New Jersey Clean Energy Programs
2001 Program Plan

COMMERCIAL & INDUSTRIAL
BUILDING OPERATION & MAINTENANCE PROGRAM

Overview

The goal of this Program is offered by PSE&G, GPU and Conectiv to create sustainable, market-driven improvements in the resource efficiency of operation and maintenance practices in existing commercial buildings and industrial facilities served by New Jersey utilities. The objectives of the Program are to build market awareness and demand for resource efficient building O&M practices, build the capability for the implementation of such practices, and increase the use of resource efficient O&M in buildings.

Market barriers which this Program addresses include: 1) limited customer awareness of the benefits of resource-efficient O&M, 2) limited customer data to track energy costs, 3) limited customer management attention to these issues, 4) absence of efficiency in most O&M service contracts 5) lack of clear standards for O&M-related products and services which improve efficiency, 6) internal structural and financial issues within customer organizations, and 7) the immature developmental state of some products to help achieve building O&M.

The Program initially employs three key strategies to address these barriers:

- Conduct expanded baseline research for and on-going tracking of O&M activity in New Jersey's commercial sector.
- Depending on the findings of ongoing research, develop and establish an ongoing Program for building operator training and certification in resource efficient O&M practices.
- Test market intervention initiatives that help customers increase the resource efficiency of their O&M activities in buildings.

The Program strategy is designed to progressively raise the baseline of building operator capability, O&M activities, and the market demand for resource efficient O&M services. As these practices become common practice and independent, and as third parties assume technical assistance/services in response to Program-generated market demand, utility support will be ramped-down or shifted to other promising Programs.

In 2000, the PSE&G, Conectiv and GPU conducted baseline research of resource efficient building O&M services and activity in New Jersey's commercial sector. This study established that there was need for, and customer interest in establishing a Program for

building operator training and certification in resource efficient O&M practices in the state.

In 2001, PSE&G, Conectiv and GPU will offer a building operator certification course designed to progressively raise the baseline of building operator capability, O&M activities, and the market demand for resource efficient O&M services. As these practices become common practice and independent, and as third parties assume technical assistance/services in response to Program-generated market demand, utility support will be ramped-down or shifted to other promising Programs. The Program will also test a variety of other market interventions that have the potential to help customers increase the resource efficiency of their O&M activities in buildings.

Target Markets/Eligibility

This initiative will target commercial and industrial customers with existing buildings and facilities, including schools and institutions. Measures may include simple operational changes (e.g., reprogram thermostats, turn-off lights), reprogramming equipment, changes in maintenance procedures, low cost or no cost hardware enhancements, and periodic analysis and readjustment of controls systems.

Program Offerings and Customer Incentives

The initiative will introduce a Building Operator Training and Certification Program in the state. It is anticipated that this Program will lay the groundwork for subsequent O&M initiatives and help building owners and managers to recognize the value of good building O&M practices. Utilities will provide marketing help and, for three or four years, will subsidize tuition. Utilities will also evaluate customer benefits, develop case studies, and promote training to facility and financial managers within customer organizations.

In addition, the Program will test other market intervention approaches and tools to increase the resource-efficiency of O&M through pilot projects. These projects will be developed based on the results of the 1999 pilot Program results and 1999/2000 market research. Examples of options under consideration include: training in the use of energy accounting software; training in the recommissioning of existing buildings, streamlined approaches for chiller or unitary HVAC tune-ups, development of standardized energy-efficient maintenance contracts, supporting resource conservation manager positions in institutional organizations, and intensive work with customer staff to improve their organizational and technical abilities to manage buildings efficiently. Program incentives will be designed based on the needs of each market. Conectiv, PSE&G, and GPU will each develop and sponsor at least one pilot initiative. Gas utilities may team up with electric utilities or each other for their pilot initiative.

The Building Operator Training and Certification Program will be delivered through a statewide plan. All electric and gas utilities will participate in its planning and funding. However, PSE&G (both gas and electric divisions), Conectiv and GPU will underwrite

the building operator training and certification program during its initial year in 2001, with the remaining utilities joining the effort in 2002.

Coordination of other market intervention initiatives will be determined based on the needs and merits of each initiative. Gas utilities are encouraged to team up with electric utilities or each other for their pilot initiative.

Sponsoring utilities may provide up to 50% co-pay of a participant's course tuition for the Building Operator Certification Program.

Joint/Coordinated Program Development and Delivery

Coordination of market intervention initiatives will be determined based on the needs and merits of each initiative. Gas utilities are encouraged to team up with electric utilities or each other for their pilot initiative.

2001 Timeline/Milestones

1. PSE&G, GPU and Conectiv will begin offering building operator training workshops by October 1, 2001.
2. PSE&G, GPU and Conectiv will obtain commitment from customers to participate in pilot projects by December 3, 2001.
3. PSE&G, GPU and Conectiv will issue an RFP and select an independent contractor to begin statewide Program process evaluation by December 31, 2001.

2001 Program Goals (for May through December 2001)

1. Conduct two BOC classes.
2. Sponsor at least thirty building operators through the BOC Program.
3. Obtain customer commitments for three O&M pilot projects.

Performance Indicators

In the first year, utilities' performance assessments will be based on the ability to meet milestones #2, #5, and #9 identified above.

Program performance indicators for subsequent years may include:

- O&M-based kWh savings.
- Indicators of transformation of specific markets for energy efficient O&M practices.
- Participation and certification of building operators through the Training and Certification Program as appropriate.

Minimum Requirements for Program Administration

1. Collectively implement all elements of the Program in a consistent manner across the entire state.
2. Collectively meet 50% of goals #'s 1 and 3.

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COMPRESSED AIR SYSTEM OPTIMIZATION PROGRAM

Overview

The goals of this Program, offered by PSE&G and GPU, are to 1) capture significant energy savings from compressed air system optimization in industrial facilities, and 2) progressively create market conditions whereby independent businesses can build a sustainable market to address these opportunities. The expectation is that the market can be transformed to the point where utility incentives are not necessary for optimization of systems over 300 HP within a four year period. Market transformation for smaller systems, and the ability to discontinue utility technical assistance, is a less certain outcome.

Market barriers include 1) limited customer awareness of compressed air costs, opportunities for savings, and production related benefits, 2) lack of management focus on compressed air, 3) significant front-end study costs, 4) a limited number of vendors who promote system efficiency, and 5) limited credibility of vendors and approaches for system optimization. However, the return on investment and ancillary benefits from system improvements are very attractive.

- The utilities conducted customer and contractor Compressed Air Challenge training last year. Based on this experience, additional training will be continued in 2001; however, a wider a variety of training models, including Compressed Air Challenge and vendor-conducted workshops, will be pursued.
- As the pool of trained customers expands, the Program will shift its emphasis from training to engaging these customers in follow-through with compressed air audits and actual projects. Therefore, the 2001 Program will focus on developing potential studies, leading to projects.
- PSE&G completed a market assessment of compressed air optimization potential in its service territory last year and will focus its efforts on audits and actual projects in 2001.
- For GPU, audit goals are predicated on the results of an assessment of compressed air Program potential in their service territory. Base on the results of this study, the Market Transformation Plan will be revised accordingly.
- The results of this early experience will be shared with Conectiv and RECo (each of which is assumed to have very small compressed air potential, due to the demographics of their service territories) so that the Program can grow out to a seamless statewide offering in 2002.

- Case studies of compressed air optimization, emphasizing bottom-line impacts of energy and non-energy benefits, will be developed by the utilities.

The Program is designed to progressively raise the efficiency baseline of compressed air O&M, system design and redesign, and, also, the market demand for compressed air system optimization. As these practices become more common, and independent and third parties establish profitable businesses providing these services in volume, utility support will be ramped-down or shifted to other promising Program features.

This Program applies only to GPU and PSE&G because of limited compressed air load among Conectiv's customers, and limited gas-fired compressors statewide. Conectiv and gas utilities will keep informed of progress in this initiative and address compressed air opportunities through the C&I Energy Efficient Construction Program.

Target Markets/Eligibility

The Program will target industrial customers with facilities containing significant compressed air systems (over 100 HP). These customers encompass many key New Jersey industries including plastics, chemicals, forest products, high technology, and pharmaceuticals. The focus will be on the efficiency of all compressor system elements, including compressors, auxiliaries, controls, distribution, end-use, and operation and maintenance.

Program Offerings and Customer Incentives

The Program initiatives will leverage current national training efforts for customers, equipment suppliers, and service providers under the Compressed Air Challenge banner. For compressed air market transformation, consistency is most crucial in training, which will be nationally coordinated through Compressed Air Challenge. Utilities will recruit key customers for the training Program and use that as a recruitment vehicle for other efforts. Key targeted decision-makers within the customer's organization will include facility managers, engineers, and maintenance personnel.

The Program will also sponsor case studies of compressed air optimization in order to demonstrate the bottom-line impacts of energy and non-energy benefits and to build market awareness of compressed air efficiency opportunities, both for customers and for contractors/service providers. To assure the success of the case studies, financial incentives will be provided for: a) the technical studies and b) for equipment upgrades (available separately through the C&I Energy Efficient Construction Program). As customer and contractor awareness and market demand build, the Program will adjust incentives for studies to maintain only levels necessary to produce desired levels of market response.

Studies will be cost-shared between the customers and sponsoring utilities according to the technical study requirements and procedures developed for the C&I Energy Efficient Construction Program.

Joint/Coordinated Program Development and Activity

For compressed air market transformation, consistency is most crucial for functions which will be nationally coordinated through the Compressed Air Challenge; namely training, and perhaps later, certification of contractors. Therefore, the only activities where formal inter-utility coordination is required will be those run nationally through the Compressed Air Challenge. However, PSE&G and GPU are encouraged to develop joint plans and to coordinate activities so that compressed air service vendors, who work across utility service territories, are not confused by differences and are thereby encouraged to fully participate.

2001 Timelines/Milestones

1. GPU will complete an evaluation of compressed air Program potential in its service territory by October 1, 2001 and revise the Market Transformation Plan accordingly by November 1, 2001.

2. PSE&G will obtain customer commitments for compressed air audits by July 9, 2001. (GPU's commitment is contingent on outcome of #1.)

3. Utilities will issue an RFP and select an independent contractor to begin statewide Program process evaluation by December 31, 2001.

2001 Program Goals (for May through December 2001)

1. Obtain participation of at least seventy-five trainees in some form of recognized compressed air training, including vendor-based or Compressed Air Challenge offerings.
2. Complete evaluation of compressed air Program potential in GPU service territory, evaluate the results of the year 2000 training and pilot activities for PSE&G, and revise the Market Transformation Plan accordingly for both utilities.
3. Obtain customer commitments for five compressed air audits/studies/case studies.

Minimum Requirements for Program Administration

1. Collectively implement all elements of the Program in a consistent manner across the entire state.
2. Complete milestone #2.
3. Collectively meet 50% of goals #'s 1 and 3.

Program Performance Indicators:
In the first year, utilities' performance assessments will be based on the ability to meet the milestones identified above. In addition, installations receiving technical and financial assistance through the C&I Energy Efficient Construction Program are eligible for that Program's kWh savings-based incentive. In subsequent years, the following criteria may be used to judge performance:

- Additional participation of customer and service provider trainees in Compressed Air Challenge training.
- An increase in non-rebated compressed air system optimization projects in NJ from the results of utility-sponsored training and case studies.
- An increase in the percentage of compressor replacements or added purchases that involve a technical review of system optimization opportunities in systems.

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COMMERCIAL & INDUSTRIAL
ENERGY EFFICIENT CONSTRUCTION PROGRAM

Overview

The C&I Energy Efficient Construction Program (EECP) is offered by PSE&G, GPU, Conectiv, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas and South Jersey Gas to: a) capture lost opportunity energy efficiency savings that occur during customer-initiated construction events (i.e., when customers normally construct buildings or buy equipment); b) achieve market transformation by helping customers, designers and specifiers to make energy efficient equipment specification, building/system design, and commissioning standard practice; c) stimulate small customer investments in energy efficiency measures; and d) lay the groundwork for an upgrade to New Jersey's commercial building code.

This program is designed to address key market barriers to efficient building construction and design on the part of developers, designers, engineers, and contractors including: unfamiliarity or uncertainty with energy efficient building technologies and designs; bias toward first cost versus operating costs; compressed time schedules for design and construction; aversion to perceived risk-taking, despite the proven reliability of efficient technologies and designs; incentive structures and priorities for engineers, designers and contractors which are at variance with efficiency considerations.

The program will employ the following key strategies to accomplish this goal:

- Program emphasis on customer-initiated construction and equipment replacement events;
- Coordinated and consistent marketing to commercial and industrial customers, especially large and centralized players, such as national/regional accounts, major developers, etc.;
- Consistent efficiency and incentive levels for efficient electric and gas equipment and design practices;
- Prescriptive incentives for pre-identified efficiency equipment and custom measure incentives for more complex and aggressive measures;
- Design support/technical assistance to developers and their contractors for new construction and renovation projects;
- Specialized technical assistance for small commercial customers and educational institutions.

- Specialized program paths for markets with unique opportunities for energy savings and market transformation.
- Technical support for commercial energy code updates, and marketplace training in energy code requirements.

Target Markets/Eligibility

Commercial, educational, governmental/institutional, industrial, and agricultural customers engaged in customer-initiated construction events including new construction, renovations, building additions, remodeling, equipment replacement, and manufacturing process improvements. In addition, the program may be used to address economic development opportunities and transmission and distribution system constraints.

Program Offerings and Customer Incentives

The program will offer the following offerings.

Core Program Offerings

- Prescriptive Efficiency Measure Rebates that provide fixed incentives for energy efficiency measures. Incentives are based on incremental costs (i.e., the additional cost above baseline equipment), in consideration of market barriers, changes in baselines over time and market transformation objectives. Eligible electric and gas energy efficiency measures include lighting equipment and controls, motors, unitary HVAC equipment, chillers, and variable speed drive applications.
- Custom Measure Incentives for more complex and aggressive custom efficiency measures. Incentives are based on incremental costs, in consideration of market barriers, changes in baselines over time and market transformation objectives. Eligible electric and gas measures include lighting systems, HVAC systems, motor systems, and other non-prescriptive measures proposed by the customer.
- Comprehensive Measure Incentives for more comprehensive selections of efficiency measures (i.e., two or more of the following equipment types - lighting, unitary HVAC, chillers, motors, and/or variable speed drives) that result in synergistic energy savings. Incentives are based on incremental costs, in consideration of market barriers, changes in baselines over time and market transformation objectives.
- Design Incentives and Support, including building simulation, to architects and engineers to consider and use integrated design approaches that provide additional, synergistic energy savings. The design incentives cover a portion of the incremental cost for additional energy efficient design services over the base cost of building design.
- Technical Assistance and oversight to help customers evaluate energy efficiency options, utilize program offerings and services, and effectively use performance-contracted services. In addition, targeted technical assistance will be provided to small commercial customers.

- Incentives and Technical Support for Commissioning Services for new construction and large projects with mechanical controls. The final design of the commissioning support will be developed jointly by the utilities based on their experiences with past programs, pilot projects, and recent market research.
- Coordinated and consistent marketing strategy including:
    a) Coordinated marketing to large and centralized players (such as national/regional accounts, major developers, local contractors, and architect/engineering firms);
    b) Coordinated broad-based marketing (such as advertising, promotions, trade shows, and collateral marketing materials) to raise general awareness of the program; and
    c) Coordinated retail/local outreach and technical assistance for all fuel types so that all customers have equal access to the program offerings.

Specialized Markets/Program Paths: In addition to the core offerings, the following specialized program paths will be developed and offered:

- Chiller Replacement/Conversion Path to address the significant opportunities to optimize the interaction between chiller systems, pumping and fan systems, and other building loads at the time of chiller replacement/conversion. This program path provides technical assistance, core program incentives for the chiller replacement, and retrofit level incentives for chiller auxiliary equipment upgrades and lighting system improvements.
- School and State/Municipal Government Facilities Path to support understanding and development of market-based performance contracts through education, training, technical assistance, and seminars and to provide particular support to the Abbott Schools program to ensure that these schools take full advantage of program technical assistance and incentives.
- Lighting Remodeling Path to provide specialized marketing, standardized technical assistance tools, and training to help contractors recommend and install energy efficient lighting systems during remodeling.
- Technical support for state consideration of possible future upgrades to the efficiency components of the state's commercial building code (e.g., through the sharing of research results, program experience, and technical analysis). In addition, support for the Federal efficiency standard setting process in the form of information provision, tracking, and testimony where appropriate.
- As a compliment to the motor rebates, an initiative to enhance the efficiency of customer motor management practices. This initiative will be offered in the context of a region wide program sponsored and administered by Northeast Energy Efficiency Partnerships (NEEP). The NEEP program focuses on the quality of motor repairs and repair/replace decision-making and provides training, technical advice, and access to decision-making tools and guidelines.

- As a complement to the unitary HVAC rebates, an initiative to encourage efficient installation of unitary HVAC equipment. The utilities will coordinate with and leverage off of regional (e.g. NEEP) and national (e.g. CEE, contractor groups) efforts. The final design of this initiative will be developed jointly by the utilities based on their experiences with past programs, insights and guidance from parallel NEEP and CEE efforts, and recent market research.

Customer Incentive Schedules

The following incentives, which vary by size, type and efficiency, will be offered statewide:

Design Support Incentives:	
Pre-design planning session -	Up to $1,000.00
Design simulation and screening -	$5,000.00 or more
Detailed analysis of energy-efficiency measures -	Up to $5,000.00
Multiple Measure Bonus -	10% above the incentive measure

Qualifying Equipment Incentives:	
Electric Chillers:	
• Water Cooled Chillers -	$12 - $170 per ton
• Air Cooled Chillers -	$8 - $62 per ton
Natural Gas Chillers:	
• Gas Absorption Chillers -	$185 - $450 per ton
• Gas Engine Driven Chillers -	Treated under Custom measure path
Desiccant Systems -	$1.00 per cfm (gas or electric)
Unitary HVAC Systems:	
• Unitary AC and Split Systems -	$38 - $92 per ton
• Air to Air Heat Pumps -	$38 - $125 per ton
• Water Source Heat Pumps -	$45 - $81 per ton
• Packaged Terminal AC & HP -	$45 - $65 per ton
Geo-Thermal Heat Pumps:	
• Open Loop & Closed Loop -	$580 per ton
Central DX AC Systems -	$24 - $72 per ton
Gas Fired Boilers -	$300 per boiler
Gas Furnaces -	$300 per furnace
Variable Speed Drives (HVAC):	
• Variable Air Volume -	$90 - $210 per hp

• Chilled Water Pumps -	$60 per ton
Water Heating:	
• Gas Water Heaters -	$50 per water heater
• Gas Fired Water Booster Heaters -	$17 - $35 per MBTUH
Premium Efficiency Motors:	
• Three phase motors -	$45 - $700 per motor
Lighting:	
T-8 lamps with electronic ballast -	up to $40 per fixture
Hard-wired compact fluorescent -	$35 per 1 lamp fixture
	$40 per 2 lamp fixture
Metal Halide w/ pulse start -	$50 per fixture
LED Traffic Signal lamps -	$35 per 8" lamp (red & green only)
	$50 per 12" lamp (red & green only)
Lighting Controls:	
Occupancy Sensors	
• Wall mounted -	$30 per control
• Remote mounted (e.g., ceiling) -	$75 per control
Day lighting Dimmers -	$40 per ballast
Occupancy controlled hi-low	
• Fluorescent controls -	$40 per ballast
HID controls	
• Occupancy hi-low -	$75 per fixture
• Daylight dimming -	$75 per fixture
Performance based lighting incentive for indoor and outdoor (attached to building) -	$ 1.00 per watt-per-square foot saved

Joint/Coordinated Program Development and Delivery

All electric and gas utilities will commit to a process to coordinate detailed program development and implementation of a consistent program design. The utilities will jointly develop and implement identical program eligibility requirements, equipment baselines and efficiency standards, and incentive levels, for both the core program offerings and the specialized program paths. The utilities will define and finalize these offerings based on their respective program experiences, the results of the New Jersey commercial baseline study and other state/regional market research, and current pilot/demonstration projects. In addition, the utilities will develop and implement a coordinated marketing strategy and a joint evaluation plan including baselines and performance metrics.

2001 Timeline/Milestones

1. All materials necessary to implement and market the core program, including statewide and program-specific websites, and to respond to customer requests are in place by May 9, 2001.
2. Implementing utilities will provide briefing on program offerings to the state officials responsible for administering the Abbott School program and other state education initiatives by June 8, 2001.
3. Implementing utilities will develop a joint plan and strategy to promote program services to k-12 schools and institutional and publicly owned facilities by July 9, 2001.
4. Utilities will provide briefing on the program offerings to the Department of Community Affairs officials responsible for building energy code administration by September 9, 2001.
5. Electric utilities will begin offering series of lighting design workshops by October 1, 2001.

Implementing utilities will issue RFP and select an independent contractor to begin statewide program process evaluation by December 31, 2001.

Minimum Requirements for Program Administration

1. Collectively implement all elements of the program in a consistent manner across the entire state.

2. Collectively meet the following milestones: #1 and 3.

3. Collectively meet at least 50% of the utilities' agreed upon statewide MWh savings and therm goals.

4. Individually achieve the cited participant numbers for the following program elements:

	PSE&G -Elect	GPU	Conectiv	RECO	PSE&G -Gas	E-town	SJG	NJNG
Core program projects: *	200	75	40	10	Included w/ elect	20	10	20
Tier-2 HVAC units:	30	15	10	-	-	-	-	-
Joint gas/electric technical studies:**	1	1	1	-	1	1	1	1
Chiller optimization projects:**	1	1	1	-	-	-	-	-

* Committed projects or projects with signed application forms for the total of prescriptive, custom, and Comprehensive Design Support incentives.

** Committed projects.

Performance Indicators

In the first year, utilities' performance assessments will be based on the ability to meet the milestones identified above. Program performance indicators for subsequent years may include:

- Energy savings,
- Specific actions to transform markets,
- Market share improvements for energy efficient equipment and practices,
- Market awareness,
- Indicators of transformation of specific markets for energy efficient equipment and practices

2001 Program Goals (for May through December 2001)

1. Complete or have under agreement at least 625 total projects eligible for prescriptive, custom, and Comprehensive Design Support incentives.

2. Collectively achieve the cited participation levels for the following program paths:
   - Tier 2 unitary HVAC installations or commitments: 100
   - Joint gas/electric technical studies: 4
   - Chiller optimization projects completed or committed: 4

3. Complete a minimum of one lighting design workshop.

4. Collectively achieve the following electric energy savings goal: 15,000 Megawatt-hours

5. Collectively achieve the following gas utility energy savings goal: 100,000 therms