessary to re-examine the EE funding proposals presented in this straw.

The following table provides a summary of the proposed 2009-2012 funding levels for both EE and RE. The 2008 funding level for EE and RE is included as a point of reference.

Year	EE	RE	Total
2008	\$133.00 M	\$102.00 M	\$235.00 M
2009	\$166.50 M	\$68.50 M	235.00 M
2010	\$208.00 M	\$61.00 M	269.00 M
2011	\$260.00 M	\$59.50 M	\$319.50 M
2012	\$325.00 M	\$54.25 M	\$379.25 M
Total 2009 - 2012	\$958.00 M	\$243.25 M	\$1,202.75 M

The Tables list below estimate the rate impact of the OCE proposed EE and RE funding levels for 2009 through 2012 both in terms of the total rate impact, the incremental rate impact and the bill cost to the average residential household customer.

As stated above NEEP is working with BPU as the EMP is finalized and this evaluation will impact on the overall funding levels and allocation to the different segments

Electric, Natural gas and Total Energy Rate Impact

	Electric EE	Renewable	Total electric	Total Retail Electric Cost	Percent rate impact Total	Percent Rate impact Incremental
2009	\$ 99.90 M	\$68.50 M	\$168.40 M	\$10,895.3 M	1.5%	0%
2010	\$124.80 M	\$61.00 M	\$185.80 M	\$11,411.7 M	1.6%	0.1%
2011	\$156.00 M	\$59.50 M	\$215.50 M	\$11,952.7 M	1.8%	0.2%
2012	\$195.00 M	\$54.25 M	\$249.25 M	\$12,519.4 M	1.9%	0.3%
Total	\$574.90 M	\$243.25 M	\$818.95 M	\$46,779.1 M	1.75%	0.15%

	Natural Gas EE	Total Retail Natural Gas Cost	Percent rate impact Total	Percent Rate impact Incremental
2009	\$ 66.6 M	\$ 7,819.1 M	0.85%	0.0%
2010	\$ 83.2 M	\$ 7,822.9 M	1.06%	0.21%
2011	\$ 104.0 M	\$ 7,747.3 M	1.34%	0.49%
2012	\$130.0 M	\$ 7,627.4 M	1.70%	0.85%
Total or Avg	\$ 383.8 M	\$ 31,016.7 M	1.24%	0.52%

	Percent total energy rate impact TOTAL	Percent total energy rate impact Incremental
2009	2.35%	0.00%
2010	2.66%	0.31%
2011	3.14%	0.69%
2012	3.45%	1.15%
Avg	2.90%	0.72%

Total Customer Bill Impact per Year to the Average Residential Customer

	Residential Electric Usage	Residential Retail Electric Rate	Total Bill Cost per Year for EE and Renewables	Percent Bill Cost impact
	kWh	\$/kWh	\$/Year	%
2009	8,706	\$ 0.1515	\$ 19.78	1.5%
2010	8,755	\$ 0.1542	\$ 21.60	1.6%
2011	8,804	\$ 0.1570	\$ 24.88	1.8%
2012	8,853	\$ 0.1596	\$ 26.85	1.9%
Total			\$ 23.28	1.75%

The incremental customer bill cost between the 2005 through 2008 funding level and this straw for 2009 through 2012 would be 9% of the above total customer bill impact

	Residential Natural Gas Usage	Residential Retail Natural Gas Rate	Total Bill Cost for EE	Percent Bill Cost impact
	therms	\$/therm	\$	%
2009	912	\$ 1.798	\$ 13.93	0.85%
2010	908	\$ 1.820	\$ 17.52	1.06%
2011	904	\$ 1.813	\$ 21.96	1.34%
2012	900	\$ 1.791	\$ 27.40	1.70%
Total			\$ 20.20	1.24%

The incremental customer bill cost between the 2005 through 2008 funding level and this straw for 2009 through 2012 would be 58% of the above total customer bill impact

Reference:

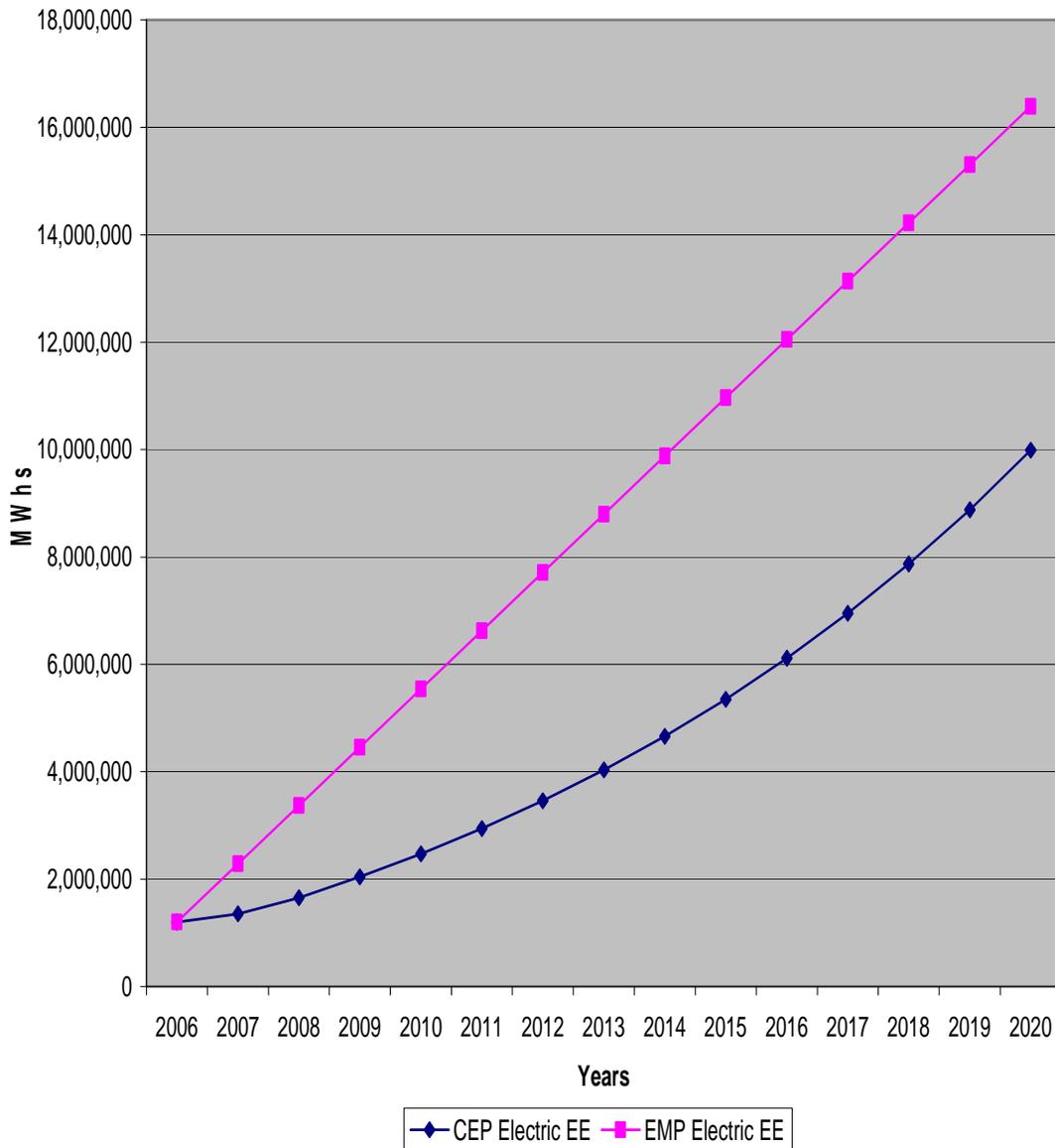
KEMA NJ Energy Efficiency and Distributed Generation Market Assessment Aug 04
 Navigant NJ Renewable Energy Market Assessment Aug 2004
 Summit Blue Energy Efficiency Market Assessment of NJCEP July 2006
 NJBPU CEP Summary data 2001 through 2007 (2Q) summary
 CEEEP Energy Master Plan and R/CON data modeling data

All reports and data are available on the NJBPU CEP or EMP

ATTACHMENTS

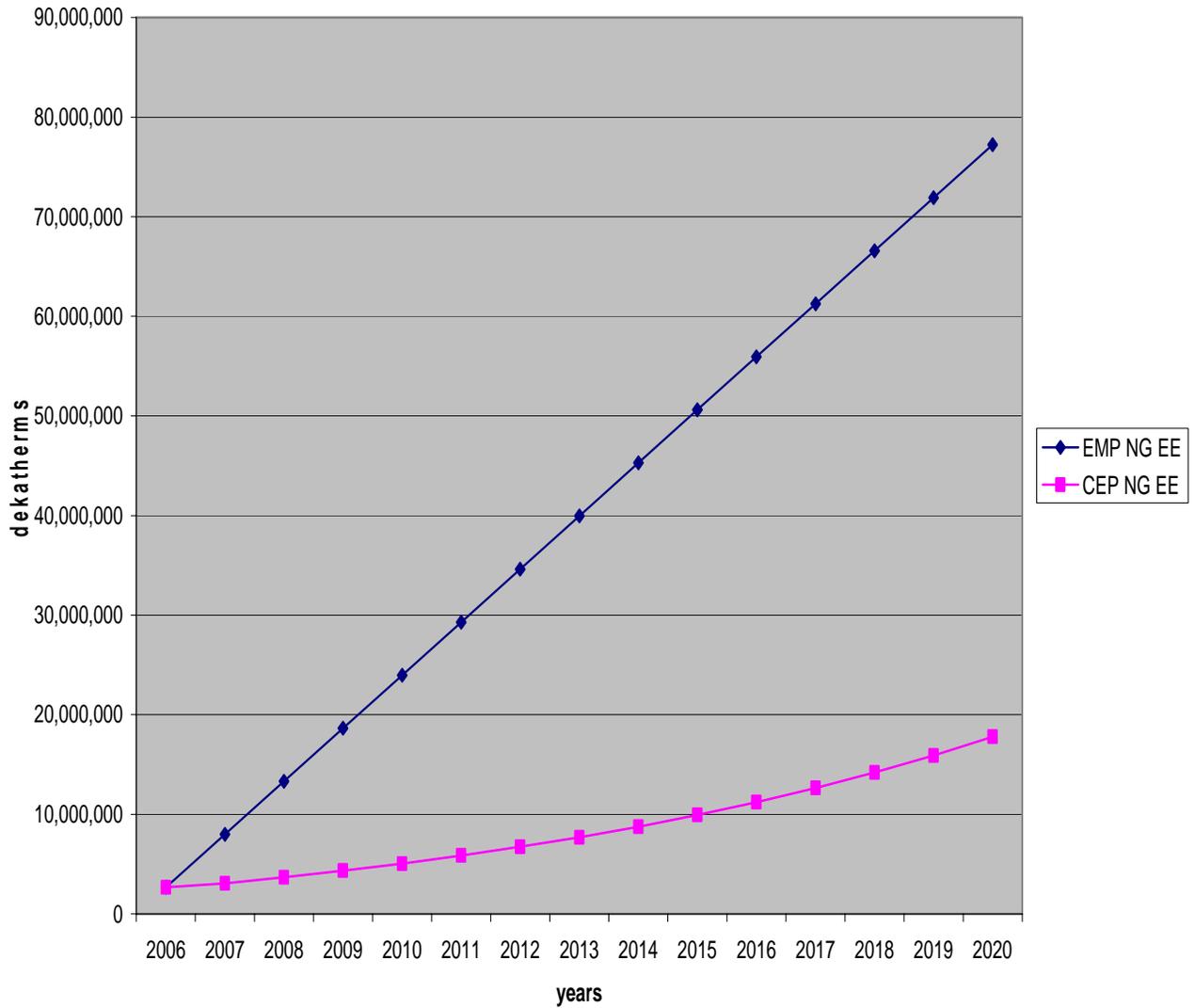
The following is a trend analysis of the current electric energy efficiency savings 2001 through 2006 projected through 2020 and the projection of the electric energy savings.

Current vs EMP Electric EE Cumulative Savings



The following is a trend analysis of the current natural gas energy efficiency savings 2001 through 2006 projected through 2020 and the projection of the natural gas energy savings.

CEP vs EMP NG Cumulative Saving



The following is a trend analysis estimate of the funding needed to achieve the EMP goals based on the trend analysis of electric EE and natural gas EE estimated in the charts above

Cumulative Expenditure for Natural Gas and Electric

