



CHP Program – CHP Module/Vendor Qualification
Request for Information (RFI) 2568

Applications accepted through November 30, 2018 at 5:00 PM Eastern Time*

The Combined Heat and Power (CHP) Program provides incentives for the installation of CHP systems through PON 2568, which supports an accelerated procurement process where customers select from a set of pre-approved, pre-engineered CHP modules supplied by approved CHP Vendors (the Catalog Approach) or the more traditional design/build procurement process specifically for larger customers that are not adequately met by the Catalog Approach (the Custom Approach).

Under the Catalog Approach, a CHP System consisting of one or more pre-approved Catalog Modules is installed with the approved Vendor acting as a single point of responsibility for the entire project and providing a minimum 5-year maintenance/warranty agreement on the CHP System. Under this approach, NYSERDA will only accept applications from, and will only contract with, approved Vendors.

Through this RFI 2568, NYSERDA is accepting applications from vendors of packaged CHP equipment that wish to become eligible to receive incentives under PON 2568's Catalog Approach (approved Vendor) through the installation of pre-approved CHP equipment (Catalog Module).

NYSERDA is seeking to pre-qualify Catalog Modules that have been completely pre-engineered and pre-tested, with the approved Vendor providing a single point of responsibility for design, installation, service and warranty including all system components. The Catalog Modules must be capable of acquiring proper air permits, transitioning from grid interconnected to grid islanding mode (except as allowed for systems 50kW and smaller, or certain back pressure steam turbines or certain ORC devices that do not have black-start capability), and capable of interconnecting to New York State electric utilities using radial distribution systems, secondary network distribution systems and/or spot network distribution systems. Catalog Modules that cannot pre-qualify because they do not meet the pre-tested requirement for pre-qualification may be considered for conditional-qualification provided performance test data is available for the major components and acceptable calculations showing proper sizing of the components is provided.

Approved Vendors must have demonstrated experience designing, installing and maintaining CHP equipment, either alone or with partners.

Packaged Catalog Modules may consist of one or more prime movers and can be up to and including 3 MW in total size. Vendors must submit a separate application for each different system design. Pre-approved Vendors will be able to receive incentives only for installation of pre-approved equipment.

Application Submission: Applicants must submit one (1) hard copy and one (1) digital copy on CD-ROM of the application and supporting documentation, including a completed Application Cover Sheet (Attachment A). Applications must be clearly labeled and submitted to:

**CHP Program, RFI 2568
NYS Energy Research and Development Authority
17 Columbia Circle
Albany, NY 12203-6399**

If you have questions concerning this Request for Information, contact Paul Vainauskas at (518) 862-1090, ext. 3554 or paul.vainauskas@nyserda.ny.gov.

*Faxed or emailed applications will not be accepted. Applications will not be accepted at any other NYSERDA location other than the address above. If changes are made to this Request for Information, notification will be posted on NYSERDA's web site at www.nyserda.ny.gov.

Introduction

NYSERDA's CHP Program PON 2568's Catalog Approach provides incentives for the installation of appropriately sized, packaged Catalog Modules that meet specified criteria in terms of system design and component integration; capability to meet a threshold of performance; and sales, installation and service support. Only CHP installations using pre-qualified, or conditionally qualified, packaged Catalog Modules will be eligible for incentives under PON 2568's Catalog Approach. The purpose of this RFI is to invite applications to pre-qualify/conditionally-qualify packaged CHP equipment and to become pre-approved CHP Vendors. In addition, as NYSERDA's interest in CHP evolves, compiling, and maintaining a list of vetted CHP systems and vendors might have value for a variety of market nurturing efforts beyond support of PON 2568.

The term "packaged" is not necessarily limited to, or defined as, a physically integrated prime mover, heat recovery and controls product on a single skid, but more broadly defined to include:

- An integrated Catalog Module design that includes one or more prime mover/generator(s) and matched heat recovery, interconnection, controls, and monitoring components with demonstrated performance,
- The module is pre-engineered and major components and assemblies are factory pre-tested prior to shipment to the site,
- A single point of responsibility for equipment, installation, service and warranty, and
- A single warranty for the module including all components.

Two categories of Catalog module pre-approval will be used based on the level of documented system performance:

- Pre-qualified CHP Modules – pre-engineered systems with a single point of responsibility for installation, service and warranty, and **demonstrated performance as an integrated system based on one of the three ASERTTI CHP Testing Protocols or equivalent.**
- Conditionally-qualified CHP Modules – pre-engineered systems of matched components and a single point of responsibility for installation service and warranty. **Components and subsystems must have been individually performance tested and the complete system must have been designed and performance rated using accepted engineering methods.** Conditionally qualified modules can be upgraded to pre-qualified status once integrated system performance is demonstrated and documented to NYSERDA's satisfaction.

A hallmark of this program is NYSERDA's emphasis to principally provide consumer protection. In that regard, this program supports only commercially-mature products (this program is not intended to assist inventors with developing or demonstrating prototypes or other pre-commercial activities for bringing a new product to market).

Program Requirements

Applicants (i.e., Respondents to this RFI) must be fully responsible for all aspects of vending/installing/maintaining/warranting the package and may be an original equipment manufacturer, a system integrator, or any other entity that offers to install packaged Catalog Modules at sites in New York State.

The Applicant must provide a single point of responsibility for site integration, installation, all warranties (defect and performance), maintenance and service activities related to packaged Catalog Modules offered by the Applicant (including all components) for a period of not less than five (5) years from the date of electric grid interconnection approval. The Applicant may use subcontracted teams to fulfill these obligations. Regardless of the teaming arrangement, however, the Applicant remains fully responsible for all aspects.

Applicants, or an applicant team, must have demonstrated experience designing, installing and maintaining CHP equipment.

The aggregate generator nameplate electric output rating of the packaged Catalog Module must not be greater than 3 MW.

Packaged Catalog Modules that utilize thermal energy to power the prime mover are eligible. For example, back pressure steam turbines and organic Rankine cycle generators. For those Catalog Modules that utilize a fuel to power the prime mover, only pipeline natural gas, propane or compressed natural gas are eligible fuels. Prime movers fueled directly by low BTU or adulterated fuels, such as biogas, landfill gas, and gasifier gas, or using liquid fuels, such as diesel or gasoline, are not eligible under this Program. Fuel cell systems are not eligible.

Eligible packaged Catalog Modules must be capable of operating in parallel with the utility electric grid. Catalog Modules greater than 50 kW that use fuel to power the prime mover(s) must also be capable of operating in stand-alone mode during a grid outage.

Eligible packaged CHP equipment may be configured to provide hot water, steam, chilled water, or any combination as thermal outputs. Eligible CHP equipment may also incorporate one or more organic Rankine cycle (ORC) generators in a combined cycle configuration, one or more ORC generators configured to use waste heat, or one or more back pressure steam turbines.

Packages selected for admittance into the Program will be listed in catalog-format in the CHP Catalog (CHP Program PON 2568 Attachment C) when it is updated. Excerpts from the materials submitted by the Applicant in response to this RFI will be used to create the "catalog entry" and thus the Applicant must work in good faith with NYSERDA to distinguish between confidential/proprietary materials which the Applicant may submit in order to convince NYSERDA of the merits of their packages, versus materials which NYSERDA would be allowed to publish in order to create a catalog that adequately describes the package.

Catalog Modules installed at a customer's site via PON 2568 may be subject to re-commission activities, at NYSERDA's expense, during the system's sophomore-year of operation. The Applicant will be expected to facilitate NYSERDA's re-commissioning agent's access to the site, the Catalog Module, and information regarding its legacy of performance. Additionally, the Applicant is expected to thoughtfully consider the merits of any recommendations for improvement of the CHP System and/or its operational dispatch that may result from such re-commissioning effort.

All CHP Systems larger than 50kW installed under PON 2568 must be instrumented with a performance monitoring system that, at a minimum, conforms to NYSERDA's Monitoring and Data Collection Standard (RFI 2568 Attachment C). The Standard requires that CHP System performance (including thermal use) be measured on 15 minute intervals, and be automatically uploaded to NYSERDA's DG Performance Website (<http://chp.nyserderda.ny.gov>) on a daily basis for at least 3 years, where such performance data will be available to the public. All Catalog Modules larger than 50kW must include a performance monitoring system consistent with Attachment C.

For CHP Systems 50kW and smaller, NYSERDA intends to sample the performance of small CHP Systems by accessing any monitoring system included within the CHP System by the Vendor, or by installing monitoring equipment at NYSERDA's expense at select CHP project sites. In any case, the site owner must provide a communications route (phone line or internet connection).

NYSERDA may require that each conditionally-qualified Catalog Module, and the first unit of a pre-qualified Catalog Module design supported under PON 2568, be factory witness tested prior to shipment to the site. If required, the witness test must be conducted with the system fully assembled. The witnesses shall include NYSERDA staff or designated representative. If the witness testing of the first pre-qualified unit proves acceptable then NYSERDA may allow subsequent units to be factory tested as a disaggregation of individual subsystems so as to assess the quality of workmanship.

NYSERDA may limit the number of simultaneous installations projects from any one Vendor. Vendors installing their first project under PON 2568 may be limited to as few as the single project. The number of projects using new system designs may be limited until performance can be verified. NYSERDA may also limit further applications from a Vendor if, in the view of NYSERDA, the Vendor may not have sufficient resources to adequately serve the projects.

CHP Equipment Demonstration

Vendors with commercially available CHP equipment 1MW and smaller that does not have sufficient operating history to meet RFI 2568 requirements, and that fills a hole in the CHP Catalog, can apply for a CHP Equipment

Demonstration Project at a test site to show that the equipment is robust and properly designed. Contact the NYSERDA contact person listed on page 1 of this RFI before applying. All information required for an equipment application under this RFI and for a site application under PON 2568 will need to be provided along with a letter from the site stating that it is understood that the proposed project is a demonstration and that the equipment has not been vetted by NYSERDA. If approved, the award for such a demonstration project will be the same as the incentive for a similarly sized project through PON 2568.

Applications for Equipment Demonstration Projects will be evaluated based on the qualifications of the proposing team, the relative technical risks of the project, whether a successful outcome would result in acceptance into the CHP Catalog, the suitability of the test site including tolerance for failure, the perceived market desirability of the proposed system relative to other Catalog equipment if the project is successful, and any unique or technically interesting features of the proposed equipment.

Qualification Requirements for Pre-Approved CHP Modules

Qualification Table		
Category	Minimum Requirements	Required Documentation
CHP Module submitted for pre-qualification	Completed	CHP Program – CHP Module Qualification Data Form (Attachment B)
Overall CHP efficiency Overall CHP Efficiency = (Net CHP Electric Output + CHP Thermal Output Available @ Temperature)/CHP Fuel Input; all calculated in Higher Heating Value (HHV). Operating conditions must be stated.	60% HHV	Documentation should provide confidence that annual efficiencies in the field will meet the 60% minimum requirement. Pre-qualified: Third party laboratory results based on one of the three ASERTTI CHP Testing Protocols or Equivalent. Field tested data such as data at chp.nyserda.org may be acceptable. Conditionally-qualified: Overall CHP Efficiency (HHV) based on accepted engineering methods.
NOx Emissions (Expressed as generator-out emissions, engine-out calculation should be based on 95% efficient generator)	Less than 1.6 lb/MWhe	Certified third party emissions measurements in accordance with latest EPA test requirements. Emissions data provided for full and part load (100%, 75%, 50%, 25% if appropriate).
Warranty/Service	Five year parts and labor for the complete CHP system ¹ for both planned and unplanned events.	Written warranty language and description of warranty/service plan.
Performance Monitoring System (required for systems >50 kW, optional for systems 50kW and smaller)	Conforming to NYSERDA Data Monitoring Standard	Written compliance. Coordination with NYSERDA's CHP Data Agent (CDH Energy Corp.) is recommended.
Installation and Commissioning Manual	Complete CHP system including heat recovery and intertie	Written manual
Operating Manual		Written manual
Maintenance and Repair Manual		Written manual

¹ A critical factor in qualification is single point responsibility for the entire system. This includes a single warranty covering all elements that make the CHP system function including prime mover, generator, waste heat recovery system, heat dump radiator (if required), supplemental heating (if required), valves, dampers, piping, ductwork, controls, monitoring and data export, etc. Single point responsibility also includes CHP system level drawings, part lists, installation, operation and maintenance manuals, and service and maintenance program.

Certifications	IEEE 1547 compliant UL 1741 certification	Written compliance with IEEE 1547 Written UL 1741 certification (if applicable)
Grid-parallel & stand-alone (required for systems >50kW, optional for systems 50kW and smaller. Systems 50kW and smaller will receive a reduced incentive if not capable of stand-alone operation)	Capable of operation in both grid-parallel and stand-alone configurations	Written description of capability and operational transition sequence from grid-parallel to stand-alone, and then back to grid-parallel
Interconnection	IEEE 1547 compliant	Description of interconnection and protective equipment and demonstrated compliance with minimum specifications.

Application Requirements

Approved Vendor Application

Applicants for Approved Vendor status must provide documentation showing experience designing, installing and maintaining CHP equipment. If the Applicant does not have sufficient experience in one of these areas, the Applicant may team with other entities to submit a joint application. If an Applicant team is approved by NYSERDA to become an Approved Vendor, the Applicant will be held responsible for meeting all program requirements. Changes to a key member of an Approved Vendor team will require review and approval by NYSERDA.

Applicants seeking Approved Vendor status are required to submit the following information at a minimum:

- Description of the company including its structure.
- If you operate an Operation Center that monitors CHP system telemetry, a description of its capabilities. what types of parameters are you monitoring and what level of system control do you have.
- Description of the form of the relationships with OEMs and other members of the Applicant’s team.
- List of markets (locations) where the Applicant is actively selling, installing, and/or servicing CHP equipment.
- Total number of employees involved in CHP activities.
- Locations of your primary CHP manufacturing and warehousing facilities.
- Indicate locations of your CHP sales and service offices.
- Number of employees performing CHP functions that directly support the New York state market broken down by function (sales, equipment design and manufacturing, site integration design, project management, installation, and service).
- Types of relevant certifications held by your service staff, and the number of service staff holding such certifications.
- Descriptive list of CHP systems installed.
- Number of CHP systems that the Applicant is currently servicing through a maintenance agreement.
- A copy of the Warrant/Maintenance Agreement that the Applicant intends to use for CHP Systems installed under the CHP Program showing a minimum 5-year term (cost and financial information may be redacted).

Pre-Approved Catalog Module Application

Applicants must submit a separate application under this RFI for each different packaged CHP system design where qualification is requested.

Pre-qualified CHP systems

These systems are pre-engineered, pre-tested with single or multiple integrated prime movers, or matched components that have been previously integrated and performance tested as a complete system including controls, monitoring system, any interconnecting piping, ductwork and/or wiring as supplied by the manufacturer/developer.

Conditionally-qualified CHP systems

This category includes pre-engineered systems comprised of matched components and subsystems that have been individually tested. The complete systems including interconnecting piping, ductwork and or wiring which have been designed by the manufacturer/developer. Individual components and subsystems have been performance tested, and the complete system including all interconnecting equipment has been engineered, designed and performance rated using accepted engineering methods.

Applicants seeking Pre-approval of their packages are required to submit the following materials:

- System piping and instrumentation drawing (P&ID).
- System layout (configuration) drawing.
- Single line wiring diagram.
- Complete bill of materials that includes major system components, controls and piping, ductwork and wiring integral to the system.
- **Those applying for Conditional-Qualification status. System component and subsystems performance test documentation, and calculations combining the components and subsystems into a complete CHP system including: net electric output, useful thermal output(s) (form, flows, temperature, pressure, and energy - see data form for details), fuel requirements (flow, temperature, pressure, and energy in HHV), as well as the method of testing utilized and uncertainty analysis.**
- **Those applying for Pre-Qualification status. System performance test documentation including: net electric output, useful thermal output(s) (form, flows, temperature, pressure, and energy - see data form for details), fuel requirements (flow, temperature, pressure and energy in HHV), as well as testing entity, the method of testing utilized and uncertainty analysis.**
- All system performance and emissions data must be provided at full and part load conditions; Part load is defined as 75%, 50% and 25% of full load capacity.
- System monitoring and data export configuration and mechanisms (if applicable).
- System performance guarantees including net power and thermal outputs (temperature and energy) shall be provided at part and full loads.
- System installation and commissioning requirements to maintain system warranty including (as applicable) qualification requirements to be used to select subcontractors that will act as installers and associated quality control measures, training and responsibilities.
- System operation requirements including services provided and responsibilities.
- System warranty and service plan including information on parts and labor coverage, length of coverage, and warranty/service providers (Five-year term is mandatory, ten-year term is optional).
- System service requirements including parts, labor and maintenance requirements during the first ten years of operation.
- Factory test protocols for each major component and assembly, and the complete system.
- Description of the operational transition from grid-parallel to stand-alone, and then back to grid-parallel (if applicable), as well as black start while in stand-alone mode.
- **Those applying for Pre-Qualification status. List (with photos) of existing installations of the packaged CHP system.**
- A completed CHP System Qualification Data Form.

Application Format

The format of the qualification submittal is left to the Applicant. However, NYSERDA suggests that the submitted materials be organized in the following order:

- System drawings, schematics and diagrams must be of sufficient detail to fully understand the complete system that is being submitted for qualification. With respect to pre-qualification this includes all interconnecting piping, ductwork, valves wiring and controls including configuration and dimensions. Keep in mind that only the submitted system configuration will be pre-qualified. Conditionally-qualified

systems must include design and physical limitations with respect to interconnecting piping, ductwork, valves wiring and controls including configuration and dimensions.

- The Bill of Materials should be at a level of detail where major components are identified including prime mover, generator, heat recovery devices, thermally activated technologies, emissions abatement equipment, system level controls, monitoring equipment, interconnection paralleling, transfer and protective equipment, interconnecting piping, ductwork and valving.
- System energy and emissions performance documentation as requested above.
- Certifications as requested above.
- The installation manual should include:
 - Safety instructions
 - Principles of operation
 - System description and technical data
 - Installation requirements
 - Thermal system connections
 - Fuel connections
 - Intake and exhaust information
 - Electric connections
 - Controls
 - Initial operation and commissioning
 - Maintenance
 - Spare parts
- The operating manual should include:
 - Application/Operating modes
 - Sub-system descriptions
 - Prime mover
 - Heat recovery systems
 - Controls and monitoring systems
 - Grid interconnection and protective systems
 - Other
 - System operation
 - Operator interface
 - Maintenance
 - Troubleshooting
- The maintenance and service manual should include:
 - General overview of maintenance requirements
 - Routine service requirements and procedures
 - Troubleshooting
 - Service parts list
- The warranty description should include:
 - Length and limits of coverage
 - Service plans and options

Application Evaluation

Applications that meet Application Requirements will be reviewed using the evaluation criteria below:

Applications to become an Approved Vendor

- Does the application meet the RFI requirements?

- Does the application show single-point responsibility, with adequate resources and experience to engender confidence of the ability to manage the equipment packaging, installation, commissioning, and maintenance, either directly or through subcontracted teaming arrangements? (Regardless of the teaming arrangement, the Applicant remains fully responsible for all aspects).

Applications for CHP equipment pre-approval

- Does the application meet the RFI requirements?
- Does the application contain sufficient information to provide an understanding of how the system was engineered and designed, why specific components were selected, how they were integrated into the package, and how the integrated package and controls will operate in the field?
- Does the application demonstrate that the equipment and individual components have a history of durability, quality, and reliability?
- Does the application demonstrate that the equipment and individual components are well-matched to work in harmony with each other as a "system"?

NYSERDA may utilize outside evaluators to assist in the review of applications. NYSERDA may request supplemental materials as reasonably necessary to facilitate review.

GENERAL CONDITIONS

Proprietary Information - Careful consideration should be given before confidential information is submitted to NYSERDA as part of your application. Review should include whether it is critical for evaluating a application, and whether general, non-confidential information, may be adequate for review purposes. The NYS Freedom of Information Law, Public Officers law, Article 6, provides for public access to information NYSERDA possesses. Public Officers Law, Section 87(2)(d) provides for exceptions to disclosure for records or portions thereof that "are trade secrets or are submitted to an agency by a commercial enterprise or derived from information obtained from a commercial enterprise and which if disclosed would cause substantial injury to the competitive position of the subject enterprise." Information submitted to NYSERDA that the applicant wishes to have treated as proprietary, and confidential trade secret information, should be identified and labeled "Confidential" or "Proprietary" on each page at the time of disclosure. This information should include a written request to exempt it from disclosure, including a written statement of the reasons why the information should be exempted. See Public Officers Law, Section 89(5) and the procedures set forth in 21 NYCRR Part 501 <http://nyserda.ny.gov/~media/Files/About/Contact/NYSERDARegulations.ashx> However, NYSERDA cannot guarantee the confidentiality of any information submitted.

Omnibus Procurement Act of 1992 - It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority- and women-owned business enterprises, as bidders, subcontractors, and suppliers on its procurement Agreements.

Information on the availability of New York subcontractors and suppliers is available from:

Empire State Development
Division For Small Business
30 South Pearl Street
Albany, NY 12245

A directory of certified minority- and women-owned business enterprises is available from:

Empire State Development
Minority and Women's Business Development Division
30 South Pearl Street
Albany, NY 12245

Limitation - This Request for Information does not commit NYSERDA to award a contract, pay any costs incurred in preparing an application, or to procure or contract for services or supplies. NYSERDA reserves the right to

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accept or reject any or all applications received, or to cancel in part or in its entirety the solicitation when it is in NYSERDA's best interest.

Disclosure Requirement - The applicant shall disclose any indictment for any alleged felony, or any conviction for a felony within the past five years, under the laws of the United States or any state or territory of the United States, and shall describe circumstances for each. When an applicant is an association, partnership, corporation, or other organization, this disclosure requirement includes the organization and its officers, partners, and directors or members of any similarly governing body. Applicants must also disclose if they have ever been debarred or suspended by any agency of the U.S. Government or the New York State Department of Labor.

Attachments

Attachment A - Application Cover Sheet

Attachment B - CHP System Qualification Data Form

Attachment C - Monitoring and Data Collection Standard