Combined Heat and Power (CHP) Program

Retail Margin Performance Grant

Pre-Installation Application and Instructions
Due: September 14, 2009 - 5:00 pm

The New Jersey Board of Public Utilities (BPU)
Funding Opportunity

Administered by the New Jersey Economic Development Authority (EDA)

Thank you for your interest in the Combined Heat and Power (CHP) Program. The Funds awarded through this program are public funds. Therefore, any information submitted to the EDA by the Applicant in response to the Combined Heat and Power (CHP) Program is subject to public disclosure requirements.

Note: This Pre-Installation Application Form requires the signature and certification of a NJ Licensed Professional Engineer.

☐ **Before proceeding to complete this Pre-Installation Application and the related technical worksheets, please check that you have carefully read all of the information associated with A) Incentive Qualification Requirements, B) Instructions for Completing the Incentive Forms, and C) Important Terms and Conditions contained within as well as the requirements and conditions stated within the Solicitation.**

Combined Heat and Power (CHP) Program
Retail Margin Performance Grant
Pre-Installation Application

All CHP Applicants must first submit a Pre-Installation Application to help determine applicant program eligibility. For detailed information about the CHP Program, please refer to the NJEDA website located at www.njeda.com/CHP. Upon review, Applicants will be notified via email as to whether or not they are eligible for the CHP Program. Applicants that are notified of meeting eligibility requirements may then move forward to complete the EDA Online Application.

A FINDING OF ELIGIBILITY IS NOT A GUARANTEE OF FUNDING BY THE NEW JERSEY ECONOMIC DEVELOPMENT AUTHORITY (EDA) AND THE NEW JERSEY BOARD OF PUBLIC UTILITIES (BPU).

Applicant Organizational Legal Name		Title	Holding Company Name
Name of Authorized Representative			City/Town
Headquarter Business Address	State	Zip Code	Telephone Number
County	Year Established	Contact E-mail Address	Applicant Web Address
Fax Number	NAICS No. /SIC No.	Ownership Structure ☐ Corporation ☐ Partnership ☐ Sole Proprietorship ☐ LLC ☐ Other	State of Incorporation/Year
Name of EDA Officer if applicable:			
Number of existing W-2 jobs Full-time Part-time Expected # of jobs to be retained Full-Time Part-time Number of new full-time jobs to be created from project			

PROJECTS MUST MEET THE FOLLOWING ELIGIBLITY REQUIREMENTS

Please check that the proposed CHP project meets all of the following eligibility requirements:

☐ The CHP Project shall serve a commercial, institutional, or industrial electricity customer in this State with electric demand of at least 750 kilowatts or such level of demand as subjects the customer to payment of a Retail Margin.

☐ The CHP Project shall establish by contract or other arrangement that the electric output generated at a CHP Project shall, to the maximum extent feasible, be consumed at the project site by a facility located at the site and that any surplus power produced that is not needed by that facility may be sold into the interstate PJM grid.

☐ The CHP Project shall have an electric generating capacity of greater than one MW.

☐ The CHP Project shall be designed to achieve thermal efficiency levels of at least 65 percent for facilities with up to 20 MW of electric generating capacity, and at least 70 percent for facilities with electric generating capacity greater than 20 MW. An existing facility that does not currently achieve the applicable thermal efficiency level shall be eligible to receive a Grant pursuant to this paragraph if CHP Project will result in achieving thermal efficiency levels of at least 65 percent for facilities with up to 20 MW of electric generating capacity, and at least 70 percent for facilities with electric generating capacity greater than 20 MW.

Have you applied for a Clean Energy CHP Rebate?

☐ Yes – Note: Applicants cannot receive both a Clean Energy CHP Rebate and a Performance Grant under this CHP Program.

☐ No

Will this be a new installation or expansion of an existing facility?

☐ New Installation

☐ Expansion of an Existing facility – (only the incremental expansion will be eligible for the incentive)

List all New Jersey State funding sources that have been or intend to be applied for in support of this proposed project.

Has the applicant or owners with a 10% or more interest ever received financial assistance from the EDA or any other state agency for funding? If yes, please list Agency and describe type of assistance.

Has the applicant, or any related individual or entity:

been, within the last five years, a party in litigation involving laws governing hours of labor, minimum wage standards, discrimination in wages or child labor?
☐ Yes ☐ No

been, or is now, charged with, convicted of, under indictment, on parole, on probation or a plaintiff in, any criminal or civil offense other than a minor motor vehicle violation?
☐ Yes ☐ No

been, or is now, subject to, or has pending, any disciplinary action by any administrative, governmental or regulatory body?
☐ Yes ☐ No

been, or is now, subject to any order resulting from any criminal, civil or administrative proceedings brought against such persons or parties by any administrative, governmental, or regulatory agency?
☐ Yes ☐ No

been, or is now, denied any license by any administrative, governmental or regulatory agency on the grounds of moral turpitude?
☐ Yes ☐ No

been, or is now, informed of any current or on-going investigation with respect to possible violations by such persons or parties of state or federal securities, anti-trust or criminal laws?
☐ Yes ☐ No

been, or is now, denied a business-related license or had it suspended or revoked by any administrative, governmental or regulatory agency?
☐ Yes ☐ No

been, or is now, disbarred, suspended or disqualified from contracting with any federal, state or municipal agency?
☐ Yes ☐ No

been, or is now, in receivership or adjudicated bankrupt?
☐ Yes ☐ No

been, or is now, in default on a personal or business loan?
☐ Yes ☐ No

been, or is now, in default on any tax payments?
☐ Yes ☐ No

If "Yes" to any of the above, please provide explanation below:

The BPU and the EDA reserve the right to request any additional information deemed necessary to complete the review process.

Verification and Acknowledgement

I verify that I am authorized to commit my organization and to complete this Pre-Installation Application on behalf of the organization. I certify that the above information is correct and that the statements made herein, including all attachments and exhibits, are true and correct to the best of my knowledge. I understand that this Pre-Installation Application or a subsequent Application may be disqualified if it does not contain all required information. I understand that all materials submitted as part of the Application are subject to disclosure. I acknowledge and agree that the EDA and the BPU have no obligation, and retain the sole discretion to fund or not to fund the Application set forth herein, and that the EDA's receipt of the Eligibility Intake Form, Application, and my receipt of letter of eligibility does not imply any promise of funding at any time.

Signature	Name (print)
Title	Date

Submission Instructions:
Please deliver or mail 5 copies of the completed Pre-Installation Application including all required information (see check list) via CD ROM to:

Clean Energy Solutions CHP Application
New Jersey Economic Development Authority
36 West State Street
P.O. Box 990
Trenton, NJ 08625

Proposals received by the EDA will be logged and time-stamped.

Contact the NJ Economic Development Authority at 866-534-7789 or visit www.njeda.com/CHP for information regarding the Combined Heat and Power (CHP) Program. Questions may be submitted to CHP@njeda.com.

The following includes the Requirements, Instructions and Terms and Conditions for Combined Heat & Power projects eligible under the Retail Margin CHP Grant Program. Before completing the forms and the related technical worksheets, please carefully read all of the information associated with A) Incentive Qualification Requirements, B) Instructions for Completing the Incentive Forms, and C) Important Terms and Conditions.

A. INCENTIVE QUALIFICATION REQUIREMENTS:

Incentives will be awarded on first come first served basis. The BPU has the right to change/modify or discontinue the program without notice. The program will cease when commitments exhaust allocated funding.

1. **The system must be installed in New Jersey. The applicant must** serve a commercial, institutional, or industrial electricity customer in this State with electric demand of at least 750 kilowatts or such level of demand as subjects the customer to payment of a retail margin. **Only CHP equipment installed on the customer side of the meter is eligible.**
2. **The project shall establish by contract or other arrangement that the electric output generated at a CHP facility shall, to the maximum extent feasible, be consumed at the project site by a facility located at the site and that any surplus power produced that is not needed by that facility may be sold into the interstate PJM grid.**
3. **The CHP Project shall have an electric generating capacity of greater than one MW.**
4. **New installations are eligible for Incentives; expansions of an existing facility with new equipment are also eligible for incentives. However only the incremental expansion would be eligible for the incentive. All major equipment supplied will have a projected useful service life of 20 years.**
5. **Heat recovery or other mechanical energy recovery equipment used to generate electricity is eligible.**
6. The project shall be designed to achieve thermal efficiency levels of at least 65 percent for facilities with up to 20 MW of electric generating capacity, and at least 70 percent for facilities with electric generating capacity greater than 20 MW. An existing facility that does not currently achieve the applicable thermal efficiency level shall be eligible to receive grants pursuant to this paragraph if new or expanded projects developed at the facility will achieve thermal efficiency levels of at least 65 percent for facilities with up to 20 MW of electric generating capacity, and at least 70 percent for facilities with electric generating capacity greater than 20 MW
7. **The system must achieve annual system efficiency of at least 65%, based on total energy input and total utilized energy output. Mechanical energy may be included in the efficiency evaluation.**
8. **The system must have a warranty to be all-inclusive for at least 5 years, The cost of five year warranty may be considered as part of the cost of the project.**
9. **Incentives will not be processed without a Federal Tax Identification number, Proof of Purchase (receipt), and authorized signatures from the Applicant and Installer.**

B. INSTRUCTIONS FOR COMPLETING THE INCENTIVE FORM:

1. **Complete all of Sections A through E of the Pre-Installation Application, all sections of the Technical worksheets, and a detailed feasibility analysis. All information is necessary for processing applications and incentives. Illegible or incomplete Application Forms and/or Technical Worksheets will be returned to the Applicant.**
2. **Deliver or mail 5 CD ROM copies of the completed Pre-Installation Application, appropriate Technical Worksheets, and a detailed feasibility analysis to the EDA and Retain a copy for your files.**
3. **Once your Pre-Installation Intake Form and Online EDA Application has been reviewed and approved, the EDA will send you a conditional commitment letter. To be eligible to receive a program incentive, you must receive this incentive conditional commitment letter from the EDA prior to equipment installation. You will also be sent a Notification of Commercial Operations form to be submitted after the installation is completed.**
4. **Applicant must purchase a qualifying system and have it installed within 24 months of the application approval date. Any changes between the initially proposed system and the installed system must be fully documented and are subject to EDA and BPU approval.**
5. **After the approved system is installed, the Applicant (or Installation Contractor) must submit the following to the EDA: a completed Notification of Commercial Operations – full scale system verification; proof of purchase; proof of warranty; completed W9 Taxpayer ID and certification form; a copy of the Electrical Code Inspection Certificate; and a completed Interconnection Application.**
6. **After the installation is completed and operating the grant recipient will be able to invoice for performance based grant payment semi-annually.**

C. IMPORTANT TERMS AND CONDITIONS:

1. **To receive an incentive, Applicant must agree to an inspection by the BPU, a BPU/EDA representative, or a BPU/EDA-designated contractor. The applicant must also agree to allow the BPU to monitor the facility's energy production to verify meeting efficiency requirements and energy production for grant performance payments. At a minimum metering for electric and thermal energy (steam or high temperature hot water) will be required.**
2. **The BPU reserves the right to modify or withdraw this program. Program procedures and incentive levels are subject to change or cancellation without notice. Approved projects will be honored under the terms stated in the conditional commitment letter.**
3. **Installation must comply with the host utility's Interconnection Requirements, which are available from the respective electric utility. These include Operation/Disconnection Procedures, Liability/Indemnity and Insurance Requirements according to the size of the project.**
4. **All required permits must be properly obtained and posted.**
5. **Equipment must be commercially available and permanently installed. The following are not eligible for incentives: portable and emergency backup power systems, temporary, pilot, or demonstration equipment; systems that use petroleum diesel fuel, other types of petroleum oil or coal for continuous operation. Renewable fueled or waste fueled CHP projects are encouraged however applicant should consider specific incentives currently being developed under the BPU Clean Energy program.**

Combined Heat & Power (CHP) Program
Pre-Installation Application

A. CUSTOMER INFORMATION:

Electric Utility: ☐ Atlantic City Electric ☐ Jersey Central Power & Light ☐ PSE&G ☐ Rockland Electric Company
Gas Utility: ☐ Elizabethtown Gas ☐ New Jersey Natural Gas ☐ PSE&G ☐ South Jersey Gas

Electric Utility Account Number: _____ Gas Utility Account Number: _____

Federal Tax I.D. Number: _____

First Name: _____ Last Name: _____

Company Name (if applicable): _____

Daytime Phone Number: _____ Email: _____

Installation Address: _____

City: _____ State: _____ Zip Code: _____

Mailing Address (if different from above): _____

City: _____ State: _____ Zip Code: _____

Will the Combined Heat and Power Project be used as an Emergency Management Facility? (Please check one):
☐ Yes ☐ No (If yes, please provide appropriate documentation.)

B. INCENTIVE RECIPIENT - If Incentive check is to be issued to a company other than above, issue Incentive check to:

First Name: _____ Last Name: _____

Company Name (if applicable): _____

Daytime Phone Number: _____ Email: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Federal Tax I.D. Number: _____

Customer Signature: _____

C. CONTRACTOR/INSTALLER/DESIGN PROFESSIONAL - All fields must be completed:

First Name: _____ Last Name: _____

Company Name (if applicable): _____

Daytime Phone Number: _____ Email: _____

Address: _____

City: _____ State: _____ Zip Code: _____

D. EQUIPMENT INFORMATION:

Equipment Type:
☐ Boiler Steam Turbines ☐ Gas Engines ☐ Gas Turbines ☐ Heat Recovery Equipment ☐ Other

Manufacturer: _____ Model: _____

Installed Capacity (in kW, as calculated in the Technical Worksheets): _____

E. CUSTOMER AND INSTALLER INFORMATION:

The undersigned warrants, certifies and represents that as part of the design study requirement; 1) the information provided in this entire Form is true and correct to the best of my knowledge; 2) the Installer/Contractor will explain and provide manuals related to the system operation and maintenance to the customer (Applicant); and 3) the installation will meet all of the Retail Margin Combined Heat and Power Program requirements. This Pre-Installation Application Form also requires the signature and certification of a NJ Licensed Professional Engineer.

Customer (Applicant)	Contractor/Installer
Signature: _____	Signature: _____
Print Name: _____	Print Name: _____
Date: _____	Date: _____

Design Professional Name: _____

Design Professional Signature: _____

NJ Professional Engineers License Number _____

Combined Heat & Power (CHP) Program
Technical Worksheets for Combined Heat and Power (CHP) Equipment

Before completing the attached New Jersey's BPU Technical Worksheets for Combined Heat and Power, please carefully read all of the information in Sections A, B and C below.

A. INSTALLATION REQUIREMENTS:

Equipment installation must meet the following requirements in order to qualify for payment under the provisions of Retail Margin Combined Heat and Power program:

1. A minimum overall system efficiency rating of 65% up to 20 MW and 70% greater than 20 MW based on total energy input and total energy output.
2. An expected completion date. Due to program funding limitations, the expected completion date will be used to determine the applicants compliance with grant term. The Applicant should submit documentation from manufacturers and contractors which state the expected equipment delivery and installation dates.
3. Equipment must be commercially available and permanently installed. The following are ***not eligible*** for incentives: portable and emergency backup power systems, temporary, pilot, or demonstration equipment; **systems that use petroleum diesel fuel, other types of petroleum oil or coal for continuous operation.**
4. The installation must comply with manufacturer's instructions.
5. The installation must comply with the interconnection and protection requirements of the local electric distribution company.
6. The installation must comply with provisions of these standards, as appropriate: NFPA 853 – Stationary Fuel Cell, and all codes governing the installation of Combined Heat and Power equipment; Power Plants, IEEE 519 – Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems; ANSI Z21.83-1998 Fuel Cell Power Plants, and input and output protection functions should be in compliance with ANSI C37.2 Device Function Number specifications.
7. The system should be equipped with the following capabilities, indicators and/or controls:
    - On/off control on site
    - Operating mode setting indication - parallel vs. stand-alone
    - AC & DC overcurrent protection or equivalent
    - Operating status indication
    - Remote control and data acquisition capable
    - Electric load-following capable
8. Warning labels must be posted on the control panels and junction boxes indicating that the circuits are energized by an alternate power source independent of utility-provided power.
9. All interconnecting wires must be copper. (Some provisions may be made for aluminum wiring; approval must be received from utility engineering departments prior to acceptance.)
10. All wiring splices must be contained in UL-approved workboxes.
11. Operating instructions must be posted on or near the system, or on file with facilities operation and maintenance documents.

Proposed changes to the requirements will be considered, but they must be documented by the Applicant or Installation Contractor and approved by the Office of Clean Energy. These requirements are not all-encompassing and are intended only to address certain minimum safety and efficiency standards.

B. CODE REQUIREMENTS:

1. The installation must comply with the provisions of the National Electrical Code and all other applicable local, state, and federal codes or practices.
2. All required permits must be properly obtained and posted.
3. All required inspections must be performed (i.e., Electrical/NEC, Local Building Codes Enforcement Office, etc.).

In order to ensure compliance with provisions of the NEC, an inspection by a state-licensed electrical inspector is mandatory.

C. INSTRUCTIONS:

The information below must be supplied in the detailed feasibility analysis. Provide a brief narrative describing the facility and the project including (but not limited to) the following.

<u>System Type and Mode of Operation:</u>

Grid-connected Operating mode (parallel/capable of synchronizing with the electric grid; capable of automatically reducing load to prevent backfeeding the meter)

1. Grid-connected/grid-independent operating mode (parallel/capable of synchronizing with the electric grid and capable of switching automatically to independent, load-following operation when the grid is unavailable; automatic operation and synchronization of multiple power plants connected in parallel)
2. Stand-alone load-following operation (system confined to an independent circuit, no utility backup)
3. Battery interactive capabilities, if applicable

Combined Heat & Power (CHP) Program

Technical Worksheets for Combined Heat and Power (CHP) Equipment

C. INSTRUCTIONS (continued from previous page)

System Information:

1. Complete Form #1 in its entirety.
2. The type and rating of the prime mover and an energy balance around the prime mover. The energy balance must be applied to a schematic of the system showing all major components, including the uses for the recovered heat. Annual totals for each energy input/output must be shown along with maximum, minimum, and average instantaneous values. Temperatures for each waste heat transfer fluid and sink must also be indicated.
3. Fuel conversion efficiency (FCE) for the prime movers must be provided. FCE is defined as the ratio expressed as a percentage of the total usable energy produced by a technology to the sum of all fuel or other energy inputs to the technology measured at each fuel's higher heating value.
4. The description of the proposed system must include a floor plan indicating equipment location and tie-in to existing building systems. Any structural modifications must be included in the capital cost of the system. This document must indicate the location of the Combined Heat and Power system, batteries (if any), lockable disconnect switch (unless otherwise approved by the electric utility, the disconnect switch shall be installed at the electric utility meter location), and point of connection with the utility system. The installation address, current account number at that address (gas and electric), and the installer's name and telephone number must also be included on the site map.
5. The pressure and availability of gas must be described in the study.
6. An operational sequence must be included that specifies the control system to be used along with a discussion of its integration with other on-site controls systems and who will have the responsibility for system operation.
7. A construction schedule that includes engineering, permitting, construction, start-up and commissioning must be provided.

Economic Evaluation: Complete Form 3 and Form 3a in their entirety

CHP System Economic Evaluation Requirements:

Simple payback, 10 year cash flow analyses, and IRR analysis are required for purposes of this Intake Form. Although the format of these analyses is at the discretion of the applicant, the following inputs must be considered and shown within these analyses:

1. Total CHP system capital cost (from Form 3)
2. CHP system operating hours, load factor, and availability factor
3. Total service and maintenance costs (from Form 3a)
4. CHP system heat rate/ fuel consumption
5. Efficiency of current boiler plant, chiller plant, etc. for which recovered waste heat will supplement.
6. Clearly state energy savings or increased use of energy; and the demand savings. The savings, or the increase, should be stated in terms of KW, kWh and in MMBtu.
7. Fuel cost – commodity and delivery
8. Offset electricity quantity and value – customer charge, demand charge, commodity charge, TOU where applicable, any unavoidable charges
9. Offset thermal energy quantity and value – commodity and delivery
10. Changes to tariffs due to CHP, including supplemental electricity tariffs, standby rates
11. Fuel and electricity escalation rates for cash flow analysis
12. Financing options and assumptions, such as the discount rate and interest rate for cash flow analysis
13. Any additional costs or credits, including incentives, the value of reliability, emission credits, HVAC equipment offsets

Tariff Impacts and Interconnections:

1. In addition to inclusion in the economic analysis described above, a detailed description of the relationship between the proposed CHP facility and the customer's existing energy tariffs must be included. Contract dates and dates of potential tariff rule changes must be included. In the case where such future changes would significantly impact the economics of the project, sensitivity analysis must be presented assuming the potential tariff or contract changes occurred.
2. Site-specific grid interconnection issues and costs must be discussed. A brief, clear plan for if and how the system will be properly interconnected to the grid and/or natural gas pipelines must be presented.

Permitting:

1. A brief description of the necessary environmental and building permits or certificates that the customer needs to obtain must be provided. The permit determination should be based on a detailed emissions inventory developed from the hourly spreadsheet based model. A schedule of realistic permit receipt dates must be included in the schedule described above.

System Reliability and Availability:

1. The reliability and availability of the CHP system must be quantified (e.g. number of hours the system would be available at less than full capacity).

Supporting Documentation Should Include the Following:

1. Self-generation and waste heat recovery equipment specifications
2. New and existing facility equipment (both thermal and electric) annual operating schedules
3. At least twelve months of the most recent electric bill(s) for the facility served by the CHP system
4. At least twelve months of the most recent bills for natural gas, fuel oil and/or other fuels used in the facility served by the CHP system.

If you plan to use an absorption chiller to offset cooling load, provide cooling load calculations.

Combined Heat & Power (CHP) Program

Technical Worksheets for Combined Heat and Power (CHP) Equipment

With the help of your installation contractor, fully complete the technical worksheets for combined heat and power equipment.

FORM 1: Proposed CHP System Performance

Proposed System overview (Annual)

Prime Mover Type		
Energy Input	(MMBtu)	
Electric Output	(kWh)	
	(MMBtu)	
Recoverable Thermal Output	(MMBtu)	
Utilized Thermal Output[1]	(MMBtu)	
Annual System Efficiency[2]	(%)	

1 kWh = 0.003412 MMBtu

Rated System Information

Prime Mover Model Info		
Energy Input	(MMBtu)	
Rated Electric Output	(kW)	
	(MMBtu/h)	
Total Thermal Output	(MMBtu/h)	
Recoverable Thermal Output	(MMBtu/h)	
Fuel Conversion Efficiency[3]	(%)	

1 – Heat used from the CHP systems for the purpose of heating and cooling
2 – Annual System efficiency = (Electric output + Utilized Thermal Output)/Energy Input
3 – Fuel Conversion Efficiency = (Rated Electric output + Recoverable Thermal Output)/Energy Input

Proposed System Overview

Month	Anticipated operating hours	Input Fuel (MMBtu)	Output Electricity (MMBtu)	Recoverable Thermal output (MMBtu)	Utilized Thermal output (MMBtu)	Electric Efficiency (%)	Thermal Efficiency (%)	Annual Efficiency (%)
Jan								
Feb								
Mar								
Apr								
May								
Jun								
Jul								
Aug								
Sep								
Oct								
Nov								
Dec								
Total								

Breakdown of Recovered Thermal Output (Indicate in the detailed feasibility analysis the fuels that are being displaced and the respective equipment efficiency)

Month	Process Heating (MMBtu)	Process Cooling (MMBtu)	Space Heating (MMBtu)	Space Cooling (MMBtu)	Domestic Hot Water (MMBtu)	Other (MMBtu)	Total (MMBtu)
Jan							
Feb							
Mar							
Apr							
May							
Jun							
Jul							
Aug							
Sep							
Oct							
Nov							
Dec							
Total							

Unit Cost of Gas		
Unit Cost of Electricity		
Rate Schedule	Electricity	
	Gas	

Combined Heat & Power (CHP) Program

Technical Worksheets for Combined Heat and Power (CHP) Equipment

With the help of your Installation Contractor, fully complete the Technical Worksheets for Combined Heat and Power Equipment.

FORM 2: Air Emissions Data

This form reports anticipated annual emissions of the six (6) pollutants due to the CHP System. The first table should include vendor supplied data on the emissions from the prime mover to be installed. The second two sections will show what fraction of those new emissions is displacing current system emissions.

Yearly Grid Supplied Electricity (Pre-Installation) (MWh/year)	
Yearly CHP System Supplied Electricity (MWh/year)	
Yearly Grid Supplied Electricity (Post-Installation) (MWh/year)	

Vendor Supplied CHP System Emissions

NOx		lbs/MWh
SOx		lbs/MWh
PM-10		lbs/MWh
CO2		lbs/MWh
CO		lbs/MWh
VOC		lbs/MWh

Estimates of "Displaced" Emissions

The following two tables should be completed if data or information exists. By reporting on the emissions of the facility both before and after installation of the CHP system, the net impact of the new system can be estimated. If insufficient data exists, leave the tables blank. For systems greater than 2 MW, both tables must be completed prior to the release of the committed incentive.

Calculated Annual Boiler/Furnace Emissions (lbs)

	Pre-CHP Installation	Post Installation D	Difference
NOx			
SOx			
PM-10			
CO2			
CO			
VOC			

Annual Site Emissions (lbs)

	Pre-CHP Installation	Post Installation D	Difference
NOx			
SOx			
PM-10			
CO2			
CO			
VOC			

Combined Heat & Power (CHP) Program

Technical Worksheets for Combined Heat and Power (CHP) Equipment

With the help of your Installation Contractor, fully complete the Technical Worksheets for Combined Heat and Power Equipment.

FORM 3: CHP System Costs Table

Directions: Please enter all CHP system capital costs in the table below. Break out costs should add up to total CHP system turnkey cost. Turnkey line item costs should include any administrative and markup costs. Where a component or construction cost is not included in CHP project design enter "N/A." Where a component or construction cost is provided within another line item, please enter "included."

CHP System Component Cost	($)
Prime Mover	
Fuel Compressor	
Black Start Capability	
Generator	
Heat Recovery	
Cooling Tower or other Heat Dump	
Absorption Chiller	
Desiccant	
Controls	
Sound Attenuation	
Inlet Air Handling	
Vibration Isolation	
Emission Controls	

Design/Construction/Labor and Materials Cost	($)
Engineering	
Site Preparation	
Buildings	
Construction Labor	
Materials	
Exhaust Stack	
Electrical Tie-in	
Mechanical Tie-in	
Grid Interconnection Devices	
Permitting Fees	
Contingency	

Total CHP System Turnkey Cost	

Combined Heat & Power (CHP) Program

Technical Worksheets for Combined Heat and Power (CHP) Equipment

With the help of your Installation Contractor, fully complete the Technical Worksheets for Combined Heat and Power Equipment.

FORM 3a: CHP System Service and Maintenance Costs

Directions: Please enter annual costs for system service and maintenance, including parts, labor and all major equipment overhauls. Include fixed costs for extended service warranty where applicable. If multiple rows are included in a fixed maintenance cost, please enter "included" or N/A in that row as applicable.

	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10
Prime Mover/Heat Recovery										
Thermal Equipment										
Emissions Control										
Remote Monitoring/Control										
Warranty/Service Contracts										
Total Service/Maintenance Costs										

Combined Heat & Power (CHP) Program
Technical Worksheets for Combined Heat and Power (CHP) Equipment

FORM 4: INCENTIVE REQUEST CALCULATION:

Total system rated Electric Capacity AC Kilowatts._____

Note: The maximum % of project cost for all state funding can not exceed 50%. An applicant can not receive both a Clean Energy CHP rebate and a Retail Margin performance grant. The applicant may apply for both however only one incentive can be applied to each project. The applicant may qualify for other financial assistance through BPU and or other State or federal programs

*Spreadsheets provided by link with examples below may be used at the discretion of the Applicant. It is the sole responsibility of the applicant to produce and submit project specific calculations.

Incentive Calculations (Calculate appropriate incentive based on 75% Electric Capacity and 75% Thermal Capacity)

1. CHP with generation less than or equal to 20 MW Electric Capacity (minimum 65% combined electrical and thermal efficiency)
2. CHP with generation greater than 20 MW Electric Capacity (minimum 70% combined electrical and thermal efficiency)

- Combustion Turbine Electric Capacity (KW) = ISO Power rating x 0.93 _____KW
- Internal Combustion Engine Electric Capacity (KW) = Continuous Duty Rating x .96 _____KW

- Grant total amount ($) = Electric Capacity kw x $450/kw $_____

- Annual Electric Capacity (kwh) = Electric Capacity x 8760 hours _____kwh

- Grant basis Annual Electric capacity (kwh)= Annual Electric Capacity x 0.75 _____kwh

- Grant basis Annual Fuel input (btu) = Grant basis Annual Electric Capacity x Combustion Turbine heat rate btu/kw _____btu

- Grant basis Annual Thermal capacity (btu) = (Annual Fuel input btu x 0.65) – (Annual Grant basis Electric Capacity kwh x 3415 btu/kwh) _____btu

In order to calculate the unit price for the grant on a per kwh and per btu basis the total energy produced over the 4 year term must be calculated at 75% thermal capacity and at 75% electrical capacity

- Total energy used for purposes of calculating grant unit prices for billing purposes. In accordance with P.L. 2009, c. 34, the grant will be based on kwh electric produced by the CHP Project and btu's of energy produced by the CHP Project over a 4 year term. For the purposes of this section all energy will be expressed in kilowatt electric (kw *e*) and kilowatt thermal (kw *t*) . (one kw is equal to 3415 btu)
- Total Grant basis electric capacity (kwhe) = Grant basis Annual Electric capacity x 4 _____ kw *e*
- Total Grant basis thermal capacity (kwht*)* = Grant basis Annual thermal capacity (btu) / 3415 btu/kw x 4 _____ kw *t*

- Unit grant amount = Grant total ($) / (Total Grant basis electric capacity + Total Grant basis thermal capacity) _____$/kwhe,*t*

- Unit grant amount electric _____$/kwh e,*t*
- Unit grant amount thermal _____$/kwh e,*t* (this can also be expressed as follows)
- Unit grant amount thermal = $/kw e,*t* / 3415 but/kw _____$/btu

To calculate performance grant amounts for the purposes of semi annual invoices use metered kwh and btu for the invoiced period

- Electric : semi annual metered kwh x Unit grant amount electric $/kwh
- Thermal: semi annual metered btu x Unit grant amount thermal $/btu

Example 1: Combustion Turbine less than 20 MW
- 5 Megawatt Combustion Turbine (ISO)
- Heat Recovery Boiler (unfired 20 mmbtuh)
- Heat Rate 11,000 btu/kw
- 100% Utilization

Combustion Turbine less than 20 MW -- Excel Spreadsheet – Update spreadsheet to include project specific data.

Electric Capacity		4650	kw
Grant total	$	2,092,500.00	
Annual Electric Capacity		40734000	kwh
Grant Basis Annual Electric Capacity		30550500	kwh

Grant Basis Annual Fuel Input		3.36056E+11	btu	
Grant Basis Annual Thermal Capacity		1.14106E+11	btu	
Total Grant Basis Electric Capacity		122202000	kwh e	4 years
Total Grant Basis Thermal Capacity		133652846.3	kwh t	4 years
Unit Grant Amount		0.008178465	kwh e,t	
Unit Grant Amount Electric	$	0.00818	$/kwh	
Unit Grant Amount Thermal	$	0.0000023949	$/btu	
Unit Grant Amount Thermal	$	2.3948654086	$/mmbtu	
Annual Grant Amount Electric	$	249,856.21	$	
Annual Grant Amount Thermal	$	273,268.79	$	
Total Annual Grant	$	523,125.00	$	

Example 2: Combustion Turbine greater than 20 MW

- **24 Megawatt Combustion Turbine (ISO)**
- **Heat Recovery Boiler (unfired 100,000 mmbtuh)**
- **Heat Rate 9,000 btu/kw**
- **100% Utilization**

Combustion Turbine greater than 20 MW -- Excel Spreadsheet – Update spreadsheet to include project specific data.

Electric Capacity		22320	kw	
Grant total	$	10,044,000.00		
Annual Electric Capacity		195523200	kwh	
Grant Basis Annual Electric Capacity		146642400	kwh	
Grant Basis Annual Fuel Input		1.31978E+12	btu	
Grant Basis Annual Thermal Capacity		4.23063E+11	btu	
Total Grant Basis Electric Capacity		586569600	kwh e	4 years
Total Grant Basis Thermal Capacity		495535372.2	kwh t	4 years
Unit Grant Amount		0.009281909	kwh e,t	
Unit Grant Amount Electric	$	0.00928	$/kwh	
Unit Grant Amount Thermal	$	0.0000027180	$/btu	
Unit Grant Amount Thermal	$	2.7179821700	$/mmbtu	
Annual Grant Amount Electric	$	1,361,121.43	$	
Annual Grant Amount Thermal	$	1,149,878.57	$	
Total Annual Grant	$	2,511,000.00	$	

Example 3: Internal Combustion Engine less than 20 MW

- **4 Megawatt Continuous Duty**
- **Heat Recovery Boiler (unfired 15 mmbtuh)**
- **Heat Rate 9,000 btu/kw**
- **100% Utilization**

Internal Combustion Engine less than 20 MW - Excel Spreadsheet – Update spreadsheet to include project specific data.

Electric Capacity		3840	kw	
Grant total	$	1,728,000.00		
Annual Electric Capacity		33638400	kwh	
Grant Basis Annual Electric Capacity		25228800	kwh	
Grant Basis Annual Fuel Input		2.27059E+11	btu	
Grant Basis Annual Thermal Capacity		61432128000	btu	
Total Grant Basis Electric Capacity		100915200	kwh e	4 years
Total Grant Basis Thermal Capacity		71955640.41	kwh t	4 years
Unit Grant Amount		0.009995902	kwh e,t	
Unit Grant Amount Electric	$	0.01000	$/kwh	
Unit Grant Amount Thermal	$	0.0000029271	$/btu	
Unit Grant Amount Thermal	$	2.9270577216	$/mmbtu	
Annual Grant Amount Electric	$	252,184.62	$	
Annual Grant Amount Thermal	$	179,815.38	$	
Total Annual Grant	$	432,000.00	$	

I hereby submit that all of the provided information is true to the best of my knowledge.

Customer Name: _____

Customer Signature: _____

I hereby submit that all of the provided information is true to the best of my knowledge.

Design Professional Name: _____

Design Professional Signature: _____

NJ Professional Engineers License Number _____

APPENDIX A - - VERIFICATION OF APPLICATION INFORMATION

1. "I certify under penalty of law that I have personally examined and am familiar with the Information submitted in this document and all attachments and that, based on my Inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I understand that, in addition to criminal penalties, I may be liable for civil administrative penalties and that submitting false information may be grounds for denial, revocation or termination of any electric power supplier's license for which I may be seeking approval or now hold."

2. The certification in 1 above shall be signed by the Applicant as follows:

   i. For a corporation, by a principal executive officer of at least the level of vice president;

   ii. For a partnership of sole proprietorship, by a general partner or the proprietor, respectively; or

   iii. For a municipality, county, state, federal or other public agency, by either a principal executive officer or ranking elected official.

_____
(Signature and Title)

_____
(Name, please print)

_____
(Date)

APPENDIX B - - CERTIFICATIONS

I. Certification Regarding Debarment, Suspension or Ineligibility for Award

The Applicant certifies, to the best of its knowledge and belief, that:

(1) The Applicant and/or any of its principals ___ are, ___ are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any federal or state agency, and

(2) The Applicant and/or any of its principals _____ have, ___ have not, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a federal, state, or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and ___ are, ___ are not presently indicted for, or otherwise criminally or civilly charged by a government entity with commission of any of those offenses.

II. Clean Air and Water Certification

The Applicant certifies that:

(1) Any facility to be used in the performance of this proposed project is ___ is not ___ listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

(2) The Applicant will immediately notify the BPU, before award, of the receipt of any communication indicating that the site the Applicant plans to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities;

(3) The Applicant will include a certification substantially the same as the certification, including this paragraph, in every nonexempt subcontract.

(4) The Applicant will notify the BPU if the site is in violation of any NJDEP regulations.

_____
(Signature and Title)

_____
(Name, please print)

_____
(Date)

CERTIFICATION OF APPLICATION

PLEASE NOTE:

Eligibility of financial assistance by the New Jersey Economic Development Authority is determined by the information presented in this application and the required attachments and schedules. Any changes in the status of the proposed project from the facts presented herein could disqualify the project, including but not limited to, the commencement of construction or the acquisition of assets such as land or equipment. Please contact the staff of the EDA before taking any action which would change the status of the project as reported herein. Please consult with the EDA staff for details concerning these matters.

Only Board Members of the governing board of the particular program for which you are applying, by resolution, may take action to determine project eligibility and to authorize the issuance of funds.

I, THE UNDERSIGNED, BEING DULY SWORN UPON MY OATH SAY:

1. I am aware of the "State Prevailing Wage Act" N.J.S.A. 34:11 and the "Affirmative Action Regulation" N.J.A.C. 17:27 and am prepared to comply with the requirements contained therein.

2. I affirm, represent, and warrant that the applicant has no outstanding obligations to any bank, loan company, corporation, or individual not mentioned in the above application and attachments; that the information contained in this application and in all attachments submitted herewith is to the best of my knowledge true and complete and that the grant/loan applied for herein is not for personal, family, or household purposes.

3. I understand that if such information is willfully false, I am subject to criminal prosecution under N.J.S.A. 2C:28-2 and civil action by the EDA which may at its option terminate its financial assistance.

4. I authorize the New Jersey Department of Law and Public Safety to verify any answer(s) contained herein through a search of its records, or records to which it has access, and to release the results of said research to the EDA.

5. I authorize the EDA to obtain such information including, but not limited to, a credit bureau check as it may require, covering the applicant and/or its principals, stockholders and/or investor.

6. I authorize the EDA to provide information submitted to it by or on behalf of the applicant to any bank which might participate in the requested financing with the EDA.

☐ I am an Authorized Signer and I accept the terms and conditions.

_____

Signature of Authorized Signer

_____

Printed Name and Title

_____

Date

Appendix C Project Summary

Project Type (Technology or technologies)

Project Capacity, Total Project Size (MW)

Capacity by technology type (if multiple types)

Annual Generation

Annual Generation (by technology if more than one)

Project Operating Fuel

Location or Locations (geographic coordinates)

Proposed location of transmission interconnection

Annual Production Incentive Requested ($/kwh)

Total Performance Incentive Requested

Total Incentive as a Share of Total Project Cost (%)

Project Cost ($) Estimated Rate of Return, IRR (%)

Checklist:

The Application must contain the following (check off the list below):

- ☐ Cover sheet (1 page)
- ☐ Abstract (1 page)
- ☐ Eligibility Requirements
- ☐ Project Description
- ☐ Timeline of Project Related Milestones
- ☐ Statement of Work
- ☐ Project Team
- ☐ Completed Combined Heat and Power (CHP) Performance Grant Application Package
- ☐ APPENDIX A - - Verification of Application Information
- ☐ APPENDIX B -- Certifications
- ☐ APPENDIX C -- Project Summary