



**DG Integrated Data System Operation and Support  
Request for Proposal (RFP) 3328**

Proposals Due: September 20, 2016 by 5:00 PM Eastern Time\*

NYSERDA is seeking a qualified vendor to continue the Distributed Generation (DG) – Combined Heat and Power (CHP) performance data collection, analysis, and presentation effort currently being performed by CDH Energy Corp. as represented by NYSERDA's DG Integrated Data System website <http://chp.nyserda.ny.gov>.

Proposers must have demonstrated experience in CHP system installation, remote monitoring and performance analysis, as well as experience in web-based database application development, operation and maintenance.

**Proposal Submission:** Electronic submission is preferable. NYSERDA will also accept proposals by mail or hand-delivery. If submitting electronically, proposers must submit the proposal in either PDF or MS Word format along with a completed and signed Proposal Checklist and Disclosure of Prior Findings of Non-Responsibility, in PDF format. Proposal PDFs should be searchable and should be created by direct conversion from MS Word, or other conversion utility, rather than scanning. For ease of identification, all electronic files must be named using the proposer's entity name in the title of the document. Proposals may be submitted electronically by following the link for electronic submissions found on this RFP's webpage, which is located in the "Current Opportunities" section of NYSERDA's website (<http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities.aspx>). Instructions for submitting electronically are located as Attachment I to this RFP.

If mailing or hand-delivering, proposers must submit (2) paper copies of their proposal with a completed and signed Proposal Checklist, along with a CD or DVD containing both a PDF and MS Word digital copy of the proposal, following the above guidelines. Mailed or hand-delivered proposals must be clearly labeled and submitted to:

**Jillina Baxter, RFP 3328  
NYS Energy Research and Development Authority  
17 Columbia Circle  
Albany, NY 12203-6399**

If you have technical questions concerning this solicitation, contact Paul Vainauskas at (518) 862-1090, ext. 3554 or [paul.vainauskas@nyserda.ny.gov](mailto:paul.vainauskas@nyserda.ny.gov). If you have contractual questions concerning this solicitation, contact Venice Forbes at (518) 862-1090, ext. 3507 or [venice.forbes@nyserda.ny.gov](mailto:venice.forbes@nyserda.ny.gov).

No communication intended to influence this procurement is permitted except by contacting Paul Vainauskas (Designated Contact) at (518) 862-1090, ext. 3554 or [paul.vainauskas@nyserda.ny.gov](mailto:paul.vainauskas@nyserda.ny.gov). Contacting anyone other than this Designated Contact (either directly by the proposer or indirectly through a lobbyist or other person acting on the proposer's behalf) in an attempt to influence the procurement: (1) may result in a proposer being deemed a non-responsible offerer, and (2) may result in the proposer not being awarded a contract.

\* Late proposals will be returned. Incomplete proposals may be subject to disqualification. It is the proposer's responsibility to ensure that all pages have been included in the proposal. Faxed or e-mailed proposals will not be accepted. Proposals will not be accepted at any other NYSERDA location other than the address above. If changes are made to this solicitation, notification will be posted on NYSERDA's web site at <http://www.nyserda.ny.gov>.



## I. Introduction

NYSERDA offers a number of initiatives that support the installation and operation of distributed generation (DG), combined heat and power (CHP) and other power generation and/or power storage systems. Most of these programs ensure that system performance data is supplied to NYSERDA for analysis and/or presentation to the general public. In 2004, NYSERDA contracted with CDH Energy Corp. to develop and operate the Combined Heat and Power – Data Integration System (currently referred to as the DG Integrated Data System), as described in Attachment D, which automatically receives daily uploads of 15 minute system performance data from each of the NYSERDA funded on-site generation project sites, performs automated quality checks on the data, stores the data in a database, analyzes the data, and presents the results through the publicly available website <http://chp.nyserda.ny.gov>. Over the past several years, the website has been expanded to include not only CHP, but power generation data from various other NYSERDA funded power generation projects, including installations of solar photovoltaic (PV) systems, anaerobic digester (ADG) systems, and fuel cells (collectively referred to as “DG sites” for the purpose of this RFP). The existing agreement with the incumbent (CDH Energy Corp.) is scheduled to expire at the end of 2016. Under this RFP, NYSERDA is requesting proposals from qualified vendors to continue this effort. The existing agreement calls for the incumbent to assist with a smooth transition should a new contractor be selected.

The existing agreement requires CDH Energy Corp. to assist each DG site to develop a monitoring plan consistent with the Attachment E – Monitoring and Data Collection Standard, assist in the establishment of a data transfer protocol with each DG site, develop a case study of each CHP site, perform both automatic and manual data quality assurance reviews, and monitor the system (including data transfer from the sites) so that problems are quickly identified and resolved. Each site, through its own DG implementation contract with NYSERDA, is required to procure, install and maintain monitoring equipment (meters, sensors, data logger, and communications pathway).

The existing agreement requires that CDH Energy Corp. grant NYSERDA a license to use, modify, distribute, and permit others to use, modify and distribute all software developed as part of the development, operation, or maintenance of the DG Integrated Data System. The selected vendor will receive a copy of the source code developed under the existing agreement which provides much of the functionality of the DG Integrated Data System. However, some functionality is currently provided using software written by CDH Energy Corp. prior to the existing effort and this source code will NOT be provided to the selected vendor. This excluded software is described in Section 3 of Attachment D and consists primarily of command line batch files and programs written in PV-WAVE. The selected vendor will be required to replicate the functionality of the excluded software during the Transition and Startup phase of this effort.

The DG Integrated Data System is currently receiving daily operational data from approximately 400 active sites. It is anticipated that between approximately 250 and 400 new active sites will be added during the first two years of effort under this RFP, and, if NYSERDA authorizes the selected vendor to continue beyond the initial two-year period, then it is anticipated that between approximately 150 and 500 new active sites will be added during the subsequent three years of effort under this RFP.

The vendor selected as a result of this RFP (selected vendor) will receive an agreement for an initial period of 2 years, followed by an optional renewal period of 3 years, for a total period of 5 years.

## II. Program Requirements

Proposers may be individual entities or teams of entities. Proposers must have demonstrated experience in each of the areas listed below under “Proposer Qualifications”.

NYSERDA anticipates that a single award will be made to a proposer, or proposing team, which will be selected to perform the work as defined in Attachment C – Statement of Work.



The selected vendor will be required to grant NYSERDA a license to use, modify, distribute, and permit others to use, modify and distribute all software and other materials developed as part of the development, operation, or maintenance of the DG Integrated Data System.

### **III. Proposal Requirements**

A completed and signed Proposal Checklist must be attached as the front cover of your proposal. **Late proposals will be returned and proposals lacking the appropriate completed and signed Proposal Checklist may be returned. Faxed or e-mailed copies will not be accepted.**

Proposals should not be excessively long or submitted in an elaborate format that includes expensive binders or graphics. Unnecessary attachments beyond those sufficient to present a complete, comprehensive, and effective response will not influence the evaluation of the proposal. Each page of the proposal should state the name of the proposer, the RFP number, and the page number. The proposal must address the following items and should be presented in the following progression format:

#### **Proposer Qualifications**

Document experience in each of the following areas. Provide specific, detailed examples, web addresses, and site contact information, as appropriate. Identify team-member individuals and the specific activities that they have performed.

- CHP system design and installation;
- Automated remote monitoring of CHP systems;
- Analysis of CHP system performance;
- Database development, operation and maintenance, particularly using MYSQL and Access and;
- Website development, operation and maintenance, particularly using database driven dynamic web pages using ColdFusion and Python.

#### **DG Integrated Data System Implementation**

Carefully review the Monitoring and Data Collection Standard (described in Attachment E). Describe what changes you would make (if any) and why.

Carefully review the existing DG Integrated Data System website at <http://chp.nyserda.ny.gov> and describe what changes you would make to the DG Integrated Data System which would improve its functionality, particularly with respect to technology transfer. Where possible, include examples in your proposal of work that you've done that illustrates your recommended changes.

Carefully review the existing DG Integrated Data System hardware and software environments as described in Attachment D. Fully describe the hardware and software environments that you propose to utilize to support the DG Integrated Data System, and, if different from what is currently used, how the change(s) would improve the functionality of the DG Integrated Data System. If you are proposing to use a hosting service, provide its name, its web address, and level of service (and options if any) that you are contemplating using.

The DG Integrated Data System website contains a wealth of information pertaining to the operation and performance of DG systems. Fully describe your capability and experience in maximizing the use of large data sets and how you would use this data to extract more value to the marketplace.

#### **Additional Generation Data Services for DG Projects**

The DG Integrated Data System must be capable of automated addition of new DG project sites through integration with accessible NYSERDA project databases, as these databases are developed, including



but not limited to Salesforce and the New York Generation Attributes Tracking System (NYGATS)<sup>1</sup>. It shall also be capable of integrating automated transfers of generation data between companion databases maintained by NYSERDA or NYSERDA contractors on, at a minimum, a monthly basis.

### **Data Collection Systems and Services**

The data collected and reported on the DG Integrated Data Systems website is more comprehensive for some DG systems providing both electric and thermal parameters (Full-data Site), compared to other DG systems providing electric only (Partial-data Site, including but not limited to solar PV sites, and battery electric storage sites). In all cases, the data collection activities administered by the vendor selected under this RFP shall:

- interface with the site's measurement instrumentation
- properly convert raw measurements supplied by the site's sensors and meters into the appropriate engineering units
- provide adequate security to protect against unauthorized access to the system and data
- provide for automatic polling of the instrumentation and recording the data at fifteen (15) minute intervals (more frequent sampling may be performed as long as data sampled at 15 minute intervals is recorded)
- provide for protection of data during system failure and power outage
- provide storage for at least seven (7) days' worth of data so that the data logging function can continue during communication failures
- and provide automatic transmittal of data to DG Integrated Data Systems website

For the Full-data collection system, the types of parameters to be measured for Full-data Sites include, but are not limited to:

- Temperature
- Water Flow Rate
- Gas Flow Rate
- Thermal energy recovered/used (BTU meter)
- Site kW demand
- kWhr produced/used
- Binary (on-off)

For the Partial-data collection system, the activities administered by the vendor selected under this RFP shall consist of receiving mainly electric only data from sites including but not limited to solar PV sites, and battery electric storage sites. The vendor selected under this RFP shall expect to receive outputs from the site derived from an internet enabled electric meter that displays instantaneous AC power and cumulative total AC energy production and, at a minimum, can record cumulative total AC energy production of the DG system on an hourly and time-stamped basis, store the hourly readings for at least 7 days, and can transmit recorded readings once per day to a NYSERDA designated Data Agent via e-mail, FTP, HTTP or Modbus TCP/IP. The meter must meet the American National Standards Institute (ANSI) C12.20, be Revenue grade with a +/-0.2% accuracy, and be properly calibrated. The meter must also have battery backup to prevent the loss of data during power outages. Under the category of Partial-

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<sup>1</sup> NYGATS is an online certificate-tracking system that records information about electricity generated, imported, and consumed within New York State. Using unique serial numbers, it can issue, track, and manage energy attribute certificates and renewable energy certificates (RECs). It prevents double-counting of certificates, provides public reports, and records a full audit trail of all transactions to support the integrity of the certificates issued and held in the system. Registered NYGATS users can trade, retire, or verify and substantiate ownership of RECs to support compliance or voluntary claims. Certificates may be traded "bundled" with megawatt-hours of energy, but NYGATS tracks only certificates.



data collection system, it may be necessary to monitor one or two additional parameters to be determined (electric or non-electric).

On rare instances, NYSERDA may request that the vendor selected under this RFP provide, install, operate and maintain data collection systems at various DG sites that do not include a data collection and reporting system as part of the original project, or where the original system is no longer in operation. When so tasked, the vendor selected under this RFP will be responsible for the installation, operation and maintenance of such systems, sampling and recording measurements, and transmitting the recorded data to the website in an appropriate format on a daily basis.

## Cost

A milestone payment structure will be used in the agreement resulting from this solicitation. Provide your proposed milestone payment amount for each of the following using Attachment F – Milestone Budget Form.

- **Transition and Startup** – A fixed milestone payment for all activities leading up to an approved, fully functional DG Integrated Data System, including acquiring and configuring all hardware and software, installing and updating the DG Integrated Data System software and files, establishing reliable data transfer from all existing active project sites, and attending transition meeting(s) (See Tasks 2 and 3 of Attachment C – Statement of Work). This milestone payment may be invoiced upon final approval for “public roll-out” of the DG Integrated Data System received from NYSERDA’s Project Manager.
- **Update of the Monitoring and Data Collection Standard** – A fixed milestone payment for this effort if you are proposing to update the Monitoring and Data Collection Standard (See Task 4 of Attachment C – Statement of Work). This milestone payment may be invoiced upon approval of the Final Monitoring and Data Collection Standard by NYSERDA’s Project Manager.
- **Upgrading and Improving the DG Integrated Data System** – A fixed milestone payment for upgrade and improvement of the system’s functionality and usefulness (See Task 5 of Attachment C – Statement of Work). This milestone payment may be invoiced upon approval of the Upgraded DG Integrated Data System received from NYSERDA’s Project Manager.
- **System Operation and Maintenance** – Milestone payments for operation and maintenance will be broken down into two components: a fixed monthly fee (to generally cover fixed costs) and a variable monthly fee based on the number of active sites monitored throughout the month (based on a fixed dollar amount per site, to be multiplied by the number of sites). See Task 6 of Attachment C – Statement of Work. These milestone payments may be invoiced monthly. Due to the expected difference in level of effort in operation and maintenance between the Full-data Site and Partial-data Site, the variable monthly fee can be different. The proposal should reflect this difference.
- **Adding New Full-data Sites (Electric & Thermal)** – Where the site has/will be installing the monitoring system through its DG implementation contract with NYSERDA, the vendor selected under this RFP will seek a fixed milestone payment for adding a new active Full-data Site to the DG Integrated Data System after transition/startup (\$/new site), including assisting the site to develop an approved Monitoring Plan, entering all site information into the DG Integrated Data System, creating and publishing a Fact Sheet for the site, and establishing reliable daily DG system performance data transfer from the site (See Task 7 of Attachment C – Statement of Work). This milestone payment may be invoiced once site data and the Fact Sheet are available through the DG Integrated Data System, reliable daily data transfer has been established, and automated analysis and reporting are functional for the site.
- **Adding new Partial-data Sites (Electric Only)** – Where the site has/will be installing the monitoring system through its DG implementation contract with NYSERDA, the vendor selected under this RFP will seek a fixed milestone payment for adding a new active DG site (electric only) to the DG Integrated Data System after transition/startup (\$/new site), entering site electric information into the DG Integrated Data System, and establishing reliable daily electric performance data transfer from the site (See Task 7 of Attachment C – Statement of Work). This



milestone payment may be invoiced once site data is available through the DG Integrated Data System, reliable daily data transfer has been established, and automated analysis and reporting are functional for the site.

- **Transition and Shutdown** – A fixed milestone payment for performing the transition and shutdown effort described in Tasks 9 and 10 of Attachment C – Statement of Work. This milestone payment can be invoiced once the DG Integrated Data System has been successfully handed off to the “New Contractor”.

Include a completed Personnel and Rates Form (Attachment H – Personnel and Rates Form) for the Proposer and each proposed team member organization or identified subcontractor.

Attach supporting documentation to support indirect cost (overhead) rate(s) included in your proposal as follows:

- Describe the basis for the rates proposed (i.e., based on prior period actual results; based on projections; based on federal government or other independently-approved rates).
- If rate(s) are approved by an independent organization, such as the federal government, provide a copy of such approval.
- If rate(s) are based on estimated costs or prior period actual results, include calculations to support proposed rate(s). Calculation should provide enough information for NYSERDA to evaluate and confirm that the rate(s) are consistent with generally accepted accounting principles for indirect costs.

NYSERDA reserves the right to audit any indirect rate presented in the proposal and to make adjustment for such difference. Requests for financial statements or other needed financial information may be made if deemed necessary.

#### **Letters of Intent to Participate**

- If a subcontractor is listed as part of your team, please provide a Letter of Intent to Participate from the subcontractor, as part of the proposal.

#### **IV. Proposal Evaluation**

Proposals that meet proposal requirements will be reviewed by a Technical Evaluation Panel using the evaluation criteria below.

- **Experience** – For each of the five areas of experience listed above, is the Proposer’s or Proposing Team’s experience excellent, satisfactory, or poor?
- **Benefits** – Will the Proposer, or Proposing Team, bring a capability that will ensure or enhance the continued operation of the DG Integrated Data System? If changes are proposed, will the proposed changes to the DG Integrated Data System and/or Monitoring and Data Collection Standard provide benefit(s) to the project sites, NYSERDA or the public?
- **Value** – What is the overall value, considering experience, benefits and cost, when compared to the other Proposers?

NYSERDA may consider the following program policy factors in making award selection decisions:

- The degree to which the applicant has the resources (human and financial) to be able to complete the work.
- The degree to which the proposal optimizes the use of available funding.

#### **V. GENERAL CONDITIONS**



**Proprietary Information** - Careful consideration should be given before confidential information is submitted to NYSERDA as part of your proposal. Review should include whether it is critical for evaluating a proposal, 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 proposer 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 except it from disclosure, including a written statement of the reasons why the information should be excepted. See Public Officers Law, Section 89(5) and the procedures set forth in 21 NYCRR Part 501 <http://www.nyserda.ny.gov/About/-/media/Files/About/Contact/NYSERDA-Regulations.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  
625 Broadway  
Albany, NY 12207

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

Empire State Development  
Minority and Women's Business Development Division  
625 Broadway  
Albany, NY 12207

**State Finance Law sections 139-j and 139-k** - NYSERDA is required to comply with State Finance Law sections 139-j and 139-k. These provisions contain procurement lobbying requirements which can be found at <http://www.ogs.ny.gov/aboutogs/regulations/advisoryCouncil/StatutoryReferences.html>. The attached Proposal Checklist calls for a signature certifying that the proposer will comply with State Finance Law sections 139-j and 139-k and the Disclosure of Prior Findings of Non-responsibility form includes a disclosure statement regarding whether the proposer has been found non-responsible under section 139-j of the State Finance Law within the previous four years.

**Tax Law Section 5-a** - NYSERDA is required to comply with the provisions of Tax Law Section 5-a, which requires a prospective contractor, prior to entering an agreement with NYSERDA having a value in excess of \$100,000, to certify to the Department of Taxation and Finance (the "Department") whether the contractor, its affiliates, its subcontractors and the affiliates of its subcontractors have registered with the Department to collect New York State and local sales and compensating use taxes. The Department has created a form to allow a prospective contractor to readily make such certification. See, ST-220-TD (available at [http://www.tax.ny.gov/pdf/current\\_forms/st/st220td\\_fill\\_in.pdf](http://www.tax.ny.gov/pdf/current_forms/st/st220td_fill_in.pdf)). Prior to contracting with NYSERDA, the prospective contractor must also certify to NYSERDA whether it has filed such certification with the Department. The Department has created a second form that must be completed by a prospective contractor prior to contacting and filed with NYSERDA. See, ST-220-CA (available at [http://www.tax.ny.gov/pdf/current\\_forms/st/st220ca\\_fill\\_in.pdf](http://www.tax.ny.gov/pdf/current_forms/st/st220ca_fill_in.pdf)). The Department has



developed guidance for contractors which is available at <http://www.tax.ny.gov/pdf/publications/sales/pub223.pdf>.

**Contract Award** - NYSERDA anticipates making one award under this solicitation. It may award a contract based on initial applications without discussion, or following limited discussion or negotiations pertaining to the Statement of Work. Each offer should be submitted using the most favorable cost and technical terms. NYSERDA may request additional data or material to support applications. NYSERDA will use the Sample Agreement to contract successful proposals (the enclosed Statement of Work may be adjusted based on negotiations between NYSERDA and the vendor selected under this RFP). NYSERDA reserves the right to limit any negotiations to exceptions to standard terms and conditions in the Sample Agreement to those specifically identified in the submitted proposal (see Proposal Checklist). Proposers should keep in mind that acceptance of all standard terms and conditions will generally result in a more expedited contracting process. NYSERDA expects to notify proposers in approximately eight weeks from the proposal due date whether your proposal has been selected to receive an award. NYSERDA may decline to contract with awardees that are delinquent with respect to any obligation under any previous or active NYSERDA agreement.

**Limitation** - This solicitation does not commit NYSERDA to award a contract, pay any costs incurred in preparing a proposal, or to procure or contract for services or supplies. NYSERDA reserves the right to accept or reject any or all proposals received, to negotiate with all qualified sources, or to cancel in part or in its entirety the solicitation when it is in NYSERDA's best interest. NYSERDA reserves the right to reject proposals based on the nature and number of any exceptions taken to the standard terms and conditions of the Sample Agreement.

**Disclosure Requirement** - The proposer 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 a proposer 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. If an indictment or conviction should come to the attention of NYSERDA after the award of a contract, NYSERDA may exercise its stop-work right pending further investigation, or terminate the agreement; the contractor may be subject to penalties for violation of any law which may apply in the particular circumstances. Proposers 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.

## **VI. Attachments:**

- Attachment A – Proposal Checklist
- Attachment B – Disclosure of Prior Findings of Non-Responsibility
- Attachment C – Statement of Work
- Attachment D – DG/CHP Integrated Database Functional Description
- Attachment E – Monitoring and Data Collection Standard
- Attachment F – Milestone Budget Form
- Attachment G – Sample Agreement
- Attachment H – Project Personnel and Rates Form
- Attachment I – Instructions for Submitting Electronic Proposals



**ATTACHMENT A  
PROPOSAL CHECKLIST (MANDATORY)**

Proposal Title		Due Date	
<b>Primary Contact</b> (Prime Contractor)		Title	
Company		Phone	Fax
		e-mail	
By checking this box I certify that the TIN number submitted is <b>not</b> a social security number. If your tax id number is your social security number please leave information blank and contact NYSERDA.		<b>Federal Tax Identification Number:</b>	
Address	City	State or Province	Zip
<b>Secondary Contact</b>		Title	
Company		Phone	Fax
		e-mail	
Address	City	State or Province	Zip
<b>THE PRIME CONTRACTOR MUST SIGN THIS FORM BELOW and ANSWER THE FOLLOWING QUESTIONS:</b>			
<p>Do you accept all Terms &amp; Conditions in the Sample Agreement? (If no, explain on separate page)  <b>(NYSERDA may or may not accept any of the listed exceptions; NYSERDA reserves the right to limit any negotiations to exceptions specifically identified herein.)</b> <span style="float: right;">___Yes ___No</span></p> <p>Do you wish to have any information submitted in your proposal package treated as proprietary or confidential trade secret information? If yes, you must identify and label on each applicable page "confidential" or "proprietary" (For additional information regarding this, please refer to the section entitled "Proprietary Information" in the solicitation document). <span style="float: right;">___Yes ___No</span></p> <p>Have you been indicted/convicted for a felony within the past 5 years? (if yes, explain on separate pg) <span style="float: right;">___Yes ___No</span></p> <p>Are you a Minority or Women-Owned Business Enterprise? <span style="float: right;">___Yes ___No</span></p> <p>Does your proposal contain Minority or Women-Owned Business enterprises as subcontractors? <span style="float: right;">___Yes ___No</span></p> <p>Are you submitting the required number of copies? (See proposal instructions.) <span style="float: right;">___Yes ___No</span></p> <p>Is other public funding pending/awarded on this and/or very similar topic (prior and/or competing proposals)? (if yes, explain on separate page) <span style="float: right;">___Yes ___No</span></p>			
<b>ON WHAT PAGE IN YOUR PROPOSAL CAN THESE ITEMS BE FOUND?</b>			
Provide list of items consistent with Proposal Requirements section of solicitation:		Indictment/Conviction of Felony _____ (if applicable) NYSERDA Contracts Awarded _____ (if applicable) Prior and/or Competing Proposals _____ (if applicable) Exceptions to Terms & Conditions _____ (if applicable) Completed and Signed Contract Pricing Proposal Form(s) _____ Disclosure of Prior Findings of Non-responsibility Form _____	
<b>AUTHORIZED SIGNATURE &amp; CERTIFICATION</b>			
I certify that the above information, and all information submitted in connection with State Finance Law §139-j and §139-k, is complete, true, and accurate, that I have read and reviewed the Standard Terms and Conditions set forth in the attached Sample Agreement and that I accept all terms unless otherwise noted herein, and that the proposal requirements noted have been completed and are enclosed. I affirm that I understand and will comply with NYSERDA's procedures under §139-j(3) and §139-j(6)(b) of the State Finance Law. I understand that this proposal may be disqualified if the solicitation requirements are not met. I, the undersigned, am authorized to commit my organization to this proposal.			
Signature		Name	
Title		Organization	
Phone			

**NOTE:** This completed form **MUST** be signed and attached to the front of all copies of your proposal.

**Attachment B**

**Disclosure of Prior Findings of Non-responsibility Form  
(Mandatory)**

Name of Individual or Entity seeking to enter the procurement contract:		
Address:		
Date:		
Solicitation or Agreement Number:		
Name and Title of Person Submitting this Form:		
Has any Governmental Entity made a finding of non-responsibility regarding the Individual or Entity seeking to enter the Procurement Contract in the last four years?		Yes
		No
Was the basis for the finding of non-responsibility due to a violation of §139-j of the State Finance Law?		Yes
		No
Was the basis for the finding of non-responsibility due to the intentional provision of false or incomplete information to a Governmental Entity?		Yes
		No
If you answered yes to any of the above questions, please provide details regarding the finding of non-responsibility:		
Government Agency or Authority:		
Date of Finding of Non-responsibility:		



Has any Governmental Entity or other governmental agency terminated or withheld a Procurement Contract with the above-named Individual or Entity due to the intentional provision of false or incomplete information?		Yes
		No

If you answered yes, please provide details:

Government Agency or Authority:

Date of Termination or Withholding of Contract:

Offerer certifies that all information provided to NYSERDA with respect to State Finance Law §139-k is complete, true, and accurate.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

## Attachment C

### **Exhibit A Statement of Work**

DG Integrated Data System Operation and Support  
(Contractor)  
Contract Number (xxxxx)

#### **Definitions**

##### Contractor

Contractor's Name and Address

##### CDH Energy

CDH Energy Corporation  
2695 Bingley Road  
Cazenovia, NY 13035  
(315) 655-1063

##### DG Integrated Data System

The DG system performance data acceptance, analysis and presentation system developed by CDH Energy under NYSERDA Agreement 8621 providing automated data submission from the DG Sites on a daily basis, automated data quality checking, database storage of submitted data, automated data analysis, public website presentation of performance data and results of analyses, public access to the performance data including tools for manipulation of data, and public access to reports and Fact Sheets related to the DG Sites, or as modified by the Contractor under the direction of NYSERDA's project manager.

##### DG Site

A location or facility where a NYSERDA funded distributed generation or combined heat and power or battery electric storage project is being undertaken.

##### Site Owner

The owner or operator of a DG site.

##### System Developer

An entity contracted by a Site Owner to oversee the design and installation of the DG system at a DG Site.

##### Data Collector

The entity responsible for the installation and operation of a monitoring and data collection system for a DG system at a DG Site, which may be either the Site Owner, System Developer or a third party contracted by either the Site Owner or

System Developer.

#### Software

Computer programs written in a computer language designed to perform an action.

#### Software Environment

The collection of publicly available Software required to support the DG Integrated Data System, consisting of commercially available proprietary Software or open source Software, or both.

#### Hardware Environment

The collection of computer hardware, computer services, digital communication hardware and digital communication services required to support the Software Environment and the DG Integrated Data System.

#### DG Integrated Data System Software

Software developed and/or modified by the Contractor to perform the functions of the DG Integrated Data System either under Agreement 8621 or this work.

#### DG Integrated Data System Files

All files used to support the DG Integrated Data System, including, but not limited to, DG Integrated Data System Software, Database Files, and log files, but excluding files which are part of the Software Environment.

#### Performance Data

Data related to the performance of a DG System, including, but not limited to, 15 minute interval data as defined by the Monitoring Plan, DG Site information, fact sheets, and performance analysis reports.

#### Database Files

Computer files containing data managed by database software, including, but not limited to, Performance Data.

#### Full-data Site (Electric & Thermal)

A DG Site where thermal performance data is to be collected as well as electric performance data in order to determine the overall efficiency of the DG system.

#### Partial-data Site (Electric Only)

A DG Site where thermal performance data will not be collected and only the electric performance of the system will be determined.

#### New York Generation Attributes Tracking System (NYGATS)

An online certificate-tracking system that records information about electricity generated, imported, and consumed within New York State. Using unique serial numbers, it can issue, track, and manage energy attribute certificates and renewable energy credits (RECs).

## **DG Integrated Data System Specification**

The Contractor shall maintain, further develop and operate a web-based system to acquire, store, analyze, and present Performance Data and results from NYSERDA's distributed generation, combined heat and power, and battery electric storage projects that, at a minimum, shall meet the following specifications:

- Provide an automated means for receipt, processing and storage of 15 minute interval data from data collection systems at DG Sites, either directly or through Data Collectors;
- Allow Site Owners/Data Collectors to enter DG Site specific project characterization data and information using an easy to use, ADA compliant, password protected, web-based interface over the internet;
- Provide automated data validity checking and flagging of questionable data;
- Provide adequate security to protect against unauthorized access to the web server, database server or database;
- Provide automatically generated DG system performance reports as web pages;
- Website design shall comply with NYSERDA and New York State Office For Technology (NYS-OFT) standards with a look and feel consistent with NYSERDA's home website;
- Website domain name shall be owned by NYSERDA and approved by NYSERDA's Project Manager;
- Provide a system that maximizes technology transfer benefits;
- Provide public access to all non-confidential results identified by NYSERDA's Project Manager;
- Data acquisition and analysis conforming to industry standards;
- Data acquisition from DG Sites as identified by NYSERDA's Project Manager;
- Provide online documentation and help features to assist users;
- Fully document all software and procedures developed under this work. Software documentation shall comply with standard industry practices as approved by NYSERDA's Project Manager;
- Provide telephone and e-mail user support for DG Site Owners/Data Collectors;
- Further develop and maintain the website, data acquisition, database and analysis software in such a way as to permit easy conversion to NYSERDA's standard web server/database server environment as identified by NYSERDA's Project Manager;
- The web and database server(s) shall be hosted, for the period of this Agreement, at secure location(s) with redundant power supplies and redundant Internet access. The database server shall utilize a RAID (Redundant Array of Inexpensive Disks) hard drive system for automatic, real-time data backup (RAID

5 or 6), with automatic notification of a drive failure, and with at least one live stand-by drive for automatic reconstruction of the RAID in the event of a drive failure.

- The Contractor shall develop and implement an automated backup system which shall, at a minimum, provide for, daily incremental backups of Database Files, weekly full backups of Database Files, monthly full backups of all DG Integrated Data System files, and the automated storage of all backup files in at least two (2) different physical locations.
- The Contractor shall send a copy of the most recent full backup of the DG Integrated Data System Files to NYSERDA's project manager at least once every three (3) months, starting with the first such backup, in a format approved by NYSERDA's Project Manager.
- Since data collected, analyzed and presented by the DG Integrated Data System may be used as the basis of production payments for many of the DG projects, the Contractor shall implement a data quality assurance/quality control (QA/QC) protocol. This protocol shall include: the automated and manual inspection of received data and data posted to the database and website for completeness and reasonableness; procedures for contacting appropriate persons and/or entities to inform them of identified problem(s); and follow-up procedures to verify timely resolution.
- The Contractor shall maintain a change-log or version control system to record and track all changes and modifications to the DG Integrated Data System Software. The Contractor shall also record all changes to the Software Environment and maintain an up-to-date list of the current version of each software package or program used in the Software Environment. The Contractor shall make such records available to NYSERDA's Project Manager upon request.
- The Contractor shall maintain the security and performance of the Software Environment by installing updates and patches in a timely fashion. The Contractor shall also fix bugs in the DG Integrated Data System in a timely fashion.
- The Contractor shall make minor modifications to the DG Integrated Data System at the direction of NYSERDA's Project Manager.
- The Contractor shall make improvements to the Hardware and Software Environments as required to accommodate growth in data storage needs and DG Integrated Data System user loads.
- The Contractor shall not be responsible for providing hosting of the web or database server(s) beyond the term of this Agreement or modifications to this Agreement.
- Any web-based information and applications development, or programming delivered pursuant to the contract or procurement, will comply with New York State Enterprise IT Policy NYS-P08-005, Accessibility of Web-Based Information and Applications as such policy may be amended, modified or superseded, which requires that state agency web-based information and applications are accessible to persons with disabilities. Web-based information and applications must conform to New York State Enterprise IT Policy NYS-P08-005 as determined by quality assurance testing. Such quality assurance testing will be

conducted by NYSERDA and the results of such testing must be satisfactory to NYSERDA before web-based information and applications will be considered a qualified deliverable under the contract or procurement.

## **Project Tasks**

### **Task 1: Project Management/Reporting**

The Contractor shall be responsible for: ensuring that the overall project goals are met and appropriate resources are allocated to tasks; controlling the project budget and adhering to the project schedule; scheduling and conducting periodic review meetings with NYSERDA's Project Manager; and providing all project reporting to NYSERDA. Regardless of subcontracting arrangements, the Contractor is solely responsible for the completion of the work and the successful outcome of the project.

Monthly Activity Reports - The Contractor shall submit monthly Activity Reports to NYSERDA's Project Manager within two (2) weeks following the end of each month. Activity Reports shall be in a letter format, may be submitted via e-mail, and shall include the following information in the order indicated, with appropriate explanation and discussion:

- Title of project;
- Reporting period;
- Number of active DG Sites monitored throughout the month, by funding code;
- Number of new active DG Sites added during the month, by funding code;
- Number of DG Sites that have become inactive during the month, by funding code;
- A list of all DG Sites active at the end of the month, indicating funding code for each;
- List of QA/QC problems identified and corrected;
- List of QA/QC problems identified and not yet corrected;
- List of any changes made to the Hardware Environment, Software Environment or DG Integrated Data System Software, indicating the reasons for the change;
- Progress made towards major changes to the DG Integrated Data System, if any; and
- The number of visitors and pages supplied during the month.

The Contractor shall immediately notify NYSERDA's Project Manager of any significant problems. The Contractor shall periodically provide information to assist NYSERDA's Project Manager in documenting project impacts relative to the project's original technology transfer goals.

Meetings – In addition to any meetings specified below, the Contractor, at a minimum, shall attend the following meetings to be held at NYSERDA's Albany offices, or at a location approved by NYSERDA's project manager: Kickoff Meeting, Draft Data Monitoring Specification review meeting, DG Integrated Data System upgrade meeting, and a Wrap-up Meeting.

Deliverable: Monthly Activity Reports

## **Transition and Startup Tasks 2 and 3**

### **Task 2: Transition Plan**

The Contractor shall work with CDH Energy to develop a plan (the Transition Plan) for moving the DG Integrated Data System from CDH Energy's servers to the Contractor's servers, modifying the data acquisition systems used by the DG Sites so that the automated daily transfers are redirected to the Contractor's servers in an orderly fashion, and synchronizing databases so that both the Contractor's version of the DG Integrated Data System and CDH Energy's version of the DG Integrated Data System report similar results to user requests during the transition. The Contractor shall submit the Transition Plan to NYSERDA's Project Manager for review and comment.

Deliverable: Transition Plan

### **Task 3: Transition and Startup**

The Contractor shall obtain all necessary computer hardware, software and/or computer services, and communication services required to support the Software Environment and the DG Integrated Data System. The Contractor shall work with CDH Energy to implement the Transition Plan developed under Task 2 so that the Contractor has a fully functioning DG Integrated Data System with all DG Sites reporting daily Performance Data. The Contractor shall modify the DG Integrated Data System to support the following new features:

*\*\*\* modifications to the DG Integrated Data System proposed by the Contractor in its proposal will be included here\*\*\**

Transition and Startup Reporting: During the Transition and Startup period, the Contractor shall submit to NYSERDA's Project Manager weekly Transition and Startup Reports which shall include the current status of the transition, the status of all software changes to the DG Integrated Data System, the number of DG Sites currently providing data to the Contractor, and any problems that have developed and suggestions on how to resolve them.

Deliverables: Weekly Transition and Startup Reports

Fully Functioning DG Integrated Data System including new features

**NOTE: The Contractor shall NOT allow its version of the DG Integrated Data System to be available to the public at large ("public roll-out") without prior approval of NYSERDA's Project Manager.**

## **Documentation and System Improvement Tasks 4 and 5**

#### **Task 4: Update Monitoring and Data Collection Standard**

The Contractor shall update the Monitoring and Data Collection Standard previously developed by CDH Energy Corp. under Agreement 8621 to reflect changes in industry standard data collection techniques and best practices. The Contractor shall submit a draft of the updated Monitoring and Data Collection Standard to NYSERDA's Project Manager for review and comment. The Contractor shall then prepare a final Monitoring and Data Collection Standard incorporating such comments. Copies of the final updated Monitoring and Data Collection Standard shall be submitted to NYSERDA's Project Manager and incorporated into the DG Integrated Data System for public access in digital formats approved by NYSERDA's Project Manager.

##### Deliverables:

- Draft updated Monitoring and Data Collection Standard
- Final updated Monitoring and Data Collection Standard

#### **Task 5: Upgrading and Improving the DG Integrated Data System**

The Contractor shall perform an analysis of the current DG Integrated Data System and identify areas of possible upgrade and improvement with a goal of improving the system's functionality and usefulness. Based on this analysis, or as otherwise directed by NYSERDA's Project Manager, the Contractor shall develop a draft DG Integrated Data System upgrade plan including an estimate for the time and cost of such upgrades and improvements. The Contractor shall present the proposed upgrade plan to NYSERDA staff at a DG Integrated Data System Upgrade Meeting to be held at a time and place approved by NYSERDA's project manager. Based on comments made at the DG Integrated Data System Upgrade Meeting, the Contractor shall prepare, and submit to NYSERDA's Project Manager for approval, a detailed final upgrade plan identifying all DG Integrated Data System changes to be made and the cost of such changes. Upon receipt of a written notice to proceed from NYSERDA's Project Manager, the Contractor shall implement the approved upgrade plan.

##### Deliverables:

- Draft upgrade plan
- Final upgrade plan
- Upgraded DG Integrated Data System

#### **DG Integrated Data System Operation Tasks 6 and 7**

##### **Task 6: System Operation and Maintenance**

The Contractor shall operate the DG Integrated Data System throughout the term of this Agreement during which time the Contractor shall provide all user support, data validity checking and verification as per the QA/QC protocol, system maintenance and upgrades, and data backups as required. The Contractor shall modify the system as directed by NYSERDA's Project Manager to provide compliance with industry standards for DG data collection, analysis and reporting, and to maximize usability and technology transfer benefits. The Contractor shall maintain the database content for accuracy and

shall provide timely database updates. The Contractor shall assure to the best of its ability the quality and validity of the data received and presented.

### **Task 7: Adding New Project Sites**

For each new Full-data Site, the Contractor shall assist the Data Collector to develop a DG site/project specific monitoring plan that meets the data collection requirements specified in the Monitoring and Data Collection Standard developed by CDH Energy and as updated under Task 4, or as modified by NYSERDA's Project Manager, and the Contractor shall notify NYSERDA's Project Manager when such monitoring plan has been developed. The Contractor shall work with the Data Collector to implement a system to automatically transfer DG Site operational data to the DG Integrated Data System daily in a consistent format. The Contractor shall **NOT** be responsible for the installation or maintenance of hardware installed by others or obtaining communications services at the DG Site. The Contractor shall work with the Site Owner and/or System Developer to develop a Fact Sheet for the DG system which shall describe the DG Site and the DG system, including at least one photograph of the DG Site and one photograph or drawing of the DG system, and provide summary cost and performance information. The Contractor shall incorporate the DG Site information and Fact Sheet into the DG Integrated Data System and assure that the data transfer, analysis and presentation are operating properly.

For each new Partial-data Site, the Contractor shall work with the Data Collector to implement a system to automatically transfer DG Site operational data to the DG Integrated Data System daily in a consistent format. The Contractor shall **NOT** be responsible for the installation or maintenance of hardware installed by others or obtaining communications services at the DG Site. The Contractor shall work with the Site Owner and/or System Developer to incorporate the DG Site information into the DG Integrated Data System and assure that the data transfer, analysis and presentation are operating properly.

### **Other Support**

#### **Task 8: Other Program Support Activities**

NYSERDA's Project Manager may request that the Contractor provide technical support to the Program related to, but not included in the Tasks above. Tasks such as development, installation, and service of data collection and monitoring systems to support the DG systems described herein may be included in this task. Services provided under this Task will be defined by written Task Work Orders (TWO). The procedure for all TWO's shall be as follows:

(a) NYSERDA identifies each project and service.

(b) NYSERDA's Project Manager shall issue a request to the Contractor to submit a proposed Task Work Order Plan (TWOP) to accomplish a specific effort in support of the Program. NYSERDA's request shall include a date by which the Contractor is required to submit a proposed TWOP to NYSERDA.

(c) In response to NYSERDA's request, the Contractor shall prepare a written proposed TWOP, which shall describe and define, as appropriate, the following:

- A description of the project, activity or service.
- The approach that will be taken outlined by tasks.
- Any relevant background information.
- Defined deliverables.
- The time frame within which the project, activity or service will be completed.
- The names and titles of individuals designated by the Contractor to work on the project.
- The estimated cost, including a breakout by task and by title, hourly rate, and hours. Such labor costs shall be in accordance with the Project Personnel and Rates shown in the Budget section of this Exhibit A.

(d) NYSERDA shall review the Contractor's proposed TWOP and, if acceptable, NYSERDA's Project Manager may issue a Notice-to-Proceed incorporating the terms of the TWOP, or

(e) If not acceptable, NYSERDA may request that the Contractor make changes to the TWOP and resubmit. When NYSERDA finds the terms of the proposed TWOP acceptable and has issued a Notice to Proceed, the Contractor shall carry out the Work pursuant to the requirements of such TWO. The specific Work set forth in the TWO shall constitute Work to be performed by the Contractor under this Agreement.

(f) If NYSERDA finds that it is necessary to modify a TWO, NYSERDA may issue a TWO modification request. The Contractor shall then prepare a modification to the TWO. If the Contractor's modified TWO is acceptable to NYSERDA, then NYSERDA's Project Manager may issue a TWO Modification incorporating the terms of the Contractor's modified TWO.

(g) NYSERDA will review and approve any finalized project to ensure that all items included in the TWO are satisfactorily completed and within the prescribed time frame. The Contractor shall not be accountable for delays caused by NYSERDA.

Deliverables:

- A specific TWOP for each project to be conducted.
- All reports and/or materials described in each approved TWO.

## **Transition and Shutdown Tasks 9 and 10**

### **Task 9: System Description/Documentation**

The Contractor shall, upon request of NYSERDA's Project Manager, prepare a DG Integrated Data System Description Report that describes the DG Integrated Data System in sufficient detail that a qualified software application developer could ascertain the level of skill and effort required to effectively operate, maintain and manage the DG

Integrated Data System. The Description Report shall include a narrative describing the operation of the DG Integrated Data System, including hardware and software used, how data is checked for consistency, and how data is supplied and imported to the DG Integrated Data System. In addition, the Description Report shall include the following:

Operation:

- Number of sites in the database
- Number of sites with operational data
- Number of sites currently supplying data
- Number of page hits per month for the previous 12 months
- Number of unique visitors per month for the previous 12 months
- Total size in MB of the DG Integrated Data System including all software (excluding backup copies)
- Number and total size in KB of all files created in support of the DG Integrated Data System
- Total size in MB of the database
- Number and total size in KB of all informational reports associated with sites
- Size in KB of a database record or records covering one day for a typical site
- Size in KB of a database records covering one month for a typical site
- Size range in KB of daily data uploads from the various sites

Hardware:

- Number of servers used to support the DG Integrated Data System
- For each server, the CPU manufacturer model and speed, memory size in MB, and the sizes of all hard drives in GB
- An infrastructure diagram showing all servers; the major role of, and software on, each server; firewalls, internet and phone gateways; and how the servers interrelate

Software:

- Name and version for the operating system(s) and all applications used to support the DG Integrated Data System
- Source and contact information for any non-publicly available software used to support the DG Integrated Data System not developed by the Contractor or its Subcontractors during the performance of this Statement of Work
- Name, type and description of each file created or customized by the Contractor or its Subcontractors in support of the DG Integrated Data System (excluding site specific informational reports)
- A database data dictionary showing, for each field in each table, the field name, type, size, and description
- A software diagram showing the major software components and how they interrelate

The Contractor shall submit the DG Integrated Data System Description Report to NYSERDA's Project Manager for approval.

Deliverable:

DG Integrated Data System Description Report

**Task 10: Transition Support**

If NYSERDA elects to employ a New Contractor to continue operation of the DG Integrated Data System after the initial two-year term or the scheduled end of this Agreement, the Contractor shall assist NYSERDA and the New Contractor in the transfer of the DG Integrated Data System to the New Contractor and to provide technical support to NYSERDA and the New Contractor during an orderly transition period. The Contractor shall perform a final full backup of the DG Integrated Data System Files upon completion of the transition to the New Contractor, and submit a copy of such backup to NYSERDA's Project Manager using the format previously approved.

Transition Coordination Meeting: The Contractor shall meet with the New Contractor and NYSERDA's Project Manager at a mutually agreeable time and place to identify issues and approaches related to the transfer of the DG Integrated Data System to the New Contractor including, but not limited to, transfer of software, redirecting automatic daily data uploads by the reporting sites, parallel operation during the transition, and data integrity and synchronization during the transition. In addition, contact lists, and roles and responsibilities shall also be discussed. The Contractor shall prepare a draft Transition Plan based on the results of the Transition Coordination Meeting that shall be shared with all meeting attendees for comment. A final Transition Plan shall be submitted to NYSERDA's Project Manager for approval.

Transition Reporting: During the transition period, the Contractor shall submit to NYSERDA's Project Manager weekly Transition Reports which shall include the current status of the transition, the number of sites currently providing data to the New Contractor and the Contractor, any problems that have developed and suggestions on how to overcome them, and the number of hours and amount of funds expended during the week and to date on transition-related activities in total and by individual.

Deliverables:

Transition Plan

Weekly Transition Reports

## Attachment D

# DG/CHP Integrated Data System Functional Description

## 1 Introduction

This document describes the functional operation of the data components of the NYSEDA CHP Integrated Data (DI) system. The DI system uses both on line and off line components to consolidate and aggregate performance data from multiple CHP systems into a homogenous database for tracking and comparing CHP system performance. The DI system uses both on-line (web-based) and offline database processing to handle and present the data in both graphical and tabular fashion through a web-page interface.

The DI system operates using two distinct systems. The front-end system handles the user interface; entry and tracking of site and CHP system characteristic data; and dynamic generation of all HTML output. The front-end system is based on an Access database coupled with Macromedia Cold Fusion. The Access database includes operational/reliability (OR) data, emissions data, maintenance costs, equipment characteristics, site details, baseline utility bills, and other information.

The back-end or data-handling system is responsible for handling all aspects of the time series performance data. The back-end system is split into two areas, an online processing system that handles data requests in response to user inputs, and an offline processing system that handles manipulation of the raw data into hourly data for use by the DI system asynchronously (once per day).

The online portion of the DI system is written in Python<sup>1</sup> (version 3.4.1), with the following extensions:

- matplotlib-1.4.0 – Plotting library
- PyMySQL-0.6.2 – Python to MYSQL database API
- numpy-1.9.0 – Provides mathematical extensions for Python

The DI system uses MYSQL V5.5.38 as the relational database engine to load, store, retrieve, and aggregate the hourly time series data records. The online systems operate on a hosted Linux server, which also runs the Apache2 HTTP web server for communication with the front-end Cold Fusion server.

The offline portion of the system operates using PV Wave data visualization software and python. Python is used in converting RAW data from formats provided from the various

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<sup>1</sup> <http://www.python.org/>

CHP sites into a standardized comma delimited format that can be readily inserted into a PV Wave based database. The data is then converted to hourly data contained in a comma delimited text file that is loaded into the online MYSQL database. During this phase, PV Wave also applies the range and relational check to the RAW data, and outputs the data quality flag for each hourly data record produced.

Figure 1 displays a schematic representation of the operation DI system.

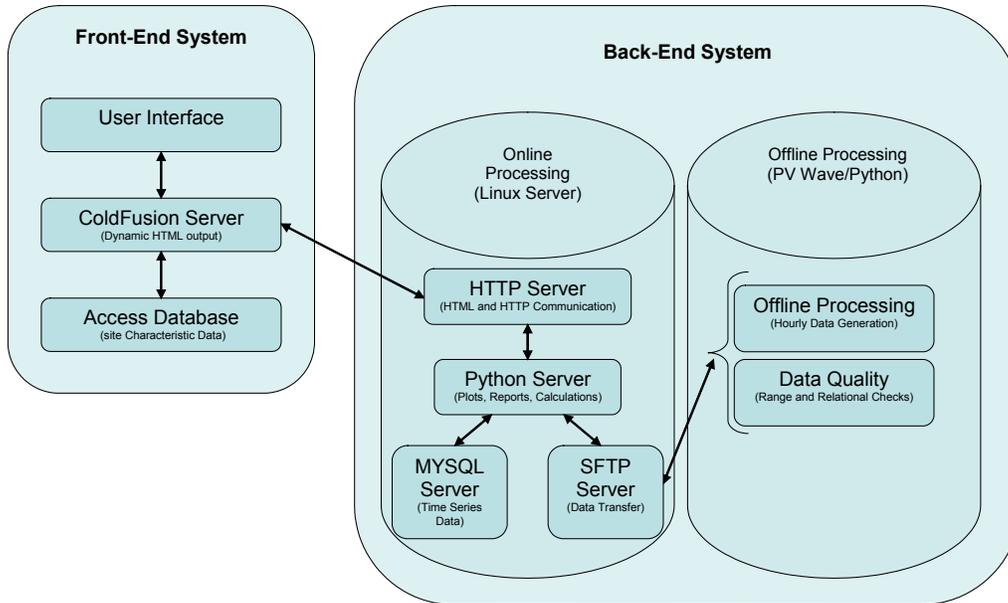


Figure 1. Schematic of Major DI System Components and Interconnection

## 2 Back End System Online Component Description

This section provides a description of the functional components, developed routines, and modifications that operate as part of the online processing of the DI system.

### 2.1 HTTP Web Server

The HTTP web server used is the open source Apache2 server v 2.2 The server configuration has been modified to execute Python with the following line in the server “apache2/sites-enabled/000-default” file:

```
AddHandler cgi-script .py
```

## 2.2 Python Programming

All of the data handling, interfacing with the MYSQL data base for storing and retrieving time-series data records, and reporting routines are written in the PYTHON programming language. Table 1 and Table 2 lists the PYTHON routines used in the DI System, along with the overall type of routine and a short description of the routine's function. The routines in the table have been grouped according to their use in the DI system.

**Table 1. DI System Python Routines**

<b>Name</b>	<b>Type</b>	<b>Function</b>
<b>DI API</b>		
data_handler.py	HTTP Communication	HTML Form Parsing
rate_handler.py	HTTP Communication	HTML Form Parsing
incentive_handler.py	HTTP Communication	HTML Form Parsing
summarytable_hc/index.py	HTTP Communication	HTML Form Parsing
daily_eff_plot/index.py	HTTP Communication	HTML Form Parsing
<b>Loading and Retrieving Time-series Performance Data</b>		
mysql2dict.py	Database	MYSQL data handling
agg.py	Database	MYSQL data handling
dat2mysql.py	Database	MYSQL data handling
<b>Custom MYSQL Functions for Time-series Performance Data</b>		
clean_scratch_tables.py	Database	MYSQL maintenance
dataheader.py	Database	MYSQL maintenance
dataint_mysql.py	Database	MYSQL maintenance
descriptiveheader.py	Database	MYSQL maintenance
load_all.py	Database	MYSQL maintenance
load_headers.py	Database	MYSQL maintenance
<b>Reporting, Plotting, and Output Routines</b>		
eff_calc.py	Reporting	Calculation
utility_rate.py	Reporting	Calculation
wb_calc.py	Reporting	Calculation
monitoring_summary.py	Reporting	HTML Output
summary_table.py	Reporting	HTML Output
cplot.py	Reporting	Plotting
time_series.py	Calendar/Timestamp	Date calculations
dq_plot_outputs.py	Reporting	Plotting
hourly_profile.py	Reporting	Plotting
outputs.py	Reporting	Plotting assistance
plot_functions.py	Reporting	Plotting assistance
xy_scatter.py	Reporting	Plotting
csv_output.py	Reporting	CSV Output
summary_files(,2,3).py	Predefined Data Queries	CSV Output

**Table 2. DI System Python Routines (continued)**

<b>Name</b>	<b>Type</b>	<b>Function</b>
<b>Utility Rate Calculator Routines</b>		
rate_table.py	Reporting	HTML Output
e_rate.py	Reporting	Calculations
<b>NYSERDA Incentive Calculator Routines</b>		
incentive_calc.py	Incentive	Calculation
incentive_portfolio.py	Incentive	Calculation
rps_adg_calc.py	Incentive	Calculation
rps_fc_calc.py	Incentive	Calculation
collection_emails.py	Incentive	Email communication
email_notify.py	Incentive	Email communication
ecipp_calc.py	Incentive	HTML Output
<b>Data Quality Summary Routines</b>		
dq_handler.py	HTTP Communication	HTML Form Parsing
dq_table_outputs.py	Reporting	HTML Output
<b>Calendar Routines</b>		
dates.py	Calendar/Timestamp	Date calculations
dt_add.py	Calendar/Timestamp	Date calculations
dt_dict.py	Calendar/Timestamp	Date calculations
dt_subtract.py	Calendar/Timestamp	Date calculations
dtgen.py	Calendar/Timestamp	Date calculations
holidays.py	Calendar/Timestamp	Date calculations
timezone_adjust.py	Calendar/Timestamp	Date calculations
<b>Front End - Back End Communication Routines</b>		
XML_CHPReliability.py	Database	Front End - Back End Communication Routines

### 2.2.1 DI Application Program Interface (API)

The DI System accepts commands through HTML form data using the HTTP Post method. The HTML form data are handled using a common gateway interface (CGI) routine called “handler” routines. These handler routines process the HTML form data and based on the user input (transmitted from the Cold Fusion Front End User Interface), load, processes and report the data as appropriate.

There are five different handler routines that are called from the front-end system, depending on the type of reporting required:

*data\_handler.py* – API for accessing time-series performance data and associated reporting (plots, CSV output)

The following are a list of HTML form data that can be passed to the *data\_handler.py* routine:

*data\_handler.py*

ptype	Single string argument for plot type for output. Supported Types: time_series, temp_trends, profile_plot, csv_output, stackplot, xyplot and overplot
agg_quality	Single integer argument that controls the number of monitoring units with good data per data interval when aggregating data from different CHP monitoring units into a single time-series performance data set.
data_quality	Single integer argument that indicates the data quality level for data loading and plotting (1 = All data, 2 = Passes Range Checks, 3 = Passes Relational Checks)
cn	Single or Python string list argument that lists the channel names to be loaded and analyzed
xcn	Single string argument that indicates the channel to be loaded for the x-axis in an xyplot. Defaults to DT for time series plot.
figname	File name for output
width	Plot width in pixels
height	Plot height in pixels
display_axis	
dmask	Array of days of the week for profile plot (0-6 for Mon-Sun)
sites	Single or Python interger list argument that lists the monitoring names to be loaded and analyzed
int	Single string argument for data interval loaded from database (hourly, daily, monthly)
agg	Single string argument for aggregation method for multiple CHP monitoring units (total all monitoring units, or compare all monitoring units)
stack_method	Single string argument for how data are represented when multiple CHP monitoring units are aggregated. None = overlay all data, STACK_MU = Separate plots for each data channel (combine monitoring units together), STACK_CN = Separate plots for each monitoring units (combine data channels together)
sd	Single string argument for data start date "mm/dd/yyyy"
ed	Single string argument for data end date "mm/dd/yyyy"

The *data\_handler.py* routine then chooses the appropriate data loading, calculation, and output routines, based on the form inputs. The *data\_handler.py* routine returns a stub of HTML code along with the output from the reporting function used, which is parsed by the Cold Fusion Front End and displayed.

*rate\_handler.py* – API for processing time-series performance data using calculation routines for supported utility bill rates

The following are a list of HTML form data that can be passed to the *rate\_handler.py* routine:

*rate\_handler.py*

sites	Single or Python integer list argument that lists the monitoring names to be loaded and analyzed
con_dem_base	Single integer argument of the utility contract demand for building without CHP
con_dem_chp	Single integer argument of the utility contract demand for building with CHP
data_quality	Single integer argument that indicates the data quality level for data loading and plotting (1 = All data, 2 = Passes Range Checks, 3 = Passes Relational Checks)
figname	File name for output
gas_cost	Single integer argument for cost of gas for CHP system in \$/MMBTU
recovery_value	Value of displaced heat from CHP heat recovery in \$/MMBTU
maint_cost	Cost of CHP maintenance in \$/kWh generated
sd	Single string argument for data start date "mm/dd/yyyy"
ed	Single string argument for data end date "mm/dd/yyyy"

The *rate\_handler.py* routine then chooses the appropriate data loading, calculation, and output routines, based on the form inputs. The *rate\_handler.py* routine returns a stub of HTML code along with the output from the reporting function used, which is parsed by the Cold Fusion Front End and displayed.

*incentive\_handler.py* – API for processing time-series performance data using calculation routines to display current and historic performance against the associated NYSERDA funding PON (not available for all CHP sites). The incentive routines provide the calculations for computing various metrics used by the performance CHP programs (kW<sub>p</sub>, kWh<sub>a</sub>, PR, and FCE<sub>chp</sub>)

*incentive\_handler.py*

site	Single or Python integer list argument that lists the monitoring names to be loaded and analyzed
Sd	Single string argument for data start date "mm/dd/yyyy"
Ed	Single string argument for data end date "mm/dd/yyyy"
type	Single string argument for report type (defaults to "site", now deprecated)
width	Plot width in pixels (deprecated)
height	Plot height in pixels (deprecated)
figname	File name for output(deprecated)
Pon	Single string argument for Incentive PON Number
kwpara	Single floating point argument for CHP system parasitic power adjustment (kW) (Default: 0 kW)
kwspc	Standard Performance Contract Demand Reduction (kW)
low_emissions	Single logic argument for ECIPP project low emissions status (Default: False)
kwadg	ADG-Rated Generation Capacity (kW)
inc_type	Single string argument for ADG incentive type: (Maintenance, Performance)
kwfc	Single integer argument for fuel cell nameplate output (kW)
cap_pmt	Single integer argument for a cap on individual payment calculations for RPS ADG and FC PONS
total_cap	Single integer argument for a cap on total payment calculations for RPS ADG and FC PONS

The *incentive\_handler.py* routine then chooses the appropriate data loading, calculation, and output routines, based on the form inputs. The *incentive\_handler.py* routine returns a stub of HTML code along with the output from the reporting function used, which is parsed by the Cold Fusion Front End and displayed.

*summarytable\_hc/index.py* - API for the "Monthly Summary Table". This module makes use of the library under the cgi-bin directory to produce a table containing the monthly production values for a site through a given range of dates.

*summarytable\_hc/index.py*

data_quality	Single integer argument that indicates the data quality level for data loading and plotting (1 = All data, 2 = Passes Range Checks, 3 = Passes Relational Checks)
monitor	The facility number for a site to be processed
topic	The expected output (summarytable, summarytable2)
pv_mode	Controls the display of percent valid data for the summary table topics ("full", "comp")
sd	Single string argument for data start date "mm/dd/yyyy"
ed	Single string argument for data end date "mm/dd/yyyy"

*daily\_eff\_plot/index.py* - API for the “Daily Efficiency vs Capacity Factor” plot. This module makes use of the library under the cgi-bin directory to produce the plot for a site through a given range of dates.

*daily\_eff\_plot /index.py*

data_quality	Single integer argument that indicates the data quality level for data loading and plotting (1 = All data, 2 = Passes Range Checks, 3 = Passes Relational Checks)
monitor	The facility number for a site to be processed
sd	Single string argument for data start date "mm/dd/yyyy"
ed	Single string argument for data end date "mm/dd/yyyy"

### 2.2.2 Loading and Retrieving Time-series Performance Data

The primary data format that the DI System handles is time-series performance data. This time series data is loaded and stored in MYSQL databases, with one database per CHP monitoring unit. A monitoring unit represents a single piece of data logging equipment, which may monitor one or more CHP power units. A CHP power unit is an individual CHP prime mover/generator set.

The MYSQL databases for each monitoring unit contain the following performance data:

MYSQL Variable Name	Description	Units
dt	Date	na
wg	DG/CHP Generator Output	kWh
wg_kw	DG/CHP Generator Output Peak	kW
fg	DG/CHP Gas Input	cu ft
wt	Total Facility Purchased Energy	kWh
wt_kw	Total Facility Purchased Demand	kW
ft	Other Facility Gas Use	cu ft
qd	Unused Heat Recovery	MBtu
qhr	Useful Heat Recovery	MBtu
sg	Status/Runtime of the DG/CHP Generator	hrs
tao	Ambient Temperature	F
dflag_wg	DataQualityFlag1	na
dflag_wg_kw	DataQualityFlag2	na
dflag_fg	DataQualityFlag3	na
dflag_wt	DataQualityFlag4	na
dflag_wt_kw	DataQualityFlag5	na
dflag_ft	DataQualityFlag6	na
dflag_qd	DataQualityFlag7	na
dflag_qhr	DataQualityFlag8	na
dflag_sg	DataQualityFlag9	na
dflag_tao	DataQualityFlag10	na
load_dt	Time database was last loaded	na

The MYSQL database contains the hourly data converted from the RAW data files provided by the sites and monitoring contractors. A description of the RAW data and calculations used to create the hourly data are available in the `./Documentation/Monitoring Notes` directory.

The data in the MYSQL database are loaded into a Python dictionary object using the `mysql2dict.py` function. The Python dictionary has tagnames for each variable that correspond to the MYSQL variable names in the table above.

The function uses the following arguments to modify the data loaded. Without the optional arguments, the `mysql2dict.py` function loads all of the hourly data for a given monitoring unit.

*mysql2dict.py*

unitno	Single integer argument for monitoring unit number to be loaded into a dictionary
data_type	Single string argument for type of data to extract from MYSQL (HOURLY, DAILY, MONTHLY)
sd	Single string argument for data start date "mm/dd/yyyy"
ed	Single string argument for data end date "mm/dd/yyyy"
cn	Single string or list argument containing data channels to load. Default is load all channels.
dqlvl	Single integer argument representing the data quality level for each channel to filter the data loaded from MYSQL on
stderr	Redirect standard error to a log file to allow for debugging

To load multiple monitoring units into a single dictionary (“aggregated” dictionary), the `agg.py` Python function is used. `Agg.py` operates similar to `mysql2dict.py` routine, but takes a list argument for `unitno`, that allows multiple databases to be loaded.

*agg.py*

unitno	List integer argument for monitoring unit numbers to be loaded into a single dictionary
data_type	Single string argument for type of data to extract from MYSQL (HOURLY, DAILY, MONTHLY)
sd	Single string argument for data start date "mm/dd/yyyy"
ed	Single string argument for data end date "mm/dd/yyyy"
cn	Single string or list argument containing data channels to load. Default is load all channels.
dqlvl	Single integer argument representing the data quality level for each channel to filter the data loaded from MYSQL on
stderr	Redirect standard error to a log file to allow for debugging

The hourly data that is generated by the offline processing system are loaded into the corresponding MYSQL databases by the `dat2mysql.py` routine. The `dat2mysql` routine takes a comma separated file in the format:

10/28/2009,22:00:00,182.000,193.000,2388.750,43.000,77.000,0.000,1.720,  
 0.471,1.000,53.140,3.000,3.000,3.000,3.000,3.000,0.000,3.000,3.000,3.000  
 10/28/2009,23:00:00,154.000,181.000,2435.000,39.000,50.000,0.000,1.641,  
 0.547,1.000,51.980,2.000,3.000,3.000,3.000,3.000,0.000,3.000,3.000,3.000

and loads it into the MYSQL database for the corresponding monitoring unit number. ***Dat2mysql.py*** uses MYSQL commands to prevent duplicate data from being loaded in the database. ***Dat2mysql.py*** can be called directly from the command prompt, or from inside another python routine.

*dat2mysql.py*

Datnum	Single integer argument for monitoring unit number to be loaded into a MYSQL database
reload	Single string argument that forces MYSQL to drop the entire MYSQL table and reload the data into the table
sd	Single string argument for data start date "mm/dd/yyyy"
ed	Single string argument for data end date "mm/dd/yyyy"

### 2.2.3 Custom MYSQL Functions for Time-series Performance Data

The following routines are Python routines used to do standard maintenance on the MYSQL databases containing the performance data.

***dataheader.py*** – Creates a header table (DATA\_HEADER) for the time-series performance data tables containing the channel names, descriptions, units of measure, and aggregation method of each variable,

***descriptiveheader.py*** – Creates a header table (FACILITY\_HEADER, INCENTIVE\_HEADER, POWERUNIT\_HEADER, USER\_HEADER) for the descriptive data for each facility, power unit, user, and incentive.

***load\_headers.py*** – Loads the descriptive data from the front end Access database into the corresponding tables created by ***descriptiveheader.py***. ***Descriptiveheader.py*** uses the ***XML\_CHPReliability.py*** routine to retrieve the descriptive data entered into the Access database on the front end system.

***load\_all.py***- Script to assist in loading multiple data files into the database when loading by hand.

***clean\_scratch\_tables.py***- Script to remove old scratch tables from MYSQL database. Scratch tables are used in some complex sorting routines.

***dataint\_mysql.py*** – Contains several functions used as library functions in creating, loading and compressing MYSQL time-series performance data databases. Functions included are:

***mysql\_date\_convert.py*** – creates date/time string compatible with MYSQL

*db\_connect.py* – opens connection socket to MYSQL database

*db\_create.py* - creates empty performance data table (MONITORINGUNIT#\_DATA)

*db\_populate.py* – inserts individual records into performance data table

*db\_compress.py* – removes duplicate data from performance data tables

*db\_close.py* – closes connection socket to MYSQL database

#### 2.2.4 Reporting, Plotting and Output Routines

There are several routines which dedicated to producing output for the website, in the form of plots, HTML output, and CSV output. Two functions are also included in this section that calculate the electrical and CHP efficiency and total building demand (defined as the CHP output + the building imported electricity). These two parameters are calculated, rather than stored in the database, to prevent redundant data from being stored.

##### Calculation Routines

*eff\_calc.py* – operates on a dictionary of time-series performance data loaded from *mysql2dict.py* or *agg.py*. The efficiency calculation are returned as a key inside the dictionary. *Eff\_calc.py* returns either the CHP gross or net efficiency, or the electrical generation gross or net efficiency, depending on the value of the hvtype keyword.

*wb\_calc.py*- operates on a dictionary of time-series performance data loaded from *mysql2dict.py* or *agg.py*. The calculation returns the whole building load as a new key in the dictionary.

##### HTML Output Routines

*summary\_table.py*- produces an HTML summary table of the data collected over the past 24 hours for display on the front page of the website. It also produces the summary plot on the front page, as well as calling the *monitoring\_summary.py* routine to summarize the performance of each monitored site over the past 24-hours and 30-days, and the corresponding time series plot of the aggregate generation output corresponding to the *monitoring\_summary.py* output. All *summary\_table.py* output is stored in the ./summary\_table directory.

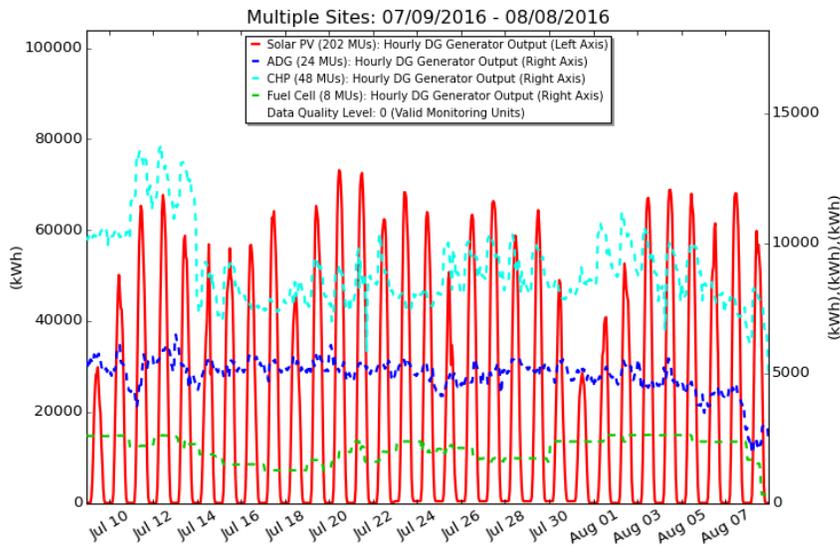
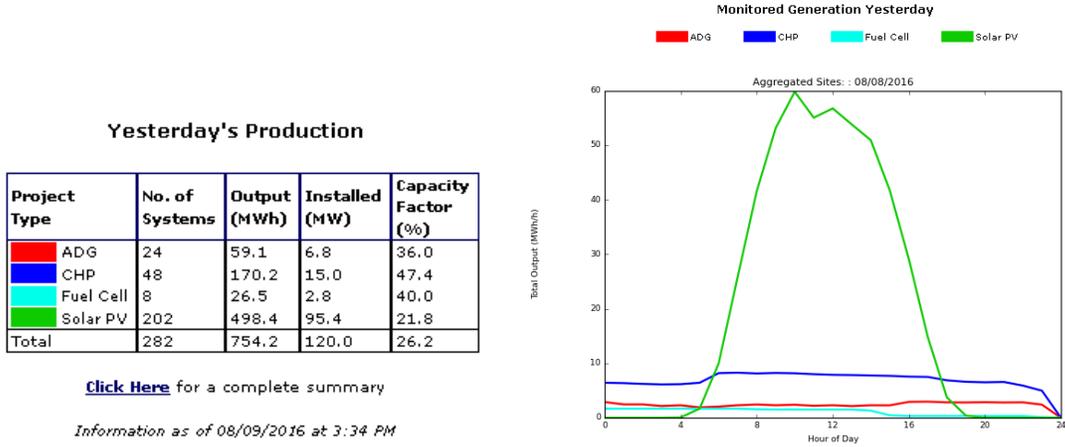


Figure 2. *summary\_table.py* Output Example

*monitoring\_summary.py*- produces an HTML summary table of the data collected over the previous month for each project type (ADG, CHP, Solar, Fuel Cell).

Summary	<b>ADG</b>	CHP	Solar	Fuel Cell	Single Day	
<b>Monitored Data Summary</b> <span style="float: right;">Report Created 8/9/2016</span>						
<b>ADG Monitoring Summary for July 09, 2016 - August 08, 2016</b>						
Monitoring Unit	Data Passed Relational Checks (%)	Generator Power Produced (kWh)	Generator Peak Output (kW)	Flare Gas (Mcf)	Generator Gas Use (Mcf)	Total Generator Runtime (hrs)
Patterson Farms - Existing Engine Generator	100.0	376	203.2	-	28.2	0.8
Sunny Knoll Farm	100.0	93,138	166.0	12.8	1,717.0	742.0
Ithaca WWTP	99.9	89,646	214.9	487.0	2,112.4	-
Matt Brewing Company	99.6	78,389	199.2	-	1,250.9	-
Noblehurst Farms	99.9	257,872	448.0	-	6,666.9	735.2
Woodcrest	99.9	181,222	375.7	-	4,188.3	721.0
Patterson Farms - New Engine Generator	100.0	127,620	228.0	-	4,233.0	310.7
Aurora Ridge Dairy Farm - Aurora, NY	2.6	8,628	552.0	-	193.5	-
Lamb Farms - Oakfield, NY	12.6	30,465	456.0	113.6	786.8	-
Greenwood Dairy	96.9	223,030	397.4	-	3,512.1	-
Sunnyside	0.4	1,040	456.0	24.6	27.4	-

Figure 3. *monitoring\_summary.py* Output Example

**Plot Output Routines**

Plotting routines are divided into two categories – library routines, and plotting routines. Library routines act as containers for various plotting methods developed, and plotting routines actually produce the plot and write the output to a file for display on the website. Plots are produced from data contained in a Python dictionary loaded by *mysql2dict.py* or *agg.py*.

*cplot.py*- library function that produces a time series plot of one variable against date/time. The *cplot.py* routine also connects contiguous sections of data by a line, and leaves a space where data are missing.

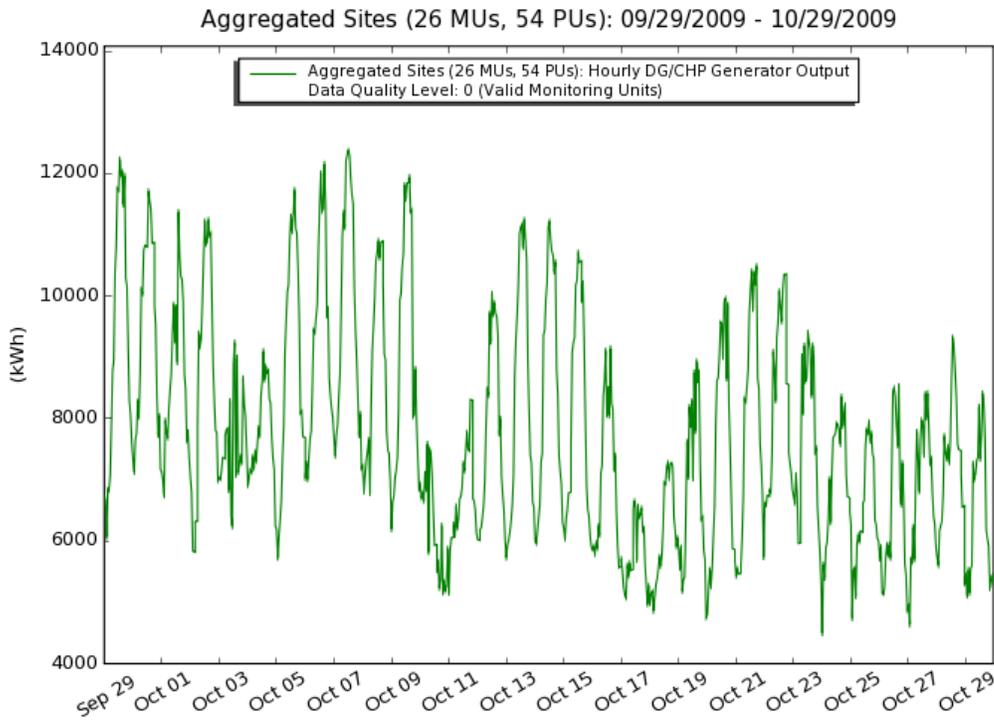
*outputs.py*- library function that prepares for any plot output by importing the proper Python extensions.

*plot\_functions.py* – library function that initializes x-axis and y-axis defaults before plotting.

*time\_series.py* – plotting function that produces a time-series plot using the *cplot.py* routine.

*times\_series.py*

cn	Single string or list argument that lists the channel name to be plotted
dqlvl	Single integer argument that indicates the data quality level for data loading and plotting (1 = All data, 2 = Passes Range Checks, 3 = Passes Relational Checks)
save_fig	Filename for saved figure
keep_dflags	Include dflag variable in plot (data quality flags are ignored by default)
xsize	Figure width in pixels (default 640)
ysize	Figure height in pixels (default 640)
stack_method	'data_point', 'monitoring unit' or none - how are multiple channels plotted (by data point or aggregated by monitoring unit).
display_axis	List of "L" or "R" entries corresponding to which y-axis to plot the data against.



**Figure 4. *time\_series.py* Output Example**

*hourly\_profile.py* – plotting function that produces a power profile plot displaying the variation of a variable across the hours of each day.

*hourly\_profile.py*

cn	Single string or list argument that lists the channel name to be plotted
dqlvl	Single integer argument that indicates the data quality level for data loading and plotting (1 = All data, 2 = Passes Range Checks, 3 = Passes Relational Checks)
save_fig	Filename for saved figure
keep_dflags	Include dflag variable in plot (data quality flags are ignored by default)
xsize	Figure width in pixels (default 640)
ysize	Figure height in pixels (default 640)
stack_method	'data_point', 'monitoring unit' or none – how are multiple channels plotted (by data point or aggregated by monitoring unit).
display_axis	List of "L" or "R" entries corresponding to which y-axis to plot the data against.

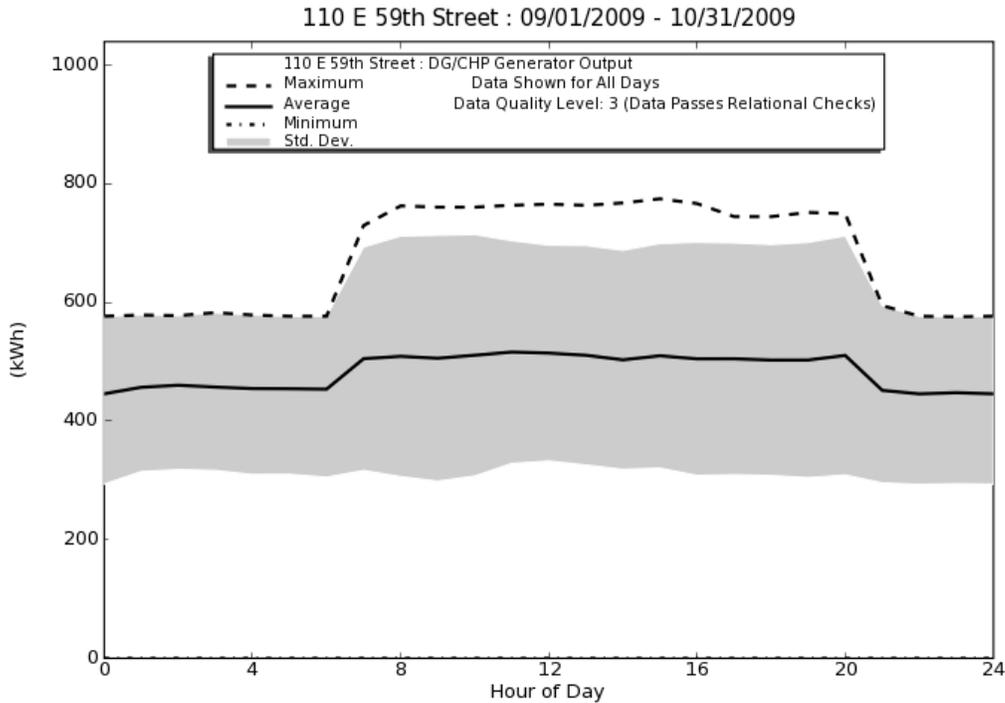


Figure 5. *hourly\_profile.py* Plot Output Example

*xy\_scatter.py* – plotting function that produces an x-y scatter plot of multiple data channels.

*xy\_scatter.py*

xcn	Single string argument that lists the channel name to be plotted on the x-axis
ycns	Single string or list argument that lists the channel name to be plotted on the y-axis
dqlvl	Single integer argument that indicates the data quality level for data loading and plotting (1 = All data, 2 = Passes Range Checks, 3 = Passes Relational Checks)
save_fig	Filename for saved figure
keep_dflags	Include dflag variable in plot (data quality flags are ignored by default)
xsize	Figure width in pixels (default 640)
ysize	Figure height in pixels (default 640)
stack_method	'data_point', 'monitoring unit' or none - how are multiple channels plotted (by data point or aggregated by monitoring unit).
display_axis	List of "L" or "R" entries corresponding to which y-axis to plot the data against.

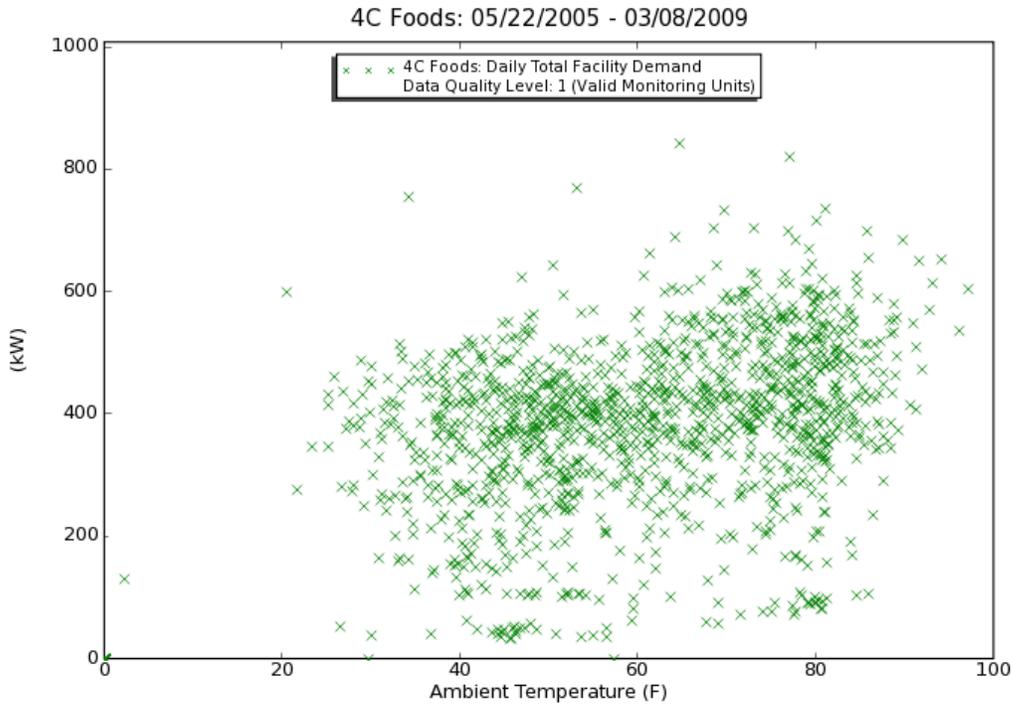


Figure 6. *xy\_scatter.py* Ouput Example

### **CSV Output Routines**

The CSV output routine produces a comma separated file of a Python dictionary loaded from data contained in a Python dictionary loaded by *mysql2dict.py* or *agg.py*.

*csv\_output.py*

cn	String list argument that lists the channel name to be written to a file
dt_range	List of dates to output data between
fname	Filename for saved file

*summary\_files(,2,3).py* are a set of python files which fulfill requests for large data sets that cannot be generated by the website. These predefined data queries are generated on a regular basis depending on the needs of the group that has requested them. These files can only be called through a command prompt and accept month/day/year as an argument for how far back to generate the report. More information is available at: [http://dataint.cdhenergy.com/custom\\_data.html](http://dataint.cdhenergy.com/custom_data.html)

### **2.2.5 Utility Rate Calculator Routines**

Two routines are used to handle the utility rate calculation portion of the website. The first routine provides the actual utility rate calculation, using a series of pre-defined framework files for the various utility rate parameters describing the different components of the rates and data for the energy supply cost.

*utility\_rate.py*- calculation engine that works on an array of hourly demand or natural gas flow data in the form of a Python dictionary loaded from *mysql2dict.py* or *agg.py*. *Utility\_rate.py* assumes that the power factor of the entire facility is 0.9 for the purposes of calculating reactive power and the associated reactive power charges. Utility rate framework files are read in from the *./utility\_rates* directory.

*utility\_rate.py*

rate	Single string argument for the utility rate framework file to use for rate calculation
dt	Array of date/time intervals corresponding to energy data
arr	Array of energy data (electricity or natural gas) used in the rate calculation
con_dem	Single integer argument for contract demand used in utility rate calculation
export	Keyword that allows utility export during rate calculation
power_factor	Power factor used in utility calculation. Defaults to 0.90 PF.
verbose	Keyword to output calculation details
Verbose_file	File for verbose output

stderr	Redirect of standard error for debugging purposes
gas	Keyword that indicates the data in <b>arr</b> is an array of gas data (default is False = electricity)

**rate\_table.py**- route that outputs the results of two utility calculations on one dataset for comparison into an HTML table.

*rate\_table.py*

d	Python dictionary from <b>mysql2dict.py</b> or <b>agg.py</b> .
rate1	Single string argument for the utility rate framework file to use for rate calculation (building without CHP)
rate2	Single string argument for the utility rate framework file to use for rate calculation (building with CHP)
path	Keyword to allow output path to be changed if necessary
con_dem_base	Single integer argument for contract demand for the building without CHP used in utility rate calculation
con_dem_chp	Single integer argument for contract demand for the building with CHP used in utility rate calculation
dqlvl	Single integer argument representing the data quality level for each channel to filter the data loaded from MYSQL on
gen_gas_cost	Single floating point argument for the cost of natural gas used in the economic analysis
heat_rec_val	Single floating point argument for the value of the heat recovered used in the economic analysis
gen_maint_cost	Single floating point argument for the cost of maintenance on the CHP system
filename	Filename for output
stderr	Redirect of standard error for debugging purposes

Utility Rate Calculation Report

Report Created 10/30/2009

110 E 59th Street Monthly Electric Costs and Savings								
Month	Base Facility			CHP Facility			Net Savings	
	Consolidated Edison - SC9-1 General-Large - High Tension (July 2007 to June 2008) - NYC			Consolidated Edison - SC14RA Standby (SC9 Rate 1 Base) - NYC - High Tension - Jul07-Jun08			Generator Output (kWh)	Cost Savings (\$)
	Purchased Peak Demand (max kW)	Purchased Electricity (kWh)	Electric Costs (\$)	Purchased Peak Demand (max kW)	Purchased Electricity (kWh)	Electric Costs (\$)		
March 2009	2,443.8	908,207	\$ 163,107.00	1,885.3	719,835	\$ 122,632.11	188,372	\$ 40,474.89
April 2009	2,542.1	1,081,201	\$ 180,499.38	1,957.1	872,308	\$ 141,313.46	208,892	\$ 39,185.93
May 2009	2,639.4	1,143,261	\$ 183,805.18	1,986.1	946,807	\$ 146,000.16	196,454	\$ 37,805.01
June 2009	2,654.1	1,191,884	\$ 207,582.85	1,992.4	1,027,713	\$ 180,661.59	164,171	\$ 26,921.26
July 2009	2,572.1	1,098,567	\$ 213,892.68	1,995.7	987,355	\$ 181,587.00	111,212	\$ 32,305.68
August 2009	2,608.7	1,020,047	\$ 198,326.60	1,999.9	777,261	\$ 152,090.52	242,786	\$ 46,236.08
September 2009	2,562.8	1,115,747	\$ 193,394.60	1,986.3	761,340	\$ 137,762.85	354,407	\$ 55,631.75
October 2009	2,558.8	994,398	\$ 171,246.29	1,986.9	621,990	\$ 110,048.36	372,408	\$ 61,197.93
<b>Annual Totals</b>	<b>2,654.1</b>	<b>8,553,311</b>	<b>\$ 1,511,854.57</b>	<b>1,999.9</b>	<b>6,714,610</b>	<b>\$ 1,172,096.04</b>	<b>1,838,701</b>	<b>\$ 339,758.53</b>
<b>Average (\$/kWh)</b>			<b>\$ 0.1768</b>			<b>\$ 0.1746</b>		<b>\$ 0.1848</b>

110 E 59th Street Total Economic Analysis								
Month	Generator Output (kWh)	Generator Gas Input (Mcf)	Useful Heat Recovery (MMBtu)	Electric Cost Savings (\$)	Heat Recovery Savings (\$)	Maintenance Cost (\$)	Generator Gas Costs (\$)	Total Savings (\$)
March 2009	188,371.5	2,239.5	989.9	\$ 40,474.89	\$ 7,919.50	\$ (1,883.72)	\$ (23,066.61)	\$ 23,444.06
April 2009	208,892.4	2,716.0	483.1	\$ 39,185.93	\$ 3,864.47	\$ (2,088.92)	\$ (27,975.07)	\$ 12,986.41
May 2009	196,454.0	2,537.3	53.3	\$ 37,805.01	\$ 426.12	\$ (1,964.54)	\$ (26,133.89)	\$ 10,132.70
June 2009	164,170.6	2,087.2	0.0	\$ 26,921.26	\$ 0.00	\$ (1,641.71)	\$ (21,498.59)	\$ 3,780.97
July 2009	111,211.7	1,750.4	0.0	\$ 32,305.68	\$ 0.00	\$ (1,112.12)	\$ (18,029.24)	\$ 13,164.33
August 2009	242,785.8	4,318.8	0.6	\$ 46,236.08	\$ 4.63	\$ (2,427.86)	\$ (44,483.49)	\$ (670.64)
September 2009	354,406.9	5,359.7	0.7	\$ 55,631.75	\$ 5.42	\$ (3,544.07)	\$ (55,204.55)	\$ (3,111.45)
October 2009	372,408.2	5,572.9	149.2	\$ 61,197.93	\$ 1,193.44	\$ (3,724.08)	\$ (57,401.18)	\$ 1,266.10
<b>Annual Totals</b>	<b>1,838,701</b>	<b>26,582</b>	<b>1,677</b>	<b>\$ 339,758.53</b>	<b>\$ 13,413.58</b>	<b>\$ (18,387.01)</b>	<b>\$ (273,792.62)</b>	<b>\$ 60,992.47</b>
<b>Rate</b>		<i>HHV: 1,030 Btu/cf</i>			<b>\$ 8.00 \$/MMBtu</b>	<b>\$ 0.0100 \$/kWh</b>	<b>\$ 10.00 \$/MMBtu</b>	

Figure 7. rate\_table.py Ouput Example

2.2.6 NYSERDA Incentive Calculator Routines

Several routines have been developed to perform incentive calculations for various NYSERDA performance based programs related to CHP and RPS/ADG systems. These routines output summary tables and plots that succulently summarize the performance of the monitored system performance during a requested portion of the performance period, and provide a calculation of the current incentive level of the project. These routines are directed toward the applicants, NYSERDA staff and technical assistance contractors, and are not intended for consumption by the general public.

*incentive\_calc.py*- primary incentive calculator that also provides several shared framework functions for the other incentive calculators. Output from incentive\_calc.py includes HTML tables.

*incentive\_calc*

kw_po	Single numeric parameter describing contracted peak demand reduction
lhv	Single numeric parameter defining the fuel LHV to be used while calculating efficiencies
sd	Start date of data request
ed	End date of data request
tableid	Automatically set; this could potentially allow the caller to request a different data calculation scheme or table format but no other formats are currently available (default: incentive)
step	Specify step size; this is read but not used as only one step size is available in this report



NYSERDA

DG Integrated Data System

**CHP Performance Program Summary Table: St Joseph's Hospital**  
 Data Quality: Data Passes Range and Relational Checks

Date	Operating Hours	Percent Energy Hours (kWh)	Gas (CF)	Heat Rec'd (MBtu)	System Eff (% LHV)	Cumulative FCE (% LHV)	Summer Capability Period Performance Electric Data Only					
							kWh	kW	Data Hrs	Total Hrs	Percent Hrs	
May 2015	690	92.7	2,413,635	28,355,001	8,165,822	63.9	63.9	393,743	3,281.2	110	120	91.2
June 2015	690	95.8	2,445,883	29,953,169	9,044,425	64.2	64.0	428,804	3,248.5	121	132	91.7
July 2015	719	96.6	2,511,444	29,449,360	8,733,120	64.9	64.3	457,018	3,462.3	132	132	100.0
August 2015	706	94.9	2,523,572	28,604,014	8,217,207	65.0	64.5	444,445	3,527.3	126	126	100.0
September 2015	703	97.6	2,455,815	28,741,772	8,581,342	65.2	64.6	414,056	3,286.2	120	126	95.2
October 2015	623	83.7	2,096,487	27,110,867	9,358,984	67.3	65.1	373,894	2,967.4	102	126	81.0
November 2015	708	98.3	2,292,662	32,119,012	11,968,439	68.1	65.5	-	-	-	-	-
December 2015	726	97.6	2,294,900	33,939,053	13,642,014	69.9	66.2	-	-	-	-	-
January 2016	720	96.8	2,262,822	36,426,627	17,409,901	76.2	67.5	-	-	-	-	-
February 2016	556	79.8	1,737,782	26,560,413	11,812,095	73.8	68.1	-	-	-	-	-
March 2016	743	99.9	2,419,569	36,467,849	15,085,891	70.7	68.3	-	-	-	-	-
April 2016	512	71.2	1,675,112	24,647,274	9,672,429	69.0	68.4	-	-	-	-	-
May 2016	656	88.2	2,240,967	28,367,054	9,600,552	67.2	68.3	388,475	3,083.1	108	126	85.7
June 2016	662	92.0	2,279,643	29,027,282	9,495,691	65.8	68.1	423,800	3,210.6	123	132	93.4
July 2016	288	92.4	970,057	12,253,091	3,811,252	64.2	68.0	134,643	2,805.1	42	48	87.5
<b>Total</b>	<b>9,702</b>	<b>91.9</b>	<b>32,620,351</b>	<b>432,021,837</b>	<b>154,599,165</b>	<b>68.0</b>		<b>3,458,879</b>	<b>3,238.7</b>	<b>984</b>	<b>1,068</b>	<b>92.1</b>

Based on NYSERDA CHP Systems Manual v4.0 Oct 2010

**Period Performance Values for Incentive Calculation**  
 kWh<sub>A</sub>: **32,620,426 kWh**  
 kW<sub>P</sub>: **3,238.7 kW**  
 PR: **1.295**  
 Cumulative FCE: **68.0**  
 LHV: **905.0**

Figure 8. *incentive\_calc.py* Output Example

2.2.7 Calendar Routines

Several routines were developed to handle various calendar functions and calculations necessary for handling time-series data.

*dates.py*- wrapper function that contains the *dt\_add.py*, *dt\_subtract.py*, *dt\_dict.py*, *dtgen.py*, and *holidays.py* functions in one file

*dt\_add.py, dt\_subtract.py* - functions that add or subtract a fixed offset from a Python datetime variable. The offset is specified by the keyword (day, month, year, hour, minute, second). Returns a Python datetime object.

*dtgen.py* – function that generates a contiguous date/time stamp variable starting from a Python datetime variable, using a fixed offset similar to *dt\_add.py*, but for a specified number of dates. Returns a Python datetime object.

*holidays.py* – function that returns an array containing the dates of major holidays. Returns a Python datetime object.

*timezone\_adjust.py* – wrapper for built-in Python timezone calculations. Used to convert localtime to Eastern Standard Time, which is the convention for storage of data in the MYSQL databases.

### **2.2.8 Front End - Back End Communication Routines**

The back end data server synchronizes with the front end web server via an XML file that is requested by the back end data server once per day. This XML file contains all the descriptive data contained in the front end Access database, and is parsed and loaded into the MYSQL descriptive data header databases on the back end data server. The XML file is downloaded by the *XML\_CHPReliability.py* routine, as part of the *load\_headers.py* file, which is executed once per day.

## 2.3 Scheduled Routine Execution

The back end server executes several commands once per day using the servers built in crontab scheduler. The server's crontab file is shown below, which shows *load\_headers.py*, *summary\_table.py*, *incentive\_portfolio.py*, and *collection\_emails.py* every day at 6:30 AM.

```
### DAILY UPDATES TO THE DATABASES

30 6 * * * cd /www;/usr/bin/python load_headers.py
### 30 */2 * * * cd /www;/usr/bin/python summary_table.py > /www/Summary_table_run.log
2>&1
### 30 6 * * * cd /www;/usr/bin/python facility_power_summary.py >>
/www/facility_power_summary_run.log 2>&1
### 0 8 * * * cd /www;/usr/bin/python collection_emails.py
* * * * * cd /www;/usr/bin/python collection_sentry.py >> /www/collection_sentry.log 2>&1
0 1 * * 1 cd /www;/usr/bin/python summary_data.py >> /www/summary_data.log 2>&1
### DELETE TEMPORARY WEB FILES MORE THAN 1 DAY OLD

### DELETE TEMPORARY WEB FILES MORE THAN 1 DAY OLD, LOGS MORE THAN 5 DAYS

0 0 * * * find /www/figures/ -name "*.png" -mtime +0 -exec rm -f {} \; >> /dev/null
0 0 * * * find /www/csv_files/ -name "*.csv" -mtime +0 -exec rm -f {} \; >> /dev/null
0 0 * * * find /www/rate_output/ -name "*.htm" -mtime +0 -exec rm -f {} \; >> /dev/null
0 0 * * * find /www/rate_output/ -name "*.txt" -mtime +0 -exec rm -f {} \; >> /dev/null
0 0 * * * find /www/summary_table/ -name "*.html" -mtime +0 -exec rm -f {} \; >>
/dev/null
0 0 * * * find /www/summary_table/ -name "*.png" -mtime +0 -exec rm -f {} \; >>
/dev/null
0 0 * * * find /www/ -name "request*.log" -mtime +5 -exec rm -f {} \; >> /dev/null

### CLEANUP TEMPORARY SCRATCH TABLES

0 0 * * * cd /www;/usr/bin/python clean_scratch_tables.py
## Delete logfiles for sites that send all files every night (must be kept current)
0 0 * * * find /home/setchurch/upload/ -name 'NYChurch_2014*.csv' -exec rm -f {} \; >>
/dev/null 2>&1
0 0 * * * find /home/setchurch/upload/ -name 'NYChurch_20150[1-2]*.csv' -exec rm -f {} \;
>> /dev/null 2>&1
0 0 * * * find /home/setchurch/upload/ -name 'NYHilton*.csv' -exec rm -f {} \; >>
/dev/null 2>&1

0 0 * * * find /home/sethilton/upload/ -name 'NYHilton_201[3-4]*.csv' -exec rm -f {} \;
>> /dev/null 2>&1
0 0 * * * find /home/sethilton/upload/ -name 'NYHilton_20150[1-2]*.csv' -exec rm -f {} \;
>> /dev/null 2>&1
```

## 2.4 MYSQL Database Table Samples

```
mysql> describe DATA_HEADER;
```

Field	Type	Null	Key	Default	Extra
CN	varchar(12)	YES		NULL	
DESCRIPTION	varchar(40)	YES		NULL	
UOM	varchar(10)	YES		NULL	
AGGTYPE	varchar(10)	YES		NULL	

4 rows in set (0.00 sec)

```
mysql> describe INCENTIVE_HEADER;
```

Field	Type	Null	Key	Default	Extra
MONITORID	varchar(128)	YES		NULL	
STARTDATE	varchar(128)	YES		NULL	
TOTALCAPACITYPAYMENTS	varchar(128)	YES		NULL	
SPCPEAKDEMANDREDUCTION	varchar(128)	YES		NULL	
NAMEPLATEOUTPUT	varchar(128)	YES		NULL	
PARASITICPOWERADJUSTMENT	varchar(128)	YES		NULL	
PON	varchar(128)	YES		NULL	
INCENTIVETYPE	varchar(128)	YES		NULL	
LOWEMISSIONS	varchar(128)	YES		NULL	
TOTALINCENTIVE	varchar(128)	YES		NULL	
GENCAPACITY	varchar(128)	YES		NULL	
CAPACITYINCENTIVE	varchar(128)	YES		NULL	
PROJECTFUNDINGCAP	varchar(128)	YES		NULL	

13 rows in set (0.00 sec)

```
mysql> describe POWERUNIT_HEADER;
```

Field	Type	Null	Key	Default	Extra
MONITORID	varchar(128)	YES		NULL	
SECONDARYPOWERAPPLICATION	varchar(128)	YES		NULL	
NUMBER	varchar(128)	YES		NULL	
PRIMARYHEATUSE	varchar(128)	YES		NULL	
INSTALLER	varchar(128)	YES		NULL	
THERMALOUTPUT	varchar(128)	YES		NULL	
ID	varchar(128)	YES		NULL	
MONITORENDDATE	varchar(128)	YES		NULL	
CAPACITY	varchar(128)	YES		NULL	
GENERATOR	varchar(128)	YES		NULL	
INTEGRATION	varchar(128)	YES		NULL	
MONITORSTARTDATE	varchar(128)	YES		NULL	
FUEL	varchar(128)	YES		NULL	
MONITORNAME	varchar(128)	YES		NULL	
DESCRIPTION	varchar(128)	YES		NULL	
GENSETPACKAGER	varchar(128)	YES		NULL	
EFFICIENCY	varchar(128)	YES		NULL	
CONTROLLER	varchar(128)	YES		NULL	
MANUFACTURINGDATE	varchar(128)	YES		NULL	
TECHGROUP	varchar(128)	YES		NULL	
PRIMARYPOWERAPPLICATION	varchar(128)	YES		NULL	
SECONDARYHEATUSE	varchar(128)	YES		NULL	
MANUFACTURER	varchar(128)	YES		NULL	
COMMISSIONDATE	varchar(128)	YES		NULL	
FACILITYID	varchar(128)	YES		NULL	
EMCON	varchar(128)	YES		NULL	
HEATRECOVERY	varchar(128)	YES		NULL	
INSTALLATIONDATE	varchar(128)	YES		NULL	
DECOMMISSIONDATE	varchar(128)	YES		NULL	
MODEL	varchar(128)	YES		NULL	
PRIMEMOVER	varchar(128)	YES		NULL	

31 rows in set (0.00 sec)

## DG/CHP Integrated Database Functional Description

```
mysql> describe FACILITY_HEADER;
```

Field	Type	Null	Key	Default	Extra
ELECTRICITYEXPORTTOGRID	varchar(128)	YES		NULL	
TOTALANNUALGASCONSUMPTION	varchar(128)	YES		NULL	
BASEELECTRICRATE	varchar(128)	YES		NULL	
HEATSUPPLYTEMPERATURE	varchar(128)	YES		NULL	
GASUTILITY	varchar(128)	YES		NULL	
DEVELOPERWEBSITE	varchar(128)	YES		NULL	
LASTMONITORDATE	varchar(128)	YES		NULL	
ISOZONE	varchar(128)	YES		NULL	
COUNTY	varchar(128)	YES		NULL	
PEAKELECTRICDEMAND	varchar(128)	YES		NULL	
TIMEZONE	varchar(128)	YES		NULL	
TOTALINSTALLEDCAPACITY	varchar(128)	YES		NULL	
THIRDPARTYOPERATION	varchar(128)	YES		NULL	
SYSTEMENCLOSURE	varchar(128)	YES		NULL	
DEVELOPER	varchar(128)	YES		NULL	
CITY	varchar(128)	YES		NULL	
NYSERDAPROJECTNUMBER	varchar(128)	YES		NULL	
MAINTENANCECOST	varchar(128)	YES		NULL	
PRIMARYFUEL	varchar(128)	YES		NULL	
FACILITYWEBSITE	varchar(128)	YES		NULL	
ALTITUDE	varchar(128)	YES		NULL	
ZIPCODE	varchar(128)	YES		NULL	
ID	varchar(128)	YES		NULL	
GASCOMMODITYPURCHASED	varchar(128)	YES		NULL	
FACILITYELECTRICSERVICEVOLTAGE	varchar(128)	YES		NULL	
STATE	varchar(128)	YES		NULL	
NYSERDAPROJECTMANAGER	varchar(128)	YES		NULL	
TOTALANNUALELECTRICITYUSAGE	varchar(128)	YES		NULL	
LATITUDE	varchar(128)	YES		NULL	
PROJECTTYPE	varchar(128)	YES		NULL	
SYSTEMOWNERSHIP	varchar(128)	YES		NULL	
BOILEREFFICIENCY	varchar(128)	YES		NULL	
NUMBEROFHEATEXCHANGERS	varchar(128)	YES		NULL	
CHPELECTRICRATE	varchar(128)	YES		NULL	
GOVERNMENTSUBSIDIES	varchar(128)	YES		NULL	
THIRDPARTYMAINTENANCE	varchar(128)	YES		NULL	
DESCRIPTION	varchar(128)	YES		NULL	
NAME	varchar(128)	YES		NULL	
ELECTRICUTILITY	varchar(128)	YES		NULL	
AVERAGEGASCOST	varchar(128)	YES		NULL	
SYSTEMINSTALLATIONCOST	varchar(128)	YES		NULL	
FIRSTMONITORDATE	varchar(128)	YES		NULL	
TOTALOUTPUT	varchar(128)	YES		NULL	
OPERATINGDAYSPERWEEK	varchar(128)	YES		NULL	
ADDRESS	varchar(128)	YES		NULL	
OPERATINGHOURSPERDAY	varchar(128)	YES		NULL	
CHILLEREFFICIENCY	varchar(128)	YES		NULL	
STANDALONECAPABILITY	varchar(128)	YES		NULL	
SYSTEMAPPLICATION	varchar(128)	YES		NULL	
CHPCONTRACTDEMAND	varchar(128)	YES		NULL	
NAICS	varchar(128)	YES		NULL	
UNITIDS	varchar(128)	YES		NULL	
LONGITUDE	varchar(128)	YES		NULL	
SIC	varchar(128)	YES		NULL	
AVERAGEFUELLHV	varchar(128)	YES		NULL	
NUMBEROFFPOWERUNITS	varchar(128)	YES		NULL	
OPERATINGMONTHSPERYEAR	varchar(128)	YES		NULL	

57 rows in set (0.00 sec)

```
mysql> describe USER_HEADER;
```

Field	Type	Null	Key	Default	Extra
USERNAME	varchar(128)	YES		NULL	
NYSERDA	varchar(128)	YES		NULL	
ADMINISTRATOR	varchar(128)	YES		NULL	
MONITORNOTIFYRELATIONALPERCENTAGE	varchar(128)	YES		NULL	
NAME	varchar(128)	YES		NULL	
INCENTIVENOTIFY	varchar(128)	YES		NULL	
FACILITY	varchar(128)	YES		NULL	
MONITORNOTIFYRANGEANDRELATIONALPERCENTAGE	varchar(128)	YES		NULL	
MONITORNOTIFYCOLLECTION	varchar(128)	YES		NULL	
ID	varchar(128)	YES		NULL	
OPERATIONALNOTIFY	varchar(128)	YES		NULL	
MONITORNOTIFYRELATIONAL	varchar(128)	YES		NULL	
LASTLOGIN	varchar(128)	YES		NULL	
MONITORNOTIFYCOLLECTIONPERCENTAGE	varchar(128)	YES		NULL	
MONITORNOTIFYRANGEANDRELATIONAL	varchar(128)	YES		NULL	
EMAIL	varchar(128)	YES		NULL	
WEBADMIN	varchar(128)	YES		NULL	

17 rows in set (0.00 sec)

### 3 Offline System Online Component Description

The offline data processing system is responsible for converting raw data provided by the data monitoring contractor for the CHP sites into hourly data suitable for loading into the online MYSQL database. At present, the offline system runs using a combination of command line batch files, Python, and Visual Numerics PV-WAVE data visualization language. Some of the PV-WAVE code used in the offline system was developed prior to development of the Integrated Data system. The code for these functions is proprietary to CDH Energy, but functions developed for the DI system are described below. Many of the functions provided by PV-WAVE are easily duplicated in a combination database/processing language such as Python. Some of the functions have already been replaced by Python modules designed by CDH.

The offline system performs the following functions in handling the data:

- Download data from online processing server for all CHP sites
- Parse raw data files, arrange data entries in chronological order, eliminate duplicate entries
- Store raw data in a UTOPIA flat-file database for historical archiving
- Archive raw data files as necessary (move to long term storage location and zip)
- Apply documented adjustments to data (typically in the form of a multiplier adjustment, or mathematical conversion from an rate to an amount per data interval)
- Convert a fixed duration of data (typically past two-weeks) of adjusted raw data to hourly data, write to a file for upload to online processing server

#### 3.1.1 Download the data

This process is primarily accomplished by the *download.bat* batch files that handle changing to the proper sites raw data directory and executing a download of the corresponding raw data files from the server. Downloading the data is accomplished using the psftp.exe command to facilitate the secure ftp connection required by the server.

An excerpt from the download.bat file and the psftp.exe script is shown below.

##### ***download.bat*** for Connected Energy Sites

```
psftp -l solarlog -pw <password> -b download.psftp
```

##### ***download.psftp*** psftp.exe script for Connected Energy Sites

```
open data.cdhenergy.com
cd /home/solarlog/AllPlants
mget *.CSV
mget *_solarlog_6524258.csv
rm *_solarlog_6524258.csv
```

These are typical scripts that are repeated across all sites where data is provided by an outside monitoring contractor directly to the CDH data server.

Alternatively, outside contractors may deliver data to the CDH data collection email address, [data\\_collection@cdhenergy.com](mailto:data_collection@cdhenergy.com). When the main collection script runs each day, a set of python modules is called to process all un-processed emails currently on the server using the imap protocol.

*imap\_version.py* is a CDH module which control the overall process and loads the individual site configuration and modules when applicable. In the same directory, each site which sends emails has a folder that contains a configuration file which specifies information used to search for valid emails. An example:

```
[settings]
data_path : G:\data_int\Solar_data\Compass Forwarding\raw_data\
senders_emails : scheduledreports@datareadings.com
                 scheduledreports_test@datareadings.com
valid_attch : csv
              xls
              xlsx
              pdf
fout_prefix : compass_forwarding_inverter_
              compass_forwarding_
subject:      *Compass Forwarding NYSERDA monitoring report - Inverter*
              *compass forwarding*
```

Emails that have had files successfully extracted are moved from the inbox to a processed\_emails folder on the email server. Emails which had no files to extract or ran into some other issue are moved to a failed\_emails folder. Failed emails are manually checked for issues and either deleted if they do not contain data or the modules are updated to handle them properly. It is not uncommon for sites to CC the collection email address during normal communications.

*imap\_email\_find.py* is a CDH module which uses information from the configuration file to identify emails which meet the criteria for each site and returns the resulting list of unique identifiers. This module is generic for most sites, but custom versions can be specified and used on a site by site basis.

*imap\_extract\_attachments.py* is a CDH module which identifies attachments and deliveries them to the specified data\_path in the configuration file. This module is generic for most sites, but custom versions can be specified and used on a site by site basis.

Another option often used by sites to deliver data is the upload function on Obvius data loggers. In this case each data logger is provided a unique URL on the CDH data server which points to a *receive\_obvius.py* module. This module accepts the http push from the data logger and places the data into a unique directory on the server while logging the transfer. Data files are then pulled down using a modified version of the SFTP script previously shown. In cases where the Obvius data logger uploads many files over a short period, 10 device files every minute for instance, *request\_compress.py* is called first to combine the files together and reduce overhead.

### 3.1.2 Parse Raw Data Files

Parsing and importing raw data files for each site is handled by a custom data loader (*loader.pro*) for each site, written in PV-WAVE. The *loader.pro* routine handles loading the existing flatfile database into memory, expanding the database past the end of the current month as new data is loaded (if necessary), storing the UTOPIA flat-file database, and calling the upload routines for (if necessary).

Parsing of the raw data occurs when *loader.pro* calls *handle\_csv.py*. This python module loads the configuration information from *site\_data.conf* which specifies format information regarding the raw data files. An example of the file specification in the conf file is provided below:

```
[file1]
device: 001
hfname: header_1.csv
fname: mb-%(device)s*.log
data_path: raw_data\
d_store: d_mb%(device)s.pkl
dt_fmt: '%Y-%m-%d %H:%M:%S'
col_offset: 4
time_offset: -5
raw_compression: 1
```

The *site\_data.conf* file also contains descriptive information about the site. The *handle\_csv.py* module then calls the *process\_csv.py* module and passes in this information and any additional functions that may be needed to process the file. In certain cases functions may need to be passed along to fix odd issues that can affect individual lines or in extreme cases of malformed files, a function may be passed to adjust the entire file before processing is done. After the file is processed, a simple comma delineated file is returned that can be readily loaded into the existing flatfile database by *csv\_ld.pro*.

### 3.1.3 Store Raw Data in a UTOPIA Flat-File Database<sup>2</sup>

The UTOPIA flat-file database is written back to disk using the *store.pro* command, called from the *loader.pro* routine. Raw data files that have been loaded and stored in the UTOPIA flat-file database are archived by zipping the files in monthly zip files.

### 3.1.4 Apply Documented Adjustments to Data

Data that are loaded from the UTOPIA flat-file database are adjusted by rules documented in the *data\_adjust.pro* routine located in each project directory. This routine adjusts individual data channels in the database based on feedback from the site, or investigation and analysis of the data trends provided. The typical adjustment is a multiplier or offset correction, or potential the adjustment from an accumulated value (odometer-style reading) to an incremental value (difference of two consecutive

---

<sup>2</sup> Routines associated with the actual operation of the UTOPIA flat-file database system (*load.pro*, *store.pro*, *expand.pro*) predate the development of the integrated data system and code for these routines will not be provided.

accumulator values). These adjustments are not stored in the database, but executed each time the data is loaded, to prevent irrevocable damage to the raw data provided by the CHP sites.

### 3.1.5 Conversion to Hourly Data

The raw data loaded from the UTOPIA flat-file database system are then converted into hourly data by the *make\_nyserda\_db.pro* routine. This routine handles the math of totalizing, averaging, or maximizing the interval data in the UTOPIA database (based on the raw data interval) into hourly values. The *make\_nyserda\_db.pro* routine can be adjusted for each site, however data is loaded into specific channels which correspond to the data channels in the mysql database. Only these channels are converted to hourly data using the method defined in *range\_checks.pro*. These channels are typically populated by loaded data directly into them, or calculated from other channels in *data\_adjust.pro*. *Make\_online\_db.pro* also adds a data quality variable to the hourly data set, with one data quality variable corresponding to each data channel output.

As part of the hourly data generation, a series of automated range and relational checks are implemented. These checks are contained in the *range\_checks.pro* and *relational\_checks.pro* routines. *range\_checks.pro* compares the hourly data from *make\_online\_db.pro* against a predefined set of minimum and maximum values. If the hourly data exceeds the ranges set, then the data quality flag variable for that channel (output as part of *make\_online\_db.pro*) is set appropriately. *relational\_checks.pro* compares the data to a series of tests where hourly data from *make\_online\_db.pro* are compared against each other for nonsensical combinations (such as CHP system power with no corresponding gas flow). Any data channels that fail the relational checks have the corresponding data quality flag set as such.

The hourly data are written to a file on disk for temporary storage before being uploaded to the online server. The hourly file is uploaded using an HTTP POST method by the *upload.py* command, to indicate to the server that new data has arrived. This hourly datafile upload provides the input to the *dat2mysql.py* Python routine on the online server, which will populate the online version of the hourly database.

**ATTACHMENT E**

**MONITORING AND DATA COLLECTION  
STANDARD  
FOR  
DISTRIBUTED GENERATION/COMBINED HEAT AND POWER  
(DG/CHP) SYSTEMS**

December 29, 2004

*Revised*

*Submitted to:*

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## GLOSSARY

***DG/CHP System.*** The units, components, equipment and subsystems that make up the Distributed Generation/Combined Heat and Power system at a facility.

***Data Acquisition System (DAS).*** The controllers, instrumentation and other equipment at the site to measure and record data related to the facility or DG/CHP system. Can be a dedicated data logger, a direct digital control (DDC) system for controlling facility operation, an industrial control system, or an on-board controller for the DG/CHP equipment. Generally, the DAS is located on-site near the DG/CHP System.

***Data Collection, Logging, or Recording Interval.*** The time interval at which data are recorded or saved into memory in the on-site DAS.

***Data Retrieval Interval.*** The time interval at which data are transferred from the on-site DAS to an off-site computer system for storage and analysis.

***Data Point.*** The measured value or reading provided by a sensor or instrument installed as part of the on-site DAS or from other handheld instruments.

***Demonstration Site.*** A facility or building where a DG/CHP system has been installed with financial support from NYSERDA.

***Displaced Fuel Use.*** The natural gas or other fuels that would have been consumed if the DG/CHP system had not been installed/operating at the site.

***Load.*** The equipment and systems in a facility or building that consume or use heat, power, or cooling that is produced by a DG/CHP system. In the absence of the DG/CHP equipment, the thermal load would be met with boilers, furnaces, chillers, or other fuel consuming equipment at the site. The electric load would have been met by the local electric utility.

***Log or Logfile.*** The file or memory locations where control systems save or record time stamped data. This term is commonly used by building direct digital control systems.

***Monitoring Plan.*** A document describing the sensors and equipment to be installed as part of the DAS. The plan explains the purpose and use of each sensor or data point.

***Monitoring System.*** Same as Data Acquisition System (DAS).

***Parasitic Power.*** Electric power consumed by the DG/CHP system. Can be power use internal to the DG/CHP unit (internal parasitics) or power use by pumps, fans, compressors and other components that are required to deliver heat, power or cooling to the load (external parasitics).

***Scan or Sampling Interval.*** The time interval at which each sensor or instrument is read by the on-site DAS.

## Introduction

This document describes the requirements and desirable attributes of an automated data collection system designed to monitor the performance of a distributed generation/combined heat and power (DG/CHP) system. This standard is intended to provide guidance to demonstration sites that are part of NYSERDA's DG/CHP program. Specifically, this document seeks to guide demonstration sites through the process of developing a monitoring system and preparing a Monitoring Plan for their DG/CHP site.

DG/CHP demonstration sites that receive funding from NYSERDA are generally required to collect key performance data at 15-minute intervals over the first year of operation. The monitored data are intended to quantify facility load profiles, generator power output, fuel consumption, useful thermal outputs, parasitic loads and equipment runtimes. These data provide the means to confirm electrical and CHP efficiencies over the year, determine equipment availability, and verify system economics.

The sections that follow discuss the types of on-site measurements that are required or recommended to meet the goals and monitoring requirements. First, this document describes the need to fully document the salient details of the DG/CHP system and to develop a simple system schematic. Next, the process of setting monitoring objectives and goals for a CHP project are described. Then, the process of selecting monitoring hardware and instrumentation to meet the project goals is demonstrated by an example. Finally, the advantages and disadvantages of various communications and web presentation options are compared.

## Documenting System Details

The first step in developing a monitoring plan is to define the key components and equipment as well as to provide the basic layout of the components in the DG/CHP system. This step is critical because it helps to determine the data points and measured parameters that must be monitored to quantify system operation.

### Describing DG\CHP Equipment

At a minimum, the monitoring plan should include the basic equipment and system details listed in Table 1.

**Table 1. Documenting DG/CHP Equipment and Site Details**

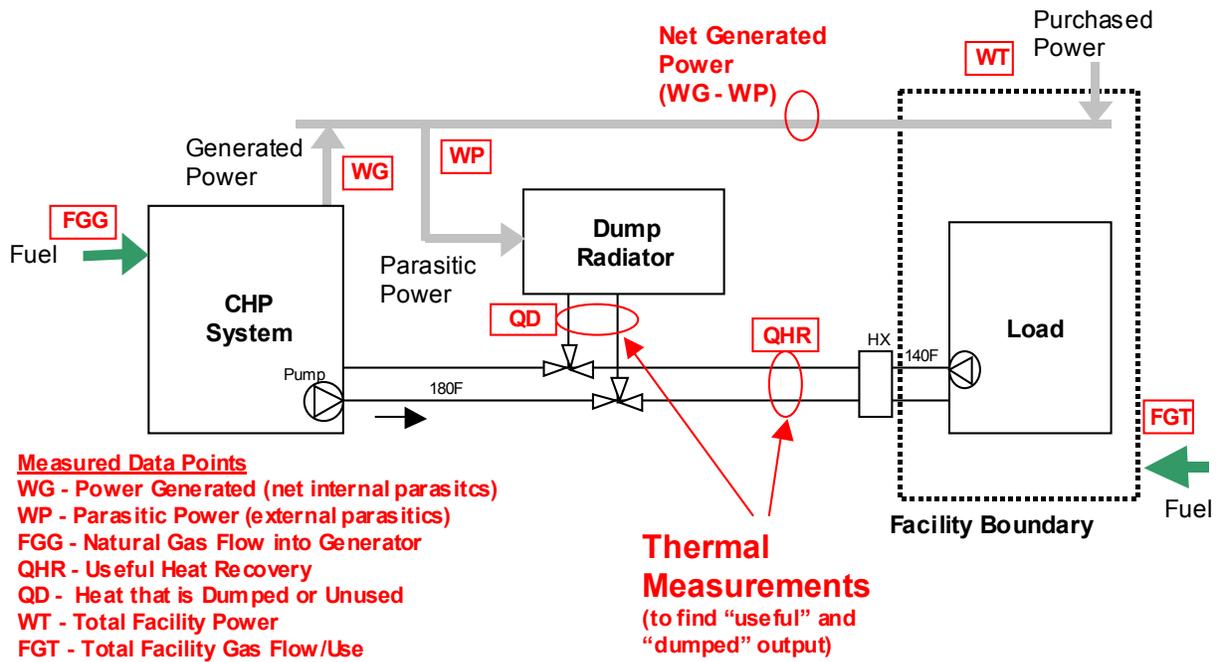
System overview	<ul style="list-style-type: none"><li>• Generator size and type</li><li>• Is power exported to the grid?</li><li>• standby power functionality</li><li>• heat recovery used to meet facility loads; describe loads and displaced fuels</li></ul>
Power generating equipment	<ul style="list-style-type: none"><li>• Nameplate data such as output, operating voltage, generator type, fuel input</li><li>• Basic nameplate data on standby power/auto transfer components</li><li>• protective relay functions and settings</li></ul>
Heat recovery system and displaced thermal equipment	<ul style="list-style-type: none"><li>• Rated performance and corresponding operating temperatures of heating/cooling systems</li><li>• Size and Nameplate data on boilers, chillers and other equipment that are displaced by (or provide backup for) heat recovery operation</li></ul>
Facility load details	<ul style="list-style-type: none"><li>• Facility size, use, and other application details</li><li>• Electric utility details: number of meters, original and current electric and gas tariff info</li></ul>

### System Schematic

An important step to describing and understanding a DG/CHP system is to develop a simple schematic representation of the system. Unlike detailed engineering drawings that show the physical layout of all components in a system, a simple schematic conveys the functional layout of the system in order to understand the energy flows and thermodynamic boundaries. The key concepts conveyed by the schematic are the flow of fuel, electricity, and thermal energy between the DG/CHP system and the facility. The number of heat exchange steps, the direction of fluid flow, the operating temperature of each loop, the net power supplied to the building, and exported power are all shown.

Figure 1 shows a simple schematic of a CHP system that supplies heat recovery to a building via a hot water loop. Hot water from the CHP unit is supplied at 180°F. A heat exchanger (HX) is required to separate the building hot water loop from the CHP system loop. The extra heat exchange step lowers the fluid temperature that can be delivered to the load. A dump radiator rejects heat from the loop when it cannot be used to meet building thermal loads. The system supplies generated power into the main electric bus for the facility. This power is consumed internally (no power export to the utility). Some external parasitic power is required to run the

pumps and dump radiator. The net purchases from the utility are also monitored at the main meter.



**Figure 1. Simple Schematic CHP System**

Figure 1 also shows the location of monitored data points that would be included to measure DG/CHP system performance. The data point name or tag corresponding to each sensor is shown as the red, box-enclosed text on the schematic<sup>1</sup>. A key purpose of the schematic is to show the location of each measured point in order to demonstrate that meaningful data are being collected. The next section talks about process and rationale for selecting these points.

Feasibility Study and Estimated Annual Performance

In most cases a DG/CHP System has installed and built after a detailed engineering feasibility study has been completed to evaluate the cost effectiveness of the system. Generally this study would have assumed or calculated sizes and performance characteristics for key equipment and predicted annual power production, daily or monthly load profiles, annual heat recovery savings, parasitic power use, etc. The key results of the feasibility study should be briefly summarized in the monitoring plan. The original feasibility study could also be attached as an appendix or provided as a reference.

<sup>1</sup> Appendix A explains the naming convention that was used for selecting the data point names shown in Figure 1.

# Data Collection and Monitoring

## Monitoring Objectives

In order to select the necessary monitored data points the project objectives should first be clearly stated, since they drive the monitoring and data collection requirements. The primary monitoring objectives (listed in Table 2) are usually required for NYSERDA DG/CHP sites. Other optional objectives are listed in Table 3. The data points necessary to meet these objectives are listed in each table.

**Table 2. Primary (NYSERDA Required) Monitoring Objectives**

No	Objective	Data Necessary to Meet Objective
1	Quantify the variation of DG/CHP system power output, gas consumption, and efficiency over wide range of annual operating conditions.	WG <sup>1</sup> , FGG, TAO
2.	Quantify external parasitic loads (e.g., gas compressors, pumps, dump radiators, etc.).	WP
3.	Quantify the daily, weekly monthly, and annual variation of total facility power use (or power purchased from the utility) so that actual utility costs can be determined.	WT
4.	Determine the thermal loads imposed on the CHP system by the facility (or the useful thermal output supplied to the facility) to measure the total CHP efficiency of the system on a daily, monthly and annual basis; quantify the variation of these loads with ambient conditions and operating schedules so the findings from this site can be extended to other climates.	QHR (or integrated flows & temperatures), TAO
5.	Quantify the displaced fuel use on auxiliary equipment and systems to confirm the benefit of heat recovery.	Boiler fuel use, total facility fuel use (FGT), chiller electric consumption
6.	Quantify the amount of available thermal energy that is unused or “dumped” by the CHP system in order to demonstrate a system heat balance.	QD (or integrated flows & temperatures)

1 - The data point names correspond to the points listed in Figure 1 and Appendix A

**Table 3. Optional Monitoring Objectives**

No	Objective	Data Necessary to Meet Objective
7.	Determine the impact of generator operation on power quality in the facility (power factor, kVAR, frequency, total harmonic distortion); measure at generator output and/or main service entrance.	Volts, amps, kVA, hz, THD, etc (total and/or per phase)
8.	Collect diagnostic data to confirm the DG/CHP system operates as expected and/or support of maintenance and operation activities.	Component statuses, intermediate temperatures, pressures
9.	Develop performance maps of CHP equipment and components to verify manufacturer specifications.	QHR, flows, temperatures, statuses, etc.
10.	Determine environmental emissions from DG/CHP equipment to quantify net emissions impacts of the system.	CO, NO <sub>x</sub> , THC, etc

The primary objectives listed in Table 2 require the relatively small set of monitored data points shown on Figure 1. The optional objectives would require a more extensive monitoring system. Generally all these data would be captured and recorded at 15-minute intervals. Though in some cases one-time readings with handheld meters will sufficient to quantify operation (e.g., one time readings of parasitic power for a constantly operating pump; one-time flow readings for loop flow rates that are constant). Some data, such as local weather data, can also be purchased instead of measured ([www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)).

In some cases it may be more convenient to measure power at different locations in the system. For instance:

- measure total facility power use instead of net utility purchases,
- separately measure generator gross output and internal parasitics instead of net busbar power output.

These variations are acceptable but must be documented in the monitoring plan tables and schematic. The Monitoring Plan must include equations defining how the values shown in Figure 1 can be calculated from the measured data.

#### Monitoring Hardware Issues

The necessary sensors and equipment are driven by monitoring objectives as well as the type of monitoring system hardware and software that will be used. For instance, if the monitoring system is capable of counting pulses, then a utility-grade KYZ (or Form C) output can often be added to main electric meter at a relatively low cost. Otherwise an additional power meter with a more compatible output (e.g., a 4-20 ma output proportional to kW) might have to be installed on the building main. Similar issues are true for the gas meter installed on the CHP unit.

Another monitoring system issue is the type of software used to sample, record, and save the monitored data. Building control systems have historically had the ability to sample data at

specified interval and then save that information in a “log”. In contrast data loggers and other more flexible control systems can usually scan or read sensors at relatively fast interval (e.g., every few seconds) and then average or totalize the readings over the recording interval (e.g., every 15-minutes). This distinction can become very important when aggregating the data to daily, monthly, or annual values. The relative impact depends on how much the outputs, inputs, or loads fluctuate in time. Generally, monitoring systems than can average or totalize over the recording interval will provide more accurate and useful data.

Key examples are the electric power output from a generator or total power use of a facility. The goal is usually to determine the overall energy production (kWh) as well as the average demand (kW) for each recording interval (e.g., 15-minutes). With a pulse output meter, the total energy use (kWh) is explicitly determined. However, the average demand (kW) in time interval can also be determined if the pulse resolution is sufficiently small. In this case the average demand is:

$$KW_{avg} = (\text{measured kWh per interval}) / (\text{time interval})$$

The other metering option would be to use a power meter that measures power (kW) and provides an analog output (e.g., 4-20 mA). This meter explicitly measures power demand. However, the overall energy use can also be inferred:

$$KWh_{total} = (\text{measured kW}) \times (\text{time interval})$$

For systems where the measured value changes faster than the time interval, the error in determining the inferred kWh value can be large. This is especially true for monitoring systems that only take one sample in the recording interval. Scanning and averaging the power transducer at a faster rate can generally alleviate these concerns.

Other more expensive types of power meters solve this problem by independently providing a kWh and kW reading via a serial connection (e.g., MODBUS) for each interval.

Generally we believe that priority should be on explicitly determining energy use (kWh) with a high-resolution, pulse-emitting meter since this reading is most important to overall economics. The average demand in any interval can be closely inferred by the method described above.

Determining the thermal outputs from a CHP system has similar issues. Determining the thermal output generally requires that the flow and delta temperature be measured. The product of flow and delta temperature must be integrated (or summed) to determine the energy content:

$$q = k \cdot \sum \{gpm_i \cdot (T_{in_i} - T_{out_i})\} \cdot (\text{time interval})$$

Where i corresponds the readings at each scan interval. The factor “k” depends on the specific heat and density of the actual fluid at the site. The summation is completed for all the scans to find the total value “q” for the recording or logging interval (i.e., 15 minutes). The integration can be done by a control system/data logger or by using a dedicated electronic device known as a BTU Meter. If the flow is known to be constant throughout the year, then a one-time flow

reading can be combined with continuous temperature measurements. In all cases, care should be taken to properly integrate the flow-temperature product at small intervals if the flow varies (or cycles on and off) to meet the needs of the load.

If a constant flow is assumed, then the Monitoring Plan must explicitly make the case that no pumps or valves in the loop will vary. At a minimum, a one-time flow measurement is required to verify the flow rate. Design flow values from drawings or engineering design calculations are not acceptable.

#### Monitored Data Points

The monitored data points that are ultimately selected need to be specified in tabular and graphic form. The tabular summary needs to specify or provide:

- the data point name or tag
- a description of the measured value
- the engineering units of the measured/recorded value
- the type of sensor or transducer and key manufacturer information

Separate tables should be provided for continuous or automatically-collected data points and for measurements that are taken periodically or one-time with handheld or temporary meters.

The DG/CHP system schematic should be used to show the location of each data point in the system. The schematic must include sufficient detail to explain why and how the measurement location was selected.

Finally, the rationale and intended purpose for each data point should be described in the text. The description should explain how the measured point would be used to analyze and understand DG/CHP system performance. The description can be bulleted text or in narrative format. The next subsection shows an example of how the monitored data points could be presented and defined.

#### Selecting Monitoring Points for an EXAMPLE CHP SITE....

The continuously-monitored data points in Table 4 were selected to quantify the performance of the CHP system. Figure 2 shows the location of each monitored point in the system. The CHP system includes two 60 kW microturbines with integrated heat recovery. Hot water produced by the microturbines is used to provide space heating to the building. Hot water is also provided to an absorption chiller that can meet the space cooling loads in the summer. Heat recovery provided for space heating will displace boiler operation. Heat recovery used by the chiller will displace operation of the original electric chiller.

The monitoring system will use a Campbell Scientific CR-10x data logger that samples and integrates every 10 seconds and records data at 15-minute intervals.

**Table 4. Continuous or Automatically Collected Monitoring Points for EXAMPLE CHP System**

<b>Channel Type</b>	<b>Data Pt Name</b>	<b>Description</b>	<b>Eng Units</b>	<b>Sensor Type</b>
Analog-1		Thermocouple reference		
Analog-2	TAO	Ambient Temperature	F	type-T TC
Analog-3	TCHL	Chilled Water Supply - system	F	type-T TC
Analog-4	TCHE	Chilled Water Return - system	F	type-T TC
Analog-5	THXL	Hot Water from microturbines	F	type-T TC
Analog-6	THXE	Hot Water to microturbines	F	type-T TC
Analog-7	TBXL	Hot Water Supply on Boiler-Side of HX	F	type-T TC
Analog-8	TCWE	Cooling Water Entering Abs. Chiller	F	type-T TC
Analog-9				
Analog-10	FHW	Heat Recovery Flow	gpm	Onicon F-1110
Analog-11	FCH	Chilled Water Flow	gpm	Onicon F-1110
Analog-12	RHO	Ambient RH	%	Vaisala RH
Pulse-1	FGB	Building Gas Use	cu ft	Gas meter <sup>1</sup>
Pulse-2	FGT	Microturbine Gas Use	cu ft	Gas meter <sup>1</sup>
Pulse-3	WCH	Electric Chiller Power	kWh	Veris H-6010
Status-1	SCH	ABS Chiller Status	min	Veris 800
Status-2	SHV	Boiler/Abs CH Valve Status	min	Veris 800
Status-3	SCT	Cooling Tower Status	min	Veris 800
Status-4	SHP	Heat Exchanger Pump Status	min	Veris 800
MODBUS	WT1	Power Microturbine #1	kW/V/A	Veris Modbus
MODBUS	WT2	Power Microturbine #2	kW/V/A	Veris Modbus

Notes: 1- Gas meters are utility-grade, temperature- and pressure-compensated meters.

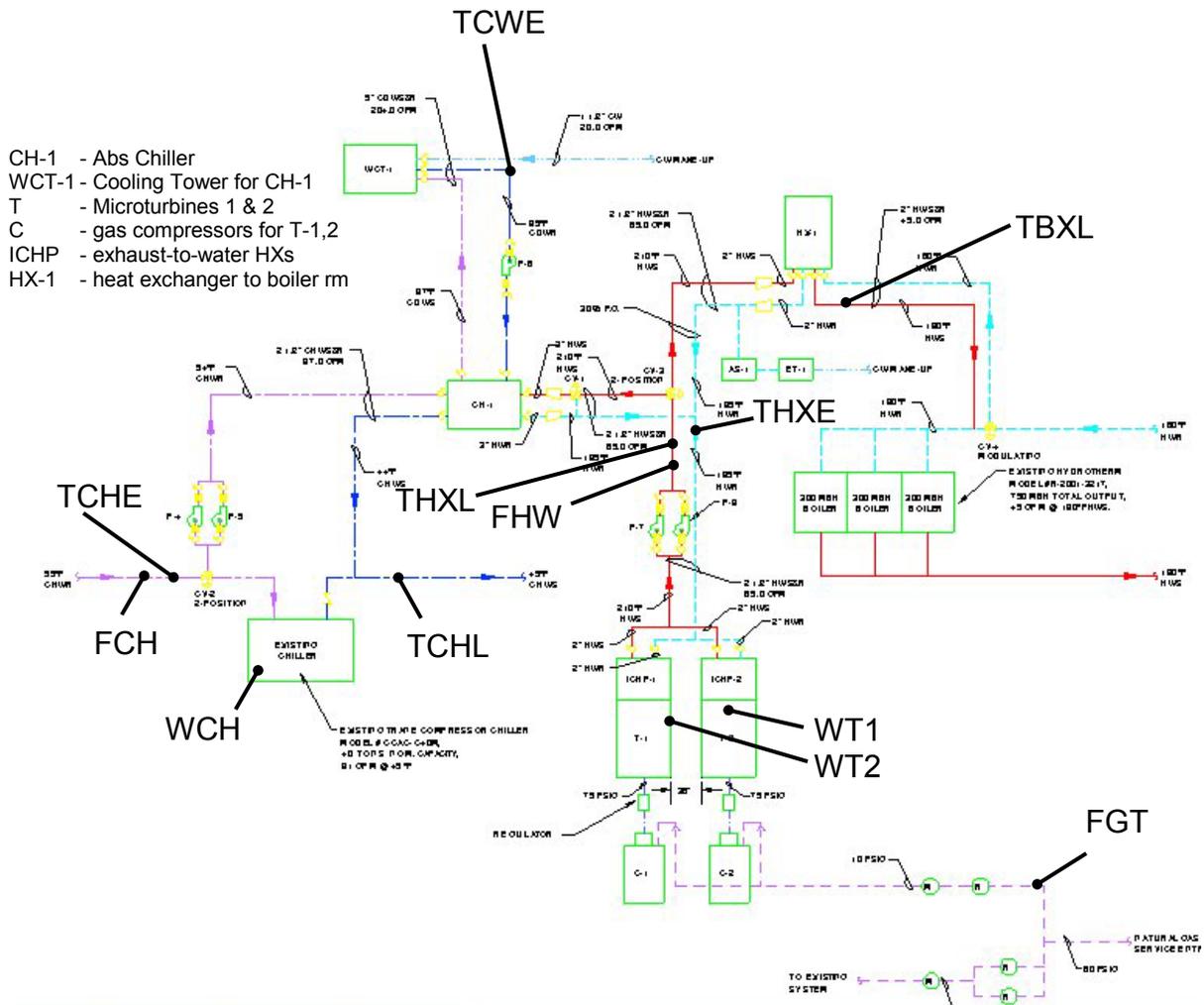


Figure 2. System Schematic Showing Sensor Locations in EXAMPLE CHP System

The electrical output of the microturbines (**WT1 & WT2**) will be measured with a MODBUS power transducer than can also measure volts, amps and true power for each phase (Objectives 1 & 7). The gas input to the turbines (**FGT**) will be measured by a single gas meter with pulse output (supplied by local utility) (Objective 1). The parasitic power use of the DC-powered gas compressors will be captured in the turbine power (so a separate power transducer is no longer needed) (Objective 2). A valve status sensor (**SHV**) will determine when the heat recovery output is going to the boiler load or to the chiller (Objectives 4, 6 & 8). The runtimes of the absorption chiller, constant-speed tower fans, and heat recovery pump will also be monitored (**SCH, SCT, SHP**) (Objectives 2 & 8).

The thermal output from the heat recovery unit will be determined from the flow and temperature difference (**FHW, THXL, THXE**) (Objectives 4 & 9). The data logger will integrate these readings every 10 seconds to determine the thermal output. We will also measure the temperature of the hot water supplied to the boiler loop after the boiler HX (**TBXL**) to determine how effectively the heat is being transferred into the boiler loop (Objective 8 & 9). Total gas use

for the building (**FGB**) will be continuously monitored to provide an indication of how much boiler gas use is displaced by heat recovery (Objective 5).

The output of the total chiller system (electric and absorption) will be measured (**FCH, TCHL, TCHE**) along with the condenser water temperature (**TCWE**) entering the absorption chiller (Objectives 4, 5 & 9). This data will allow us to confirm that the COP and capacity of the chiller is consistent with the manufacturer’s performance specifications. Absorption chiller and cooling tower parasitic power will also be determined by combining one-time power measurements (**WABS, WCTF, WCTP**) with the continuously recorded component runtimes (**SCH, SCT, SHP**) (Objective 2). The total power for the electric chiller (**WCH**) will be continuously monitored with a power transducer (Objective 5).

**Table 5. One-Time Measured Data Collected for EXAMPLE CHP System**

<b>Name</b>	<b>Description</b>	<b>Eng Units</b>	<b>Sensor Type</b>
WCH	ABS Chiller Parasitic Power	kWh	Handheld Pwr Meter
SCT	Cooling Tower Fan Power	kWh	Handheld Pwr Meter
SHP	Heat Exchanger Pump Power	kWh	Handheld Pwr Meter

## **Communications, Data Retrieval Procedures, and Web Presentation**

Communications with the monitoring system can range from manual data retrieval to fully automated broadband connections that allow for real-time ( or near real-time) display of measured values on a web page. The type of communication link needed for a project depends on:

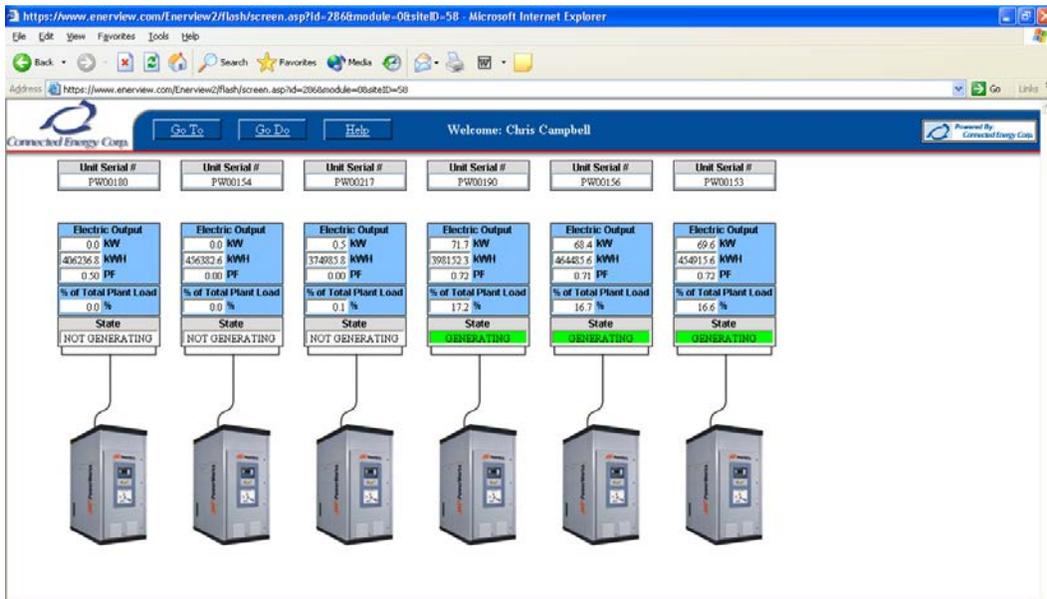
- the type of DG/CHP equipment,
- how the system is operated, maintained, or dispatched, and
- the reporting needs for monitoring.

Strictly speaking, it might be fully rational to provide a complex monitoring system with no communications capability if on-site staff are available to operate/maintain the system and to periodically transfer monitored data from a computer to a CD or memory stick. Conversely, a very simple monitoring system may require a direct broadband connection if system operation were critical and responsible personnel were remotely located. NYSERDA’s DG/CHP sites are generally encouraged to have some form of communication connection so that system status and periodic reporting can be provided on the web.

**Table 6. Communications Options for Data Retrieval and Monitoring**

Type of Communications for Data Collection	Description / Example
None / Manual download	Data is manually downloaded or transferred to a CD or memory stick on a periodic basis (monthly, weekly, daily).
Phone	Data are automatically (or manually) retrieved via phone-modem link using dedicated software. Data retrieval rates can be hourly, daily, weekly or monthly.
Broadband	A DSL or Ethernet connection allows continuous automated data retrieval. The operating state and performance of the DG/CHP system can be displayed in real or near-real time. A web connection can be established directly with the unit controller or via an intermediate server capable of aggregating data from many sites.

The system that displays DG/CHP operating data and performance history on the web can be implemented with a variety of communications options. The key question is whether the web site is intended to present a real time snapshot of system operation (such as Figure 3 and Figure 4) or present a higher-level summary of recent and historic performance (Figure 5). Real time control and monitoring of the DG/CHP system clearly require a DSL or Ethernet connection (though an phone-modem connection polled hourly can approach real time functionality). Requirements for monitoring alone can be less stringent so that a phone-modem connection is sufficient. The choice of the communications option is often driven by the cost or difficulty of providing either a phone or broadband connection in the facility.



**Figure 3. Example of a Real time Web Page Showing System Status (Served from Intermediate Site)**

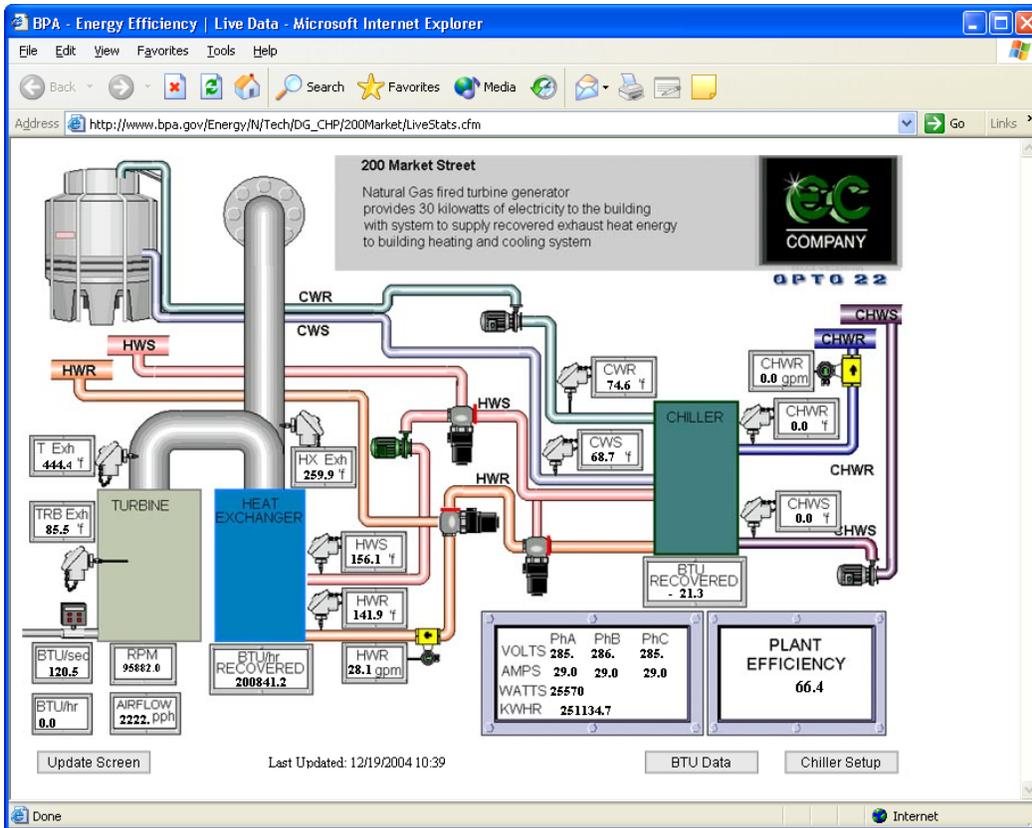


Figure 4. Example of a Real time Web Page Showing System Status (Served by Site-level PLC/computer)

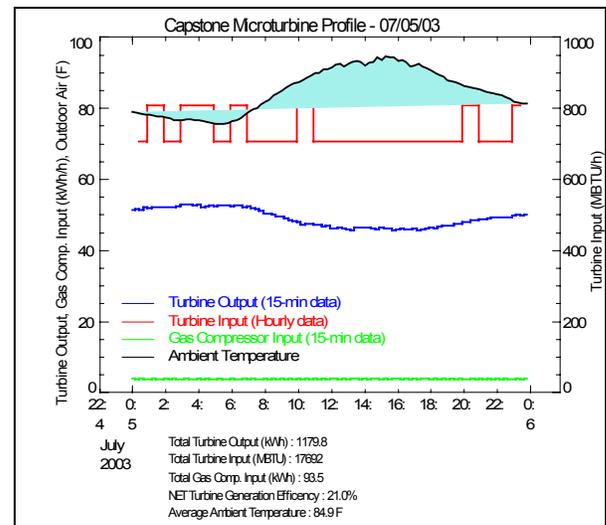
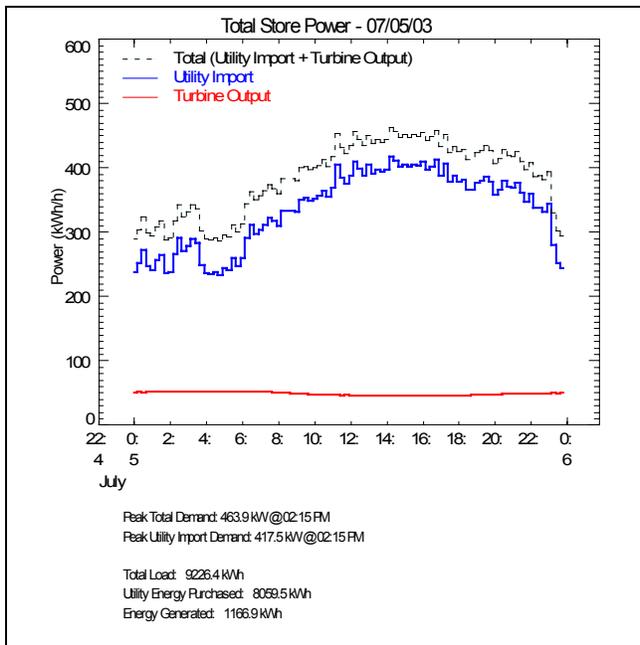


Figure 5. Example of a Web Page Showing Recent System Performance (Served from an Intermediate Site)

The frequency of data retrieval from a monitoring system can vary based on the project needs. For monitoring systems with a broadband connection, data retrieval rates can take place every few seconds. For phone-modem systems, data retrieval can take place as quickly as once every hour.

Even more important than the rate of data retrieval is the need for a robust system for archiving and capturing all the data regardless of the communications status. Data loggers generally are most robust at this task since data logging and recording is the highest priority function (i.e., data logging continues even when communications with the remote host are taking place). Even if the communication connection is lost, the on-board memory can continue to record data for several days or weeks until communications are reestablished. PLCs (programmable logic controllers) are at the other end of the spectrum since they can only save the most recent readings and a loss of communications typically results in a loss of data.

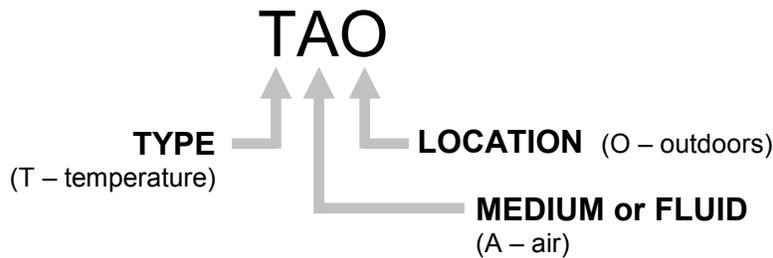
A robust monitoring system must place as much emphasis on reliably storing the collected data in the local controller as it does on the real time display of those values.

## APPENDIX A

### Suggested Convention for Naming Data Points or Tags in a Monitoring System

An important but often overlooked aspect of developing a monitoring system is to select rational and easily-understood naming conventions for each data point. Consistent naming helps communications within the project team as well as with outside entities. The following is one possible convention.

Each data point should be named according a hierarchy, for instance:



Suggested designations for the type, medium, or location are given in the table below. One or more letters can be used for each designation. The actual letter designations can change based on project needs and preferences. The important aspect is the hierarchy of the naming convention. Each site or monitoring entity is encouraged to develop and use their own consistent naming conventions.

Data Point “TYPE”	Data Point “MEDIUM”	Data Point “LOCATION”
T – temperature	A – air	O – outdoor
P – pressure	G – gas (natural)	I – indoor
RH – relative humidity	CH – chilled water	E – entering
W – Power (watts/watt-hr)	CW – cooling water	L – leaving
F – flow	HW – hot water	
S – status/runtime	CT – cooling tower	
V – volts	B – boiler	
I – current/amps		
HZ - frequency		

#### Examples

TCHL:      temperature – chilled water – leaving  
TBXL:      temperature – boiler heat exchanger – leaving  
WT1:      watts/power – turbine #1  
FGT:      flow – gas – turbines  
FCH:      flow – chilled water  
VAT1:      volts – phase A – turbine 1

**Attachment F – Milestone Budget Form**

<b>Milestone</b>	<b>Proposed Fee</b>
Transition and Startup (fixed fee)	
Update the Monitoring and Data Collection Standard if proposed (fixed fee)	
Fixed System Operation and Maintenance (monthly fee)	
Full-data Site-based System Operation and Maintenance (monthly fee per active Full-data Site)	
Partial-data Site-based System Operation and Maintenance (monthly fee per active Partial-data Site)	
Adding New Full-data Sites (Electric and Thermal) (fixed fee per site)	
Adding New Partial-data Sites (Electric Only) (fixed fee per site)	
Transition and Shutdown (fixed fee)	

**Attachment G**  
**New York State Energy Research and Development Authority**  
**(“NYSERDA”)**

**AGREEMENT**

1. Agreement Number:
2. Contractor:
3. Project Director:
4. Effective Date:
5. Total Amount of Award:
6. Project Period: **[Optional for defined-scope R&D projects]**
7. Commitment Terms and Conditions

This Agreement consists of this form plus the following documents:

- Exhibit A, Statement of Work;
- Exhibit B, General Contract Provisions, Terms and Conditions;
- Exhibit C, Standard Terms and Conditions;
- Exhibit D, Prompt Payment Policy Statement; and
- Exhibit E, 2016 Report Content Guide.

8. ACCEPTANCE. THIS AGREEMENT SHALL NOT BECOME EFFECTIVE UNLESS EXECUTED BELOW BY NYSERDA.

**[CONTRACTOR]**

**NEW YORK STATE ENERGY  
RESEARCH AND  
DEVELOPMENT AUTHORITY**

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name \_\_\_\_\_

Jeffrey J. Pitkin  
Treasurer

Title \_\_\_\_\_

STATE OF            )  
                          ) SS.:  
COUNTY OF        )

On the \_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_, before me, the undersigned, a Notary Public in and for said State, personally appeared \_\_\_\_\_, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individuals(s), or the person upon behalf of which the individual(s) acted, executed the document.

\_\_\_\_\_  
Notary Public

Exhibit A  
Statement of Work

To be developed.

## EXHIBIT B

### GENERAL CONTRACT PROVISIONS, TERMS AND CONDITIONS

#### Article I

##### Definitions

Section 1.01. Definitions. Unless the context otherwise requires, the terms defined below shall have, for all purposes of this Agreement, the respective meanings set forth below, the following definitions to be equally applicable to both the singular and plural forms of any of the terms defined.

(a) General Definitions:

Agreement: This Agreement shall consist of Page One and the Exhibits noted thereon, all of which are made a part hereof as if set forth here in full.

Budget: The Budget set forth at Exhibit A hereto.

Cash-based Expenses: Those obligations of Contractor that shall be settled in cash.

Contract Administrator: NYSERDA's Director of Contract Management, Cheryl M. Glanton, or such other person who may be designated, in writing, by NYSERDA.

Contract Information: Recorded information regardless of form or characteristic first produced in the performance of this Agreement, that is specified to be compiled under this Agreement, specified to be delivered under this Agreement, or that is actually delivered in connection with this Agreement, and including the Final Report delivered by Contractor pursuant to Exhibit A, Statement of Work, if applicable.

Proprietary Information: Recorded information regardless of form or characteristic, produced or developed outside the scope of this Agreement and without NYSERDA financial support, provided that such information is not generally known or available from other sources without obligation concerning their confidentiality; has not been made available by the owner to others without obligation concerning its confidentiality; and is not already available to NYSERDA without obligation concerning its confidentiality. Under no circumstances shall any information included in the Final Report delivered by Contractor pursuant to Exhibit A, Statement of Work, if applicable, be considered Proprietary Information.

Person: An individual, a corporation, an association or partnership, an organization, a business or a government or political subdivision thereof, or any governmental agency or instrumentality.

Responsible: Responsible or Responsibility means the financial ability, legal capacity, integrity and past performance of Contractor and as such terms have been interpreted relative to public procurements. See NYS Finance Law § 163(1)(c).

Statement of Work: The Statement of Work attached hereto as Exhibit A.

Subcontract: An agreement for the performance of Work by a Subcontractor, including any purchase order for the procurement of permanent equipment or expendable supplies in connection with the Work.

Subcontractor: A person who performs Work directly or indirectly for or on behalf of the Contractor (and whether or not in privity of contract with the Contractor) but not including any employees of the Contractor or the Subcontractors.

Work: The Work described in the Exhibit A (including the procurement of equipment and supplies in connection therewith) and the performance of all other requirements imposed upon the Contractor under this Agreement.

***[If Sections 8.02 and 8.03 of this Sample Agreement are applicable, the following Definitions shall be included:]***

(b) Payments to NYSERDA Definitions:

Practical Application: To manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system, under conditions indicating that the benefits of the invention are available to the public on reasonable terms.

Product: [PRODUCT OR TECHNOLOGY DEFINITION], and including any improvements, enhancements or modifications thereto.

New York State Product: The Product will be considered a New York State Product if Contractor demonstrates that either: (1) in excess of 50% of the value or value added to such Product was added within the geographical boundaries of the State of New York; “value added” means any separable component of the Product, contributed by the Contractor or paid for by the Contractor to others, for parts, components, and services, and all manufacturing costs, including but not limited to labor, labor overhead, materials, and G&A, but excluding profit; or (2) in excess of 75% of the nonmanufacturing selling and administrative costs, allocated on a per unit basis for the Product, derive from within the geographic boundaries of New York State; such costs include those associated with the selling of the Product, shipping, administrative salaries, executive salaries, administrative office expenses, sales commissions, advertising, marketing, and research and development, but excluding: (a) any separable component of the Product paid for by the Contractor to others for parts, components, and services, and (b) and any other manufacturing or product costs. Qualification as a New York State Product shall be

determined using generally accepted accounting principles and shall be capable of being proven by an audit conducted in accordance with generally accepted auditing standards.

License/Franchise: A grant of authority by Contractor to another person to make, use, or sell the Product.

Licensing Revenue: Gross revenue of any kind or character derived by Contractor from a Licensing or Franchising of the Product.

Sale: A sale or lease of the Product by the Contractor or any parent, subsidiary, affiliate or assignee thereof.

Sales Revenue: Gross revenue, excluding returns and allowances such as sales tax, freight, and insurance, if applicable, derived from Sales.

## Article II

### Performance of Work

Section 2.01. Manner of Performance. Subject to the provisions of Article XII hereof, the Contractor shall perform all of the Work described in the Statement of Work, or cause such Work to be performed in an efficient and expeditious manner and in accordance with all of the terms and provisions of this Agreement. The Contractor shall perform the Work in accordance with the current professional standards and with the diligence and skill expected for the performance of work of the type described in the Statement of Work. The Contractor shall furnish such personnel and shall procure such materials, machinery, supplies, tools, equipment and other items as may reasonably be necessary or appropriate to perform the Work in accordance with this Agreement.

Section 2.02. Project Personnel. It is understood and agreed that the Project Director identified at Item 3, Page One of this Agreement shall be responsible for the overall supervision and conduct of the Work on behalf of the Contractor and that the persons described in the Statement of Work shall serve in the capacities described therein. Any change of Project Director by the Contractor shall be subject to the prior written approval of NYSERDA. Such approval shall not be unreasonably withheld, and, in the event that notice of approval or disapproval is not received by the Contractor within thirty (30) days after receipt of request for approval by NYSERDA, the requested change in Project Director shall be considered approved. In the event that NYSERDA requires additional time for considering approval, NYSERDA shall notify the Contractor within thirty (30) days of receipt of the request for approval that additional time is required and shall specify the additional amount of time necessary up to thirty (30) days.

Section 2.03. Title to Equipment. Title shall vest in the Contractor to all equipment purchased hereunder.

***[OR, if specific equipment has been identified by the Project Manager for NYSERDA to retain title in, then use the following:]***

Section 2.03. Title to Equipment. Title shall vest in NYSERDA to all of the following equipment purchased hereunder:

- 1)
- 2)
- 3)
- 4)

Upon the request of NYSERDA, the Contractor shall execute, acknowledge, deliver and perform, or cause to be executed, acknowledged, delivered or performed, all such bills of sale, assignments, conveyances or other documents or acts as NYSERDA may reasonably request in order to assure the better vesting in and confirming to NYSERDA, its successor and assigns, of title to and possession of such equipment. If, after six (6) months following the later of (a) Contractor's completion of these obligations, (b) completion of the Work, or (3) the termination of this Agreement, NYSERDA has not removed any such equipment, it will be deemed abandoned and become the property of the Contractor. Any such removal of equipment by NYSERDA shall be at NYSERDA's expense.

### Article III

#### Deliverables

Section 3.01. Deliverables. All deliverables shall be provided in accordance with the Exhibit A, Statement of Work.

### Article IV

#### Payment

Section 4.01. Payment Terms. **[If cost-share is applicable, insert -** It is understood and agreed that NYSERDA and the Contractor are sharing the costs for the Work to be performed.] In consideration for this Agreement and as NYSERDA's full payment for the costs of the performance of all Work, and in respect of all other direct and indirect costs, charges or expenses incurred in connection therewith, NYSERDA shall pay to the Contractor amounts not to exceed the maximum amount set forth in Item 5, Page One of this Agreement for the cost elements identified in the Budget to be funded with NYSERDA funds, subject to the provisions and restrictions contained herein, including, without limitation, the Prompt Payment Policy Statement attached hereto as Exhibit D. NYSERDA's payments shall be on a reimbursement basis, and shall be paid only to the extent that Cash-based Expenses are incurred by the Contractor in

performance of the Work in accordance with the provisions of this Agreement, and the following:

***[CASE I: Cost Reimbursable]***

(a) Staff Charges: To the extent Cash-based Expenses are incurred by the Contractor, Contractor shall be reimbursed for amounts paid to its employees for the services performed by its employees under the terms of this Agreement at the lesser of the employee's wage rate as shown in the Budget or the actual wages paid to the employee and applicable at the time the Work is performed.

(b) Direct Charges: To the extent Cash-based Expenses are incurred by the Contractor, the Contractor shall be reimbursed for reasonable and necessary actual direct costs incurred (e.g., equipment, supplies, travel and other costs directly associated with the performance of the Agreement) to the extent required in the performance of the Work and to the extent such costs are anticipated in the Budget. Travel, lodging, meals and incidental expenses shall be reimbursed for reasonable and necessary costs incurred. Costs shall not exceed the daily per diem rates published in the Federal Travel Regulations. Reimbursement for the use of personal vehicles shall be limited to the Internal Revenue Service business standard mileage rate in effect at the time the expense was incurred.

(c) Indirect Costs: The Contractor shall be reimbursed for fringe benefits, overhead, general and administrative (G&A), and other indirect costs, all at the fixed rate as shown in the Budget. Contractor hereby warrants and guarantees, in accordance with Section 9.01(k) hereto, that its rates for the foregoing indirect costs charged herein have been determined based on the Contractor's reasonably anticipated indirect costs during the term of the Agreement and calculated consistent with generally accepted accounting principles.

***[For consultant services contracts, where appropriate, insert:]***

(d) Profit: The Contractor shall be paid a profit at a fixed rate as shown in the Budget applied to costs incurred in the performance of the Statement of Work. The percentage for profit shall be applied to all items in the Budget with the exception of travel costs.

***[CASE II: Billing Rates]***

(a) Billing Rates: The Contractor shall be reimbursed for the services performed by its employees under the terms of this Agreement at the lesser of employee's billing rate set forth in the Budget or the employee's billing rate applicable at the time the Work is performed. Such billing rates shall be inclusive of actual Cash-based Expenses in the form of wages paid the employee, fringe benefits, overhead, general and administrative (G&A), and other indirect costs. Contractor hereby warrants and guarantees that the

billing rates charged herein are Contractor's customary billing rates for performance of work of the type described in the Statement of Work attached hereto.

(b) Direct Charges: To the extent Cash-based Expenses are incurred by the Contractor, the Contractor shall be reimbursed for reasonable and necessary actual direct costs incurred (e.g., equipment, supplies, travel and other costs directly associated with the performance of the Agreement) to the extent required in the performance of the Work and to the extent such costs are anticipated in the Budget. Travel, lodging, meals and incidental expenses shall be reimbursed for reasonable and necessary costs incurred. Costs should generally not exceed the daily per diem rates published in the Federal Travel Regulations. Reimbursement for the use of personal vehicles shall be limited to the Internal Revenue Service business standard mileage rate in effect at the time the expense was incurred.

#### Section 4.02. Progress Payments.

(a) Invoicing: The Contractor may submit invoices for progress payments no more than once each month and no less than once each calendar quarter for Work performed during such period. Invoices shall be addressed to NYSERDA, "Attention: Accounts Payable," or submitted electronically to [invoices@nyserda.ny.gov](mailto:invoices@nyserda.ny.gov). Such invoices shall make reference to the Agreement number shown at Item 1 on page 1 of this Agreement. Invoices shall be inclusive of the total project costs incurred, delineated into NYSERDA's Funding share and the Cost-Share and Other Co-funding share, if applicable, and they shall be in a format consistent with the cost categories set forth in the Budget. Invoices shall be itemized and provide reasonable documentation for the above to provide evidence of costs incurred. If a wage rate or billing rate is used, Contractor must certify on its invoice that such rate represents the lesser of: (i) the actual rate at the time the Work was performed, and (ii) the rate listed for each such employee listed in the Budget. NYSERDA may adjust amounts payable to correlate the proportion of NYSERDA's funding share paid to the proportion of the Work completed.

(b) Retainage: In accordance with and subject to the provisions of Exhibit D, NYSERDA shall pay to the Contractor, within the prescribed time after receipt of an invoice for a progress payment, 90% of NYSERDA's share of the amount so requested, unless NYSERDA should determine that any such payment or any part thereof is otherwise not properly payable pursuant to the terms of the Agreement or the Budget.

#### *[Case III – Fixed Fee/Milestone]*

Section 4.01. Payment Terms. **[If cost-share is applicable, insert -** It is understood and agreed that NYSERDA and the Contractor are sharing the costs for the Work to be performed.**]** In consideration for this Agreement and as NYSERDA's full payment for the costs of the performance of all Work, and in respect of all other direct and indirect costs, charges or expenses incurred in connection therewith, NYSERDA shall pay to the

Contractor amounts not to exceed the maximum amount set forth in Item 5, Page One of this Agreement. Subject to the provisions and restrictions contained herein, including, without limitation, the Prompt Payment Policy Statement attached hereto as Exhibit D, payment will be made according to the Milestone Billing Events set forth in Exhibit A, Statement of Work.

#### Section 4.02. Payments

(a) Invoicing: Subject to any applicable provisions set forth in Exhibit A, Statement of Work, at the completion of each Milestone Event so identified, the Contractor may submit invoices, including documentation reasonably sufficient to demonstrate completion, requesting payment by NYSERDA of the amounts corresponding to the amounts indicated in Exhibit A, Statement of Work, including evidence of the Contractor's cost share, if applicable. Invoices shall be addressed to NYSERDA, "Attention: Accounts Payable," or submitted electronically to [invoices@nyserda.ny.gov](mailto:invoices@nyserda.ny.gov). Such invoices shall make reference to the Agreement number shown at Item 1 on page 1 of this Agreement. In accordance with and subject to the provisions of Exhibit D, NYSERDA shall pay to the Contractor, within the prescribed time after receipt of an invoice, the amount so requested, unless NYSERDA should determine that any such payment or any part thereof is otherwise not properly payable pursuant to the terms of the Agreement.

Section 4.03. Final Payment. Upon final acceptance by NYSERDA of all deliverables contained in Exhibit A, Statement of Work, pursuant to Section 6.02 hereof, the Contractor shall submit an invoice for final payment with respect to the Work, together with such supporting information and documentation as, and in such form as, NYSERDA may require. All invoices for final payment hereunder must, under any and all circumstances, be received by NYSERDA within six (6) months following Acceptance of Work pursuant to Section 6.02 hereof. In accordance with and subject to the provisions of NYSERDA's Prompt Payment Policy Statement, attached hereto as Exhibit D, NYSERDA shall pay to the Contractor within the prescribed time after receipt of such invoice for final payment, the total amount payable pursuant to Section 4.01 hereof, less all progress payments/milestone payments previously made to the Contractor with respect thereto and subject to the maximum commitment set forth in Section 4.06 hereof.

Section 4.04. Release by the Contractor. The acceptance by the Contractor of final payment shall release NYSERDA from all claims and liability that the Contractor, its representatives and assigns might otherwise have relating to this Agreement.

Section 4.05. Maintenance of Records. The Contractor shall keep, maintain, and preserve at its principal office throughout the term of the Agreement and for a period of three years after acceptance of the Work, full and detailed books, accounts, and records pertaining to this Agreement, including without limitation, all data, bills, invoices, payrolls, time records, expense reports, subcontracting efforts and other documentation

evidencing, or in any material way related to, Contractor's performance under this Agreement.

Section 4.06. Maximum Commitment. The maximum aggregate amount payable by NYSERDA to the Contractor shall be the amount appearing at Item 5 of page one of this Agreement. NYSERDA shall not be liable for any costs or expenses in excess of such amount incurred by the Contractor in the performance and completion of the Work.

Section 4.07. Audit. NYSERDA shall have the right from time to time and at all reasonable times during the term of this Agreement and for the maintenance period set forth in Section 4.05 hereof to inspect and audit any and all books, accounts and records related to this Agreement or reasonably necessary to the performance of an audit at the office or offices of the Contractor where they are then being kept, maintained and preserved pursuant to Section 4.05 hereof. Any payment made under the Agreement shall be subject to retroactive reduction for amounts included therein which are found by NYSERDA on the basis of any audit of the Contractor by NYSERDA, the State of New York or an agency of the United States not to constitute an allowable charge or cost hereunder.

## Article V

### Assignments, Subcontracts and Performance

Section 5.01. General Restrictions. Except as specifically provided otherwise in this Article, the assignment, transfer, conveyance, subcontracting or other disposal of this Agreement or any of the Contractor's rights, obligations, interests or responsibilities hereunder, in whole or in part, without the express consent in writing of NYSERDA shall be void and of no effect as to NYSERDA.

Section 5.02. Subcontract Procedures. Without relieving it of, or in any way limiting, its obligations to NYSERDA under this Agreement, the Contractor may enter into Subcontracts for the performance of Work or for the purchase of materials or equipment. Except for a subcontractor or supplier specified in a team arrangement with the Contractor in the Contractor's original proposal, and except for any subcontract or order for equipment, supplies or materials from a single subcontractor or supplier totaling less than \$50,000, the Contractor shall select all subcontractors or suppliers through a process of competitive bidding or multi-source price review. A team arrangement is one where a subcontractor or supplier specified in the Contractor's proposal is performing a substantial portion of the Work and is making a substantial contribution to the management and/or design of the Project. In the event that a competitive bidding or multi-source price review is not feasible, the Contractor shall document an explanation for, and justification of, a sole source selection. The Contractor shall document the process by which a subcontractor or supplier is selected by making a record summarizing the nature and scope of the work, equipment, supplies or materials sought, the name of each person or organization submitting, or requested to submit, a bid or proposal, the

price or fee bid, and the basis for selection of the subcontractor or supplier. An explanation for, and justification of, a sole source selection must identify why the work, equipment, supplies or materials involved are obtainable from or require a subcontractor with unique or exceptionally scarce qualifications or experience, specialized equipment, or facilities not readily available from other sources, or patents, copyrights, or proprietary data. All Subcontracts shall contain provisions comparable to those set forth in this Agreement applicable to a subcontractor or supplier, and those set forth in Exhibit C to the extent required by law, and all other provisions now or hereafter required by law to be contained therein. Each Subcontract shall make express reference to this Agreement, and shall state that in the event of any conflict or inconsistency between any Subcontract and this Agreement, the terms and conditions of this Agreement shall control as between Subcontractor and Contractor. If this Agreement includes a provision requiring Contractor to make Payments to NYSERDA for the Sale or Licensing of a Product, each Subcontract shall include the provisions of Section 8.02, suitably modified to identify the parties. The Contractor shall submit to NYSERDA's Contract Administrator for review and written approval any subcontract(s) specified in the Statement of Work as requiring NYSERDA approval, including any replacements thereof.

Section 5.03. Performance. The Contractor shall promptly and diligently comply with its obligations under each Subcontract and shall take no action that would impair its rights thereunder. The Contractor shall take no action, and shall take all reasonable steps to prevent its Subcontractors from taking any action, that would impair NYSERDA's rights under this Agreement. The Contractor shall not assign, cancel or terminate any Subcontract without the prior written approval of NYSERDA's Contract Administrator as long as this Agreement remains in effect. Such approval shall not be unreasonably withheld and, in the event that notice of approval or disapproval is not received by the Contractor within thirty days after receipt of request for approval by NYSERDA, the requested assignment, cancellation, or termination of the Subcontract shall be considered approved by NYSERDA. In the event that NYSERDA requires additional time for considering approval, NYSERDA shall notify the Contractor within thirty (30) days of receipt of the request for approval that additional time is required and shall specify the additional amount of time necessary up to sixty (60) days.

## Article VI

### Schedule; Acceptance of Work

Section 6.01. Schedule. The Work shall be performed as expeditiously as possible in conformity with the schedule requirements contained herein and in the Statement of Work. The draft and final versions of all deliverables shall be submitted by the dates specified in the Exhibit A Schedule. It is understood and agreed that the delivery of the draft and final versions of such deliverables by the Contractor shall occur in a timely manner and in accordance with the requirements of the Exhibit A Schedule.

Section 6.02. Acceptance of Work. The completion of the Work shall be subject to acceptance by NYSERDA in writing of all deliverables as defined in Exhibit A, Statement of Work.

## Article VII

### Force Majeure

Section 7.01. Force Majeure. Neither party hereto shall be liable for any failure or delay in the performance of its respective obligations hereunder if and to the extent that such delay or failure is due to a cause or circumstance beyond the reasonable control of such party, including, without limitation, acts of God or the public enemy, expropriation or confiscation of land or facilities, compliance with any law, order or request of any Federal, State, municipal or local governmental authority, acts of war, rebellion or sabotage or damage resulting therefrom, fires, floods, storms, explosions, accidents, riots, strikes, or the delay or failure to perform by any Subcontractor by reason of any cause or circumstance beyond the reasonable control of such Subcontractor.

## Article VIII

### Rights in Information; Confidentiality

#### **CASE I: For implementation-type contracts:**

##### Section 8.01. Rights in Contract and Proprietary Information.

(a) All Contract Information shall be the property of NYSERDA. The Contractor shall not use Contract Information for any purpose other than to implement its obligations under this Agreement.

(b) All Proprietary Information shall be the property of Contractor.

(c) The use, public performance, reproduction, distribution, or modification of any materials used by Contractor in the performance of this Agreement does not and will not violate the rights of any third parties, including, but not limited to, copyrights, trademarks, service marks, publicity, or privacy. The Contractor shall be responsible for obtaining and paying for any necessary licenses to use any third-party content.

(d) The Contractor agrees that to the extent it receives or is given any information from NYSERDA or a NYSERDA contractor or subcontractor, the Contractor shall treat such data in accordance with any restrictive legend contained thereon or instructions given by NYSERDA, unless another use is specifically authorized by prior written approval of the NYSERDA Project Manager. Contractor acknowledges that in the

performance of the Work under this Agreement, Contractor may come into possession of personal information as that term is defined in Section 92 of the New York State Public Officers Law. Contractor agrees not to disclose any such information without the consent of NYSERDA.

**CASE II: Advertising and Marketing contracts:**

Section 8.01. Rights in Materials.

(a) All Contract Information shall be the property of NYSERDA. The Contractor shall not use Contract Information for any purpose other than to implement its obligations under this Agreement. Title to any and all now known or hereafter known tangible and intangible intellectual property rights in such materials, including but not limited to copyrights, trademarks, and service marks, is with and shall remain with NYSERDA. For purposes of this Article, the term “materials” shall include everything produced pursuant to this Agreement for the purpose of marketing NYSERDA’s programs, including, but not limited to, all images, text, sounds, and music contained in any media whatsoever.

(b) The Contractor may not take any action, including signing any agreement, that has the effect of restricting or limiting in any way NYSERDA’s absolute ownership and use of the materials unless it receives prior written approval from NYSERDA.

Section 8.02. Representations.

(a) All materials have been or will be created solely by the Contractor’s full-time employees during the course of their employment, or independent contractors who assigned or will assign all right, title, and interest worldwide to the Contractor.

(b) The use, public performance, reproduction, distribution, or modification of the materials does not and will not violate the rights of any third parties, including, but not limited to, copyrights, trademarks, service marks, publicity, or privacy.

Section 8.03. Licenses. The Contractor shall be responsible for obtaining and paying for any necessary licenses to use any third-party content contained in the materials.

Section 8.04. Assignment of Rights. The Contractor hereby irrevocably assigns, conveys and otherwise transfers to NYSERDA, and its respective successors and assigns, all rights, title and interests worldwide in and to the materials and all copyrights, trade secrets, patents, trademarks, service marks and other intellectual property rights and all contract and licensing rights, and all claims and causes of action of any kind with respect to any of the foregoing, whether now known or hereafter to become known. In the event the Contractor has any rights in and to the materials that cannot be assigned to NYSERDA, the Contractor hereby unconditionally and irrevocably waives the

enforcement of all such rights, and all claims and causes of action of any kind with respect to any of the foregoing against NYSERDA, its distributors and customers, whether now known or hereafter to become known and agrees, at the request and expense of NYSERDA and its respective successors and assigns, to consent to and join in any action to enforce such rights and to procure a waiver of such rights from the holders of such rights. In the event the Contractor has any rights in and to the materials that cannot be assigned to NYSERDA and cannot be waived, the Contractor hereby grants to NYSERDA, and its respective successors and assigns, an exclusive, worldwide, royalty-free, perpetual license to reproduce, distribute, modify, publicly perform and publicly display, with the right to sublicense through multiple tiers of sublicensees and assign such rights in and to the materials including, without limitation, the right to use in any way whatsoever the materials and the Contractor retains no rights to use the materials and agrees not to challenge the validity of the copyright ownership by NYSERDA in the materials. In the event that any development of any materials under this Agreement is to be performed by a subcontractor, the Contractor agrees to include the provisions contained in this section in any such subcontract.

Section 8.05. Restriction on Use. The Contractor agrees that to the extent it receives or is given any information from NYSERDA or a NYSERDA contractor or subcontractor, the Contractor shall treat such data in accordance with any restrictive legend contained thereon or instructions given by NYSERDA, unless another use is specifically authorized by prior written approval of the NYSERDA Project Manager. Contractor acknowledges that in the performance of the Work under this Agreement, Contractor may come into possession of personal information as that term is defined in Section 92 of the New York State Public Officers Law. Contractor agrees not to disclose any such information without the consent of NYSERDA.

**CASE III: R&D-type contracts:**

Section 8.01. Rights in Contract and Proprietary Information; Confidentiality.

(a) NYSERDA shall have the right to use, duplicate, or disclose Contract Information, in whole or in part, in any manner and for any purpose whatsoever, and to permit others to do so.

(b) The Contractor shall have the right to use Contract Information for its private purposes, subject to the provisions of this Agreement.

(c) NYSERDA shall have no rights to any Proprietary Information.

(d) No information shall be treated by NYSERDA as confidential unless such information is clearly so marked by Contractor at the time it is disclosed to NYSERDA; see Exhibit C regarding NYSERDA's obligations under the Freedom of Information Law. Under no circumstances shall any information included in the Final Report

delivered by Contractor pursuant to Exhibit A, Statement of Work, be considered confidential or Proprietary Information.

(e) The Contractor agrees that to the extent it receives or is given any information from NYSERDA or a NYSERDA contractor or subcontractor, the Contractor shall treat such data in accordance with any restrictive legend contained thereon or instructions given by NYSERDA, unless another use is specifically authorized by prior written approval of the NYSERDA Project Manager. Contractor acknowledges that in the performance of the Work under this Agreement, Contractor may come into possession of personal information as that term is defined in Section 92 of the New York State Public Officers Law. Contractor agrees not to disclose any such information without the consent of NYSERDA.

***[If recoupment applies, include the following Sections 8.02 & 8.03:]***

Section 8.02. Rights in the Product.

(a) The Contractor shall have the right to make, use and sell the Product.

(b) Should NYSERDA, or any political subdivision or instrumentality of the State of New York (each, a “New York Purchaser”) desire to purchase the Product from Contractor or any parent, subsidiary, affiliate, assignee, licensee or franchisee thereof (“Seller”), Seller shall grant such New York Purchaser terms, including price, that are at least as favorable as the terms granted by Seller to any buyer of the Product within the previous year. During the period of performance of the agreement between New York Purchaser and Seller, if Seller enters into an agreement with any other party that includes terms more favorable than those granted to the New York Purchaser, then the terms granted by Seller to such New York Purchaser shall automatically be deemed to be modified to provide the New York Purchaser with those more favorable terms as of the date such more favorable terms were offered to the other party. Contractor shall notify the New York Purchaser promptly of the existence of such more favorable terms and the New York Purchaser shall have the right to receive the more favorable terms immediately. If requested in writing by the New York Purchaser, Contractor shall amend the agreement with such New York Purchaser to contain the more favorable terms and conditions. Contractor shall include these terms in any distribution, licensing or franchising agreement concerning the Product.

The sale price for any Sale made to NYSERDA pursuant to this Section shall be discounted by the applicable amount due to NYSERDA by Contractor pursuant to Section 8.03(a) or (b) hereof. The amount of this discount shall be credited towards the aggregate amount due by Contractor to NYSERDA pursuant to Section 8.03(c) hereof.

(c) Should a patent application be filed related to the Product, Contractor shall forward to NYSERDA’s Project Manager a copy of the United States Patent and Trademark Office filing receipt bearing the patent application number. The Contractor or

any assignee acting on behalf of the Contractor shall include, within the specification of any patent application and any patent or certificate issuing thereon related to the Product the following statement: “This invention was made with the support of the New York State Energy Research and Development Authority (NYSERDA) under Agreement Number [Item 1 from Page One] and NYSEDA may have rights in this invention.”

(d) Contractor shall notify NYSEDA within three (3) months after a patent is issued related to the Product, and shall provide the patent title, issuance number and a generalized description of the claims set forth therein. Contractor shall diligently exercise best efforts to bring the Product to the point of Practical Application. Should Contractor fail to bring the Product to the point of Practical Application within three (3) years after the issuance date for any patent related to the Product Contractor shall provide to NYSEDA a reasonably detailed description of its efforts in commercializing the Product through sales of licensing or other avenues and a reasonably detailed description of why such efforts failed.

(e) The Contractor shall include the foregoing clauses, suitably modified to identify the parties, in all subcontracts which involve the performance of Work under this Agreement. The Subcontractor shall retain all rights provided for the Contractor, and the Contractor shall retain all rights provided for NYSEDA, as set forth above.

(f) The Contractor shall enforce Sections 8.02 and 8.03 hereof against all current or former employees to the extent necessary to protect NYSEDA’s rights herein.

Section 8.03. Calculation of Payments to NYSEDA.

(a) New York State Product: Upon a Sale of a New York State Product, or at such time as Licensing Revenue become due to the Contractor with respect to a New York State Product, Contractor agrees to pay to NYSEDA: (i) one and one half percent (1.5%) of the Sales Revenue, or (ii) ten percent (10%) of all License Revenue accruing to the Contractor.

(b) Non - New York State Product: Upon a Sale of a Product that does not qualify as a New York State Product, or at such time as Licensing Revenue become due to the Contractor with respect to a Product that does not qualify as a New York State Product, Contractor shall pay to NYSEDA: (i) five percent (5%) of the Sales Revenue, or (ii) thirty percent (30%) of all Licensing Revenues accruing to the Contractor.

(c) Duration of Payments to NYSEDA: The Contractor’s obligation to make payments to NYSEDA shall extend (i) from the date the Contractor first receives Sales Revenue or Licensing Revenue and continue for a period of fifteen (15) years thereafter; or (ii) until the amount paid by Contractor to NYSEDA attributable to actual Sales Revenue or Licensing Revenue from a New York State Product is equal to one times the amount of funds actually paid by NYSEDA to the Contractor under this Agreement; or (iii) until the amount paid by Contractor to NYSEDA, whether or not derived from any

Sales Revenue or Licensing Revenue, is equal to three times the amount of funds actually paid by NYSERDA to the Contractor under this Agreement; whichever occurs first.

(d) Contractor may buy out its obligation to make payments to NYSERDA as described in this Agreement by paying to NYSERDA: (a) if such payment is made within five (5) years of the last payment by NYSERDA to Contractor under this Agreement, an amount equal to two (2) times the amount of funds actually paid by NYSERDA to the Contractor under this Agreement, such buyout amount to be reduced by the amount(s) already paid to NYSERDA by Contractor pursuant to this Section, or (b) if such payment is not made within five (5) years of the last payment received by Contractor under this Agreement, an amount equal to three (3) times the amount of funds actually paid by NYSERDA to the Contractor under this Agreement, such buyout amount to be reduced by the amount(s) already paid to NYSERDA by Contractor pursuant to this Section.

(e) Due Date of Payments. Such payments shall be payable in annual installments and shall be paid by the first day of March in the calendar year immediately following the year during which the Contractor receives revenues as described above (the "Due Date"). Any payment not received by the applicable Due Date shall be deemed delinquent. A delinquent payment shall be made with interest with such interest computed commencing with the Due Date of such payment. The annual interest rate payable shall be the "Prime Rate" existing as of the Due Date of such payment plus five (5) percentage points. Such interest shall be compounded on a monthly basis.

(f) Annual Reports. The Contractor shall provide to NYSERDA a written Annual Report detailing the status of development and utilization of the Product. The Annual Report shall provide detail as to all Sales, identifying each buyer or lessee, the number of items sold or leased, the Sales Revenue and/or Licensing Revenue, and calculating the resultant amount earned by, and paid or due to NYSERDA in accordance with paragraph (a) hereof. If the amount due to NYSERDA is calculated in whole or in part in accordance with paragraph (a) hereof, the Annual Report shall include documentation or substantiating information reasonably sufficient to establish that that such Product qualifies as a New York State Product. The Annual Report shall be furnished to NYSERDA not later than February 1 following the calendar year covered by the Report. The Contractor's obligation to provide Annual Reports shall commence on February 1 of the calendar year following either the Contractor's receipt of Final Payment pursuant to Section 4.03 hereto, at such time as Licensing Revenues become due to the Contractor or upon the first Sale, whichever event occurs first. In the event that, for a period of five consecutive years, the Annual Reports indicate that no Sales are made and no payment is due to NYSERDA, the Contractor may cease submittal of annual reports. If, however, Sales are made in subsequent years, or Licensing Revenues become due to the Contractor, the Contractor's obligation to submit Annual Reports shall resume.

(g) Maintenance and Audit of Records. Until such time as the Contractor's payment obligations to NYSERDA pursuant to this Section 8.03 have been met, the

Contractor shall keep, maintain, and preserve at its principal office, full and detailed books, accounts, and records in connection with Sales, including any licenses or franchises granted, and the Contractor shall provide to NYSERDA, on a reasonable basis, access to all books and records related thereto.

(h) Licensing or Franchise Agreements. The Contractor shall not enter into any agreement with any party with respect to the licensing or franchising of the Product or rights in the Product that contains provisions inconsistent with the Contractor's obligation as set forth in this Article VIII. The Contractor shall provide copies of any licensing or franchise agreements to NYSERDA immediately upon execution.

(i) Modification of Payment Terms. Should Contractor provide to NYSERDA a copy of a proposed licensing or franchise agreement under subsection (g), NYSERDA agrees to negotiate, upon Contractor's execution of such licensing or franchise agreement, a modification of the Licensing Revenue terms in subsections (a)(i) and (b)(i) such that the amount of payment due to NYSERDA by Contractor will approximate the amount that would have been due upon a Sale of the Product.

## Article IX

### Warranties and Guarantees

Section 9.01. Warranties and Guarantees. The Contractor warrants and guarantees that:

(a) all information provided and all representations made by Contractor as a part of the Proposal Checklist or application, if any, submitted to NYSERDA in order to obtain this Agreement were, to the best of Contractor's knowledge, complete, true and accurate when provided or made;

(b) as of the Effective Date, it is financially and technically qualified to perform the Work, and is qualified to do business and is in good standing in all jurisdictions necessary for Contractor to perform its obligations under this Agreement;

(c) it is familiar with and will comply with all general and special Federal, State, municipal and local laws, ordinances and regulations, if any, that may in any way affect the performance of this Agreement;

(d) the design, supervision and workmanship furnished with respect to performance of the Work shall be in accordance with sound and currently accepted scientific standards and engineering practices;

(e) all materials, equipment and workmanship furnished by it and by Subcontractors in performance of the Work or any portion thereof shall be free of defects in design, material and workmanship, and all such materials and equipment shall be of

first-class quality, shall conform with all applicable codes, specifications, standards and ordinances and shall have service lives and maintenance characteristics suitable for their intended purposes in accordance with sound and currently accepted scientific standards and engineering practices;

(f) neither the Contractor nor any of its employees, agents, representatives or servants has actual knowledge of any patent issued under the laws of the United States or any other matter which could constitute a basis for any claim that the performance of the Work or any part thereof infringes any patent or otherwise interferes with any other right of any Person;

(g) to the best of Contractor's knowledge, there are no existing undisclosed or threatened legal actions, claims, or encumbrances, or liabilities that may adversely affect the Work or NYSERDA's rights hereunder;

(h) it has no actual knowledge that any information or document or statement furnished by the Contractor in connection with this Agreement contains any untrue statement of a material fact or omits to state a material fact necessary to make the statement not misleading, and that all facts have been disclosed that would materially adversely affect the Work;

(i) all information provided to NYSERDA with respect to State Finance Law Sections 139-j and 139-k is complete, true and accurate;

(j) Contractor is familiar with and will comply with NYSERDA's Code of Conduct for Contractors, Consultants, and Vendors with respect to the performance of this Agreement;<sup>1</sup> and

(k) its rates for the indirect costs charged herein have been determined based on the Contractor's reasonably anticipated indirect costs during the term of the Agreement and calculated consistent with generally accepted accounting principles.

(j) Contractor shall at all times during the Agreement term remain Responsible, and Contractor agrees, if requested by NYSERDA, to present evidence of its continuing legal authority to do business in New York State, integrity, experience, ability, prior performance, and organizational and financial capacity.

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<sup>1</sup><http://www.nyserda.ny.gov/About/Board-Governance.aspx>

## Article X

### Indemnification

Section 10.01. Indemnification. The Contractor shall protect, indemnify and hold harmless NYSERDA and the State of New York from and against all liabilities, losses, claims, damages, judgments, penalties, causes of action, costs and expenses (including, without limitation, attorneys' fees and expenses) imposed upon or incurred by or asserted against NYSERDA or the State of New York resulting from, arising out of or relating to Contractor's or its Subcontractors' performance of this Agreement. The obligations of the Contractor under this Article shall survive any expiration or termination of this Agreement, and shall not be limited by any enumeration herein of required insurance coverage.

## Article XI

### Insurance

***[Under NYSERDA'S risk management program, projects are defined according to the following categories: Category A (low risk; no insurance required); Category B (medium risk; "standard" insurance requirements); and Category C (high risk; insurance to be negotiated on a case-by-case basis). The following language represents NYSERDA'S "standard" insurance requirements.]***

Section 11.01. Maintenance of Insurance; Policy Provisions. The Contractor, at no additional direct cost to NYSERDA, shall maintain or cause to be maintained throughout the term of this Agreement, insurance of the types and in the amounts specified in the Section hereof entitled Types of Insurance. All such insurance shall be evidenced by insurance policies, each of which shall:

- (a) except policies in evidence of insurance required under Section 11.02(b), name or be endorsed to cover NYSERDA, the State of New York and the Contractor as additional insureds;
- (b) provide that such policy may not be cancelled or modified until at least 30 days after receipt by NYSERDA of written notice thereof; and
- (c) be reasonably satisfactory to NYSERDA in all other respects.

Section 11.02. Types of Insurance. The types and amounts of insurance required to be maintained under this Article are as follows:

- (a) Commercial general liability insurance for bodily injury liability, including death, and property damage liability, incurred in connection with the performance of this Agreement, with minimum limits of \$1,000,000 in respect of claims arising out of

personal injury or sickness or death of any one person, \$1,000,000 in respect of claims arising out of personal injury, sickness or death in any one accident or disaster, and \$1,000,000 in respect of claims arising out of property damage in any one accident or disaster; and

(b) Workers Compensation, Employers Liability, and Disability Benefits as required by New York State.

**[For contracts containing recoupment, insert:]** (c) Upon commencement of marketing of the Product, product liability insurance for bodily injury liability, including death and property damage liability arising out of the use of the Product with minimum limits of \$1,000,000 in respect of claims arising out of personal injury or sickness or death of any one person, \$1,000,000 in respect of claims arising out of personal injury, sickness or death in any one accident or disaster, and \$1,000,000 in respect of claims arising out of property damage in any one accident or disaster. Product liability insurance naming the NYSERDA and State of New York as additional insureds required under this Agreement shall remain in effect for as long as the payment obligation pursuant to Section 8.03 of this Agreement is in effect.

Section 11.03. Delivery of Policies; Insurance Certificates. Prior to commencing the Work, the Contractor shall deliver to NYSERDA certificates of insurance issued by the respective insurers, indicating the Agreement number thereon, evidencing the insurance required by Article XI hereof. **[For contracts containing recoupment, insert:** Upon commencement of marketing of the Product, the Contractor shall deliver to NYSERDA certificates of insurance issued by the respective insurers, indicating the Agreement number thereon, evidencing the insurance required by Section 11.02 (c) hereof and bearing notations evidencing the payment of the premiums thereon or accompanied by other evidence of such payment satisfactory to NYSERDA.] In the event any policy furnished or carried pursuant to this Article will expire on a date prior to acceptance of the Work by NYSERDA pursuant to the section hereof entitled Acceptance of Work, the Contractor, not less than 15 days prior to such expiration date, shall deliver to NYSERDA certificates of insurance evidencing the renewal of such policies, and the Contractor shall promptly pay all premiums thereon due. In the event of threatened legal action, claims, encumbrances, or liabilities that may affect NYSERDA hereunder, or if deemed necessary by NYSERDA due to events rendering a review necessary, upon request the Contractor shall deliver to NYSERDA a certified copy of each policy.

## Article XII

### Stop Work Order; Termination; Non-Responsibility

#### Section 12.01. Stop Work Order.

(a) NYSERDA may at any time, by written Order to the Contractor, require the Contractor to stop all or any part of the Work called for by this Agreement for a period of

up to ninety (90) days after the Stop Work Order is delivered to the Contractor, and for any further period to which the parties may agree. Any such order shall be specifically identified as a Stop Work Order issued pursuant to this Section. Upon receipt of such an Order, the Contractor shall forthwith comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the Work covered by the Order during the period of work stoppage consistent with public health and safety. Within a period of ninety (90) days after a Stop Work Order is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, NYSERDA shall either:

- (i) by written notice to the Contractor, cancel the Stop Work Order, which shall be effective as provided in such cancellation notice, or if not specified therein, upon receipt by the Contractor, or
- (ii) terminate the Work covered by such order as provided in the Termination Section of this Agreement.

(b) If a Stop Work Order issued under this Section is cancelled or the period of the Order or any extension thereof expires, the Contractor shall resume Work. An equitable adjustment shall be made in the delivery schedule, the estimated cost, the fee, if any, or a combination thereof, and in any other provisions of the Agreement that may be affected, and the Agreement shall be modified in writing accordingly, if:

- (i) the Stop Work Order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this Agreement, and
- (ii) the Contractor asserts a claim for such adjustments within 30 days after the end of the period of Work stoppage; provided that, if NYSERDA decides the facts justify such action, NYSERDA may receive and act upon any such claim asserted at any time prior to final payment under this Agreement.

(c) If a Stop Work Order is not cancelled and the Work covered by such Order is terminated, the reasonable costs resulting from the Stop Work Order shall be allowed by equitable adjustment or otherwise.

(d) Notwithstanding the provisions of this Section 12.01, the maximum amount payable by NYSERDA to the Contractor pursuant to this Section 12.01 shall not be increased or deemed to be increased except by specific written amendment hereto.

#### Section 12.02. Termination.

(a) This Agreement may be terminated by NYSERDA at any time during the term of this Agreement with or without cause, upon ten (10) days prior written notice to the Contractor. In such event, payment shall be paid to the Contractor for Work

performed and expenses incurred prior to the effective date of termination in accordance with the provisions of the Article hereof entitled Payment and in reimbursement of any amounts required to be paid by the Contractor pursuant to Subcontracts; provided, however, that upon receipt of any such notice of termination, the Contractor shall cease the performance of Work, shall make no further commitments with respect thereto and shall reduce insofar as possible the amount of outstanding commitments (including, to the extent requested by NYSERDA, through termination of subcontracts containing provisions therefor). Articles VIII, IX, and X shall survive any termination of this Agreement, and Article XVI shall survive until the payment obligations pursuant to Article VIII have been met.

(b) NYSERDA specifically reserves the right to terminate this agreement in the event that the certification filed by the Contractor in accordance with State Finance Law Sections 139-j and 139-k is found to have been intentionally false or intentionally incomplete, or that the certification filed by the Contractor in accordance with New York State Tax Law Section 5-a is found to have been intentionally false when made. Terminations under this subsection (b) will be effective upon Notice.

(c) Nothing in this Article shall preclude the Contractor from continuing to carry out the Work called for by the Agreement after receipt of a Stop Work Order or termination notice at its own election, provided that, if the Contractor so elects: (i) any such continuing Work after receipt of the Stop Work Order or termination notice shall be deemed not to be Work pursuant to the Agreement, and (ii) NYSERDA shall have no liability to the Contractor for any costs of the Work continuing after receipt of the Stop Work Order or termination notice.

#### 12.03 Suspension or Termination for Non-Responsibility.

(a) Suspension. NYSERDA, in its sole discretion, reserves the right to suspend any or all activities under this Agreement, at any time, when it discovers information that calls into question the Responsibility of the Contractor. In the event of such suspension, the Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, the Contractor must comply with the terms of the suspension order. Contract activity may resume at such time as NYSERDA issues a written notice authorizing a resumption of performance under the Contract.

(b) Termination. Upon written notice to the Contractor, and a reasonable opportunity to be heard with appropriate NYSERDA officials or staff, this Agreement may be terminated by NYSERDA at the Contractor's expense where the Contractor is determined by NYSERDA to be non-Responsible. In such event, NYSERDA may complete the contractual requirements in any manner it may deem advisable and pursue available legal or equitable remedies for breach.

## Article XIII

### Independent Contractor

Section 13.01. Independent Contractor. (a) The status of the Contractor under this Agreement shall be that of an independent contractor and not that of an agent, and in accordance with such status, the Contractor, the Subcontractors, and their respective officers, agents, employees, representatives and servants, including the Project Director, shall at all times during the term of this Agreement conduct themselves in a manner consistent with such status and by reason of this Agreement shall neither hold themselves out as, nor claim to be acting in the capacity of, officers, employees, agents, representatives or servants of NYSERDA nor make any claim, demand or application for any right or privilege applicable to NYSERDA, including, without limitation, vicarious liability, professional liability coverage or indemnification, rights or privileges derived from workers' compensation coverage, unemployment insurance benefits, social security coverage and retirement membership or credit. It is understood and agreed that the personnel furnished by Contractor to perform the Work shall be Contractor's employee(s) or agent(s), and under no circumstances are such employee(s) to be considered NYSERDA's employee(s) or agent(s), and shall remain the employees of Contractor, except to the extent required by section 414(n) of the Internal Revenue Code.

(b) Contractor expressly acknowledges NYSERDA's need to be advised, on an immediate basis, of the existence of any claim or event that might result in a claim or claims against NYSERDA, Contractor and/or Contractor's personnel by virtue of any act or omission on the part of NYSERDA or its employees. Accordingly, Contractor expressly covenants and agrees to notify NYSERDA of any such claim or event, including but not limited to, requests for accommodation and allegations of harassment and/or discrimination, immediately upon contractor's discovery of the same, and to fully and honestly cooperate with NYSERDA in its efforts to investigate and/or address such claims or events, including but not limited to, complying with any reasonable request by NYSERDA for disclosure of information concerning such claim or event even in the event that this Agreement should terminate for any reason.

## Article XIV

### Compliance with Certain Laws

Section 14.01. Laws of the State of New York. The Contractor shall comply with all of the requirements set forth in Exhibit C hereto.

Section 14.02. All Legal Provisions Deemed Included. It is the intent and understanding of the Contractor and NYSERDA that each and every provision of law required by the laws of the State of New York to be contained in this Agreement shall be contained herein, and if, through mistake, oversight or otherwise, any such provision is not contained herein, or is not contained herein in correct form, this Agreement shall,

upon the application of either NYSERDA or the Contractor, promptly be amended so as to comply strictly with the laws of the State of New York with respect to the inclusion in this Agreement of all such provisions.

Section 14.03. Other Legal Requirements. The references to particular laws of the State of New York in this Article, in Exhibit C and elsewhere in this Agreement are not intended to be exclusive and nothing contained in such Article, Exhibit and Agreement shall be deemed to modify the obligations of the Contractor to comply with all legal requirements.

## Article XV

### Notices, Entire Agreement, Amendment, Counterparts

#### Section 15.01. Notices.

(a) All notices, requests, consents, approvals and other communications which may or are required to be given by either party to the other under this Agreement shall be in writing and shall be transmitted either:

- (i) via certified or registered United States mail, return receipt requested;
- (ii) by facsimile transmission;
- (iii) by personal delivery;
- (iv) by expedited delivery service; or
- (v) by e-mail, return receipt requested.

Such notices shall be addressed as follows, or to such different addresses as the parties may from time-to-time designate as set forth in paragraph (c) below:

#### **NYSERDA**

Name: Cheryl M. Glanton

Title: Director of Contract Management

Address: 17 Columbia Circle, Albany, New York 12203

Facsimile Number: (518) 862-1091

E-Mail Address: [Cheryl.Glanton@nyserda.ny.gov](mailto:Cheryl.Glanton@nyserda.ny.gov)

Personal Delivery: Reception desk at the above address

#### **[Contractor Name]**

Name:

Title:

Address:

Facsimile Number:

E-Mail Address:

(b) Any such notice shall be deemed to have been given either at the time of

personal delivery or, in the case of expedited delivery service or certified or registered United States mail, as of the date of first attempted delivery at the address and in the manner provided herein, or in the case of facsimile transmission or email, upon receipt.

(c) The parties may, from time to time, specify any new or different address in the United States as their address for purpose of receiving notice under this Agreement by giving fifteen (15) days written notice to the other party sent in accordance herewith. The parties agree to mutually designate individuals as their respective representatives for the purposes of receiving notices under this Agreement. Additional individuals may be designated in writing by the parties for purposes of implementation and administration/billing, resolving issues and problems and/or for dispute resolution.

Section 15.02. Entire Agreement; Amendment. This Agreement embodies the entire agreement and understanding between NYSERDA and the Contractor and supersedes all prior agreements and understandings relating to the subject matter hereof. Except as otherwise expressly provided for herein, this Agreement may be changed, waived, discharged or terminated only by an instrument in writing, signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

Section 15.03. Counterparts. This Agreement may be executed in counterparts each of which shall be deemed an original, but all of which taken together shall constitute one and the same instrument.

## Article XVI

### Publicity

#### Section 16.01. Publicity.

(a) The Contractor shall collaborate with NYSERDA's Director of Communications to prepare any press release and to plan for any news conference concerning the Work. In addition the Contractor shall notify NYSERDA's Director of Communications regarding any media interview in which the Work is referred to or discussed.

(b) It is recognized that during the course of the Work under this Agreement, the Contractor or its employees may from time to time desire to publish information regarding scientific or technical developments made or conceived in the course of or under this Agreement. In any such information, the Contractor shall credit NYSERDA's funding participation in the Project, and shall state that "NYSERDA has not reviewed the information contained herein, and the opinions expressed in this report do not necessarily reflect those of NYSERDA or the State of New York." Notwithstanding anything to the contrary contained herein, the Contractor shall have the right to use and freely

disseminate project results for educational purposes, if applicable, consistent with the Contractor's policies.

(c) Commercial promotional materials or advertisements produced by the Contractor shall credit NYSERDA, as stated above, and shall be submitted to NYSERDA for review and recommendations to improve their effectiveness prior to use. The wording of such credit can be approved in advance by NYSERDA, and, after initial approval, such credit may be used in subsequent promotional materials or advertisements without additional approvals for the credit, provided, however, that all such promotional materials or advertisements shall be submitted to NYSERDA prior to use for review, as stated above. Such approvals shall not be unreasonably withheld, and, in the event that notice of approval or disapproval is not received by the Contractor within thirty days after receipt of request for approval, the promotional materials or advertisement shall be considered approved. In the event that NYSERDA requires additional time for considering approval, NYSERDA shall notify the Contractor within thirty days of receipt of the request for approval that additional time is required and shall specify the additional amount of time necessary up to 180 days. If NYSERDA and the Contractor do not agree on the wording of such credit in connection with such materials, the Contractor may use such materials, but agrees not to include such credit.

***[If Section 8.03 applies, the following Article XVII is required:]***

## Article XVII

### Business Reorganizations

Section 17.01. Business Reorganizations. In the event the Contractor proposes to consolidate or merge into or with another corporation or entity, or to sell or dispose of all or a majority of the assets of the Contractor, or to otherwise undertake a reorganization which alters or changes the rights of NYSERDA as provided in this Agreement, before any such action shall be taken, the Contractor shall either:

(a) buy out its obligation to make payments to NYSERDA as described in Section 8.03 of this Agreement; or

(b) assign or otherwise transfer to a new entity the Contractor's obligations under this Agreement, including, but not limited to, the obligation to make payments to NYSERDA as described in Section 8.03 of this Agreement. Such assignment or transfer shall be subject to the prior written approval of NYSERDA. Such approval shall not be unreasonably withheld, and, in the event that notice of approval or disapproval is not received by the Contractor within thirty days after receipt of request for approval, the assignment or transfer shall be considered approved. In the event that NYSERDA requires additional time for considering approval, NYSERDA shall notify the Contractor within thirty (30) days of receipt of the request for approval that additional time is

required and shall specify the additional amount of time necessary up to thirty (30) days after the lapse of the original review period.

EXHIBIT C

REVISED 5/12

STANDARD TERMS AND CONDITIONS  
FOR ALL NYSERDA AGREEMENTS

(Based on Standard Clauses for New York State Contracts and Tax Law Section 5-a)

The parties to the Agreement agree to be bound by the following clauses which are hereby made a part of the Agreement:

1. NON-DISCRIMINATION REQUIREMENTS. To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, sexual orientation, age, disability, genetic predisposition or carrier status, or marital status. Furthermore, in accordance with Section 220-e of the Labor Law, if this is an Agreement for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this Agreement shall be performed within the State of New York, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this Agreement. If this is a building service Agreement as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Contractor is subject to fines of \$50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this Agreement and forfeiture of all moneys due hereunder for a second subsequent violation.

2. WAGE AND HOURS PROVISIONS. If this is a public work Agreement covered by Article 8 of the Labor Law or a building service Agreement covered by Article 9 thereof, neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article

8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by NYSERDA of any NYSERDA-approved sums due and owing for work done upon the project.

3. NON-COLLUSIVE BIDDING REQUIREMENT. In accordance with Section 2878 of the Public Authorities Law, if this Agreement was awarded based upon the submission of bids, Contractor warrants, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. Contractor further warrants that, at the time Contractor submitted its bid, an authorized and responsible person executed and delivered to NYSERDA a non-collusive bidding certification on Contractor's behalf.

4. INTERNATIONAL BOYCOTT PROHIBITION. If this Agreement exceeds \$5,000, the Contractor agrees, as a material condition of the Agreement, that neither the Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the Federal Export Administration Act of 1979 (50 USC App. Sections 2401 et seq.) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of Contractor, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the Agreement's execution, such Agreement, amendment or modification thereto shall be rendered forfeit and void. The Contractor shall so notify NYSERDA within five (5) business days of such conviction, determination or disposition of appeal. (See and compare Section 220-f of the Labor Law, Section 139-h of the State Finance Law, and 2 NYCRR 105.4).

5. SET-OFF RIGHTS. NYSERDA shall have all of its common law and statutory rights of set-off. These rights shall include, but not be limited to, NYSERDA's option to withhold for the purposes of set-off any moneys due to the Contractor under this Agreement up to any amounts due and owing to NYSERDA with regard to this Agreement, any other Agreement, including any Agreement for a term commencing prior to the term of this Agreement, plus any amounts due and owing to NYSERDA for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto.

6. PROPRIETARY INFORMATION. Notwithstanding any provisions to the contrary in the Agreement, Contractor and NYSERDA acknowledge and agree that all information, in any format, submitted to NYSERDA shall be subject to and treated in accordance with the NYS Freedom of Information Law ("FOIL," Public Officers Law, Article 6). Pursuant to FOIL, NYSERDA is required to make available to the public, upon request, records or portions thereof which it possesses, unless that information is statutorily exempt from disclosure. Therefore, unless the Agreement specifically requires otherwise, Contractor should submit information to NYSERDA in a non-confidential,

non-proprietary format. FOIL does provide that NYSERDA may deny access to 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.” [See Public Officers Law, § 87(2)(d)]. Accordingly, if the Agreement specifically requires submission of information in a format Contractor considers a proprietary and/or confidential trade secret, Contractor shall fully identify and plainly label the information “confidential” or “proprietary” at the time of disclosure. By so marking such information, Contractor represents that the information has actual or potential specific commercial or competitive value to the competitors of Contractor. Without limitation, information will not be considered confidential or proprietary if it is or has been (i) generally known or available from other sources without obligation concerning its confidentiality; (ii) made available by the owner to others without obligation concerning its confidentiality; or (iii) already available to NYSERDA without obligation concerning its confidentiality. In the event of a FOIL request, it is NYSERDA’s policy to consider records as marked above pursuant to the trade secret exemption procedure set forth in 21 New York Codes Rules & Regulations § 501.6 and any other applicable law or regulation. However, NYSERDA cannot guarantee the confidentiality of any information submitted. More information on FOIL, and the relevant statutory law and regulations, can be found at the website for the Committee on Open Government (<http://www.dos.ny.gov/about/foil2.html>) and NYSERDA’s Regulations, Part 501 <http://www.nyserda.ny.gov/About/New-York-State-Regulations.aspx> .

7. IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION. (a) FEDERAL EMPLOYER IDENTIFICATION NUMBER and/or FEDERAL SOCIAL SECURITY NUMBER. As a condition to NYSERDA’s obligation to pay any invoices submitted by Contractor pursuant to this Agreement, Contractor shall provide to NYSERDA its Federal employer identification number or Federal social security number, or both such numbers when the Contractor has both such numbers. Where the Contractor does not have such number or numbers, the Contractor must give the reason or reasons why the payee does not have such number or numbers.

(b) PRIVACY NOTIFICATION. The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by Contractor to the State is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the taxes administered by the Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law.

8. CONFLICTING TERMS. In the event of a conflict between the terms of the Agreement (including any and all attachments thereto and amendments thereof) and the terms of this Exhibit C, the terms of this Exhibit C shall control.

9. GOVERNING LAW. This Agreement shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.

10. NO ARBITRATION. Disputes involving this Agreement, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily required) without the NYSERDA's written consent, but must, instead, be heard in a court of competent jurisdiction of the State of New York.

11. SERVICE OF PROCESS. In addition to the methods of service allowed by the State Civil Practice Law and Rules ("CPLR"), Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Contractor's actual receipt of process or upon NYSERDA's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify NYSERDA, in writing, of each and every change of address to which service of process can be made. Service by NYSERDA to the last known address shall be sufficient. Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.

12. CRIMINAL ACTIVITY. If subsequent to the effectiveness of this Agreement, NYSERDA comes to know of any allegation previously unknown to it that the Contractor or any of its principals is under indictment for a felony, or has been, within five (5) years prior to submission of the Contractor's proposal to NYSERDA, convicted of a felony, under the laws of the United States or Territory of the United States, then NYSERDA may exercise its stop work right under this Agreement. If subsequent to the effectiveness of this Agreement, NYSERDA comes to know of the fact, previously unknown to it, that Contractor or any of its principals is under such indictment or has been so convicted, then NYSERDA may exercise its right to terminate this Agreement. If the Contractor knowingly withheld information about such an indictment or conviction, NYSERDA may declare the Agreement null and void and may seek legal remedies against the Contractor and its principals. The Contractor or its principals may also be subject to penalties for any violation of law which may apply in the particular circumstances. For a Contractor which is an association, partnership, corporation, or other organization, the provisions of this paragraph apply to any such indictment or conviction of the organization itself or any of its officers, partners, or directors or members of any similar governing body, as applicable.

13. PERMITS. It is the responsibility of the Contractor to acquire and maintain, at its own cost, any and all permits, licenses, easements, waivers and permissions of every nature necessary to perform the work.

14. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS. The Contractor certifies and warrants that all wood products to be used under this Agreement will be in accordance with, but not limited to, the specifications and provisions of State

Finance Law Section 165 (Use of Tropical Hardwoods), which prohibits purchase and use of tropical hardwoods, unless specifically exempted by NYSERDA.

15. 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 contracts.

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

NYS Department of Economic Development  
Division for Small Business  
625 Broadway  
Albany, New York 12207  
Telephone: 518-292-5200  
Fax: 518-292-5884  
<http://www.esd.ny.gov>

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

NYS Department of Economic Development  
Division of Minority and Women's Business Development  
625 Broadway  
Albany, New York 12207  
Telephone: 518-292-5200  
Fax: 518-292-5803  
<http://www.empire.state.ny.us>

The Omnibus Procurement Act of 1992 requires that by signing this Agreement, Contractors certify that whenever the total amount is greater than \$1 million:

(a) The Contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority and women-owned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to the State;

(b) The Contractor has complied with the Federal Equal Opportunity Act of 1972 (P.L. 92-261), as amended;

(c) The Contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective

bargaining contracts or agreements. The Contractor agrees to document these efforts and to provide said documentation to the State upon request; and

(d) The Contractor acknowledges notice that the State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.

16. RECIPROCITY AND SANCTIONS PROVISIONS. Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively) require that they be denied contracts which they would otherwise obtain. NOTE: As of May 15, 2002, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii. Contact NYS Department of Economic Development for a current list of jurisdictions subject to this provision.

17. COMPLIANCE WITH NEW YORK STATE INFORMATION SECURITY BREACH AND NOTIFICATION ACT. Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law Section 899-aa; State Technology Law Section 208).

18. PROCUREMENT LOBBYING. To the extent this Agreement is a “procurement contract” as defined by State Finance Law Sections 139-j and 139-k, by signing this Agreement the Contractor certifies and affirms that all disclosures made in accordance with State Finance Law Sections 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, NYSERDA may terminate the agreement by providing written notification to the Contractor in accordance with the terms of the agreement.

19. COMPLIANCE WITH TAX LAW SECTION 5-a. The following provisions apply to Contractors that have entered into agreements in an amount exceeding \$100,000 for the purchase of goods and services:

- a) Before such agreement can take effect, the Contractor must have on file with the New York State Department of Taxation and Finance a Contractor Certification form (ST-220-TD).
- b) Prior to entering into such an agreement, the Contractor is required to provide NYSERDA with a completed Contractor Certification to Covered Agency form (Form ST-220-CA).
- c) Prior to any renewal period (if applicable) under the agreement, the Contractor is required to provide NYSERDA with a completed Form ST-220-CA.

Certifications referenced in paragraphs (b) and (c) above will be maintained by NYSERDA and made a part hereof and incorporated herein by reference.

NYSERDA reserves the right to terminate this agreement in the event it is found that the certification filed by the Contractor in accordance with Tax Law Section 5-a was false when made.

20. IRANIAN ENERGY SECTOR DIVESTMENT. In accordance with Section 2879-c of the Public Authorities Law, by signing this contract, each person and each person signing on behalf of any other party certifies, and in the case of a joint bid or partnership each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each person is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law (See <http://www.ogs.ny.gov/about/regs/ida.asp>).

## EXHIBIT D

### NYSERDA PROMPT PAYMENT POLICY STATEMENT

**504.1. Purpose and Applicability.** (a) The purpose of this Exhibit is to provide a description of Part 504 of NYSERDA's regulations, which consists of NYSERDA's policy for making payment promptly on amounts properly due and owing by NYSERDA under this Agreement. The section numbers used in this document correspond to the section numbers appearing in Part 504 of the regulations.<sup>2</sup>

(b) This Exhibit applies generally to payments due and owing by the NYSERDA to the Contractor pursuant to this Agreement. However, this Exhibit does not apply to Payments due and owing when NYSERDA is exercising a Set-Off against all or part of the Payment, or if a State or Federal law, rule or regulation specifically requires otherwise.

**504.2. Definitions.** Capitalized terms not otherwise defined in this Exhibit shall have the same meaning as set forth earlier in this Agreement. In addition to said terms, the following terms shall have the following meanings, unless the context shall indicate another or different meaning or intent:

(a) "Date of Payment" means the date on which NYSERDA requisitions a check from its statutory fiscal agent, the Department of Taxation and Finance, to make a Payment.

(b) "Designated Payment Office" means the Office of NYSERDA's Controller, located at 17 Columbia Circle, Albany, New York 12203.

(c) "Payment" means payment properly due and owing to Contractor pursuant to Article IV, Exhibit B of this Agreement.

(d) "Prompt Payment" means a Payment within the time periods applicable pursuant to Sections 504.3 through 504.5 of this Exhibit in order for NYSERDA not to be liable for interest pursuant to Section 504.6.

(e) "Payment Due Date" means the date by which the Date of Payment must occur, in accordance with the provisions of Sections 504.3 through 504.5 of this Exhibit, in order for NYSERDA not to be liable for interest pursuant to Section 504.6.

(f) "Proper Invoice" means a written request for Payment that is submitted by a Contractor setting forth the description, price or cost, and quantity of goods, property or services delivered or rendered, in such form, and supported by such other substantiating

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<sup>2</sup> This is only a summary; the full text of Part 504 can be accessed at: <http://www.nyserda.ny.gov/About/New-York-State-Regulations.aspx>

documentation, as NYSERDA may reasonably require, including but not limited to any requirements set forth in Exhibits A or B to this Agreement; and addressed to NYSERDA's Controller, marked "Attention: Accounts Payable," at the Designated Payment Office.

(g)(1) "Receipt of an Invoice" means:

(i) if the Payment is one for which an invoice is required, the later of:

(a) the date on which a Proper Invoice is actually received in the Designated Payment Office during normal business hours; or

(b) the date by which, during normal business hours, NYSERDA has actually received all the purchased goods, property or services covered by a Proper Invoice previously received in the Designated Payment Office.

(ii) if the Agreement provides that a Payment will be made on a specific date or at a predetermined interval, without having to submit a written invoice the 30th calendar day, excluding legal holidays, before the date so specified or predetermined.

(2) For purposes of this subdivision, if the Agreement requires a multifaceted, completed or working system, or delivery of no less than a specified quantity of goods, property or services and only a portion of such systems or less than the required goods, property or services are working, completed or delivered, even though the Contractor has invoiced NYSERDA for the portion working, completed or delivered, NYSERDA will not be in Receipt of an Invoice until the specified minimum amount of the systems, goods, property or services are working, completed or delivered.

(h) "Set-off" means the reduction by NYSERDA of a payment due a Contractor by an amount equal to the amount of an unpaid legally enforceable debt owed by the Contractor to NYSERDA.

**504.3. Prompt Payment Schedule.** Except as otherwise provided by law or regulation or in Sections 504.4 and 504.5 of this Exhibit, the Date of Payment by NYSERDA of an amount properly due and owing under this Agreement shall be no later than thirty (30) calendar days, excluding legal holidays, after Receipt of a Proper Invoice.

**504.4. Payment Procedures.**

(a) Unless otherwise specified in this Agreement, a Proper Invoice submitted by the Contractor to the Designated Payment Office shall be required to initiate payment for goods, property or services. As soon as any invoice is received in the Designated Payment Office during normal business hours, such invoice shall be date-stamped. The

invoice shall then promptly be reviewed by NYSERDA.

(b) NYSERDA shall notify the Contractor within fifteen (15) calendar days after Receipt of an Invoice of:

- (1) any defects in the delivered goods, property or services;
- (2) any defects in the invoice; or
- (3) suspected improprieties of any kind.

(c) The existence of any defects or suspected improprieties shall prevent the commencement of the time period specified in Section 504.3 until any such defects or improprieties are corrected or otherwise resolved.

(d) If NYSERDA fails to notify a Contractor of a defect or impropriety within the fifteen (15) calendar day period specified in subdivision (b) of this section, the sole effect shall be that the number of days allowed for Payment shall be reduced by the number of days between the 15th day and the day that notification was transmitted to the Contractor. If NYSERDA fails to provide reasonable grounds for its contention that a defect or impropriety exists, the sole effect shall be that the Payment Due Date shall be calculated using the original date of Receipt of an Invoice.

(e) In the absence of any defect or suspected impropriety, or upon satisfactory correction or resolution of a defect or suspected impropriety, NYSERDA shall make Payment, consistent with any such correction or resolution and the provisions of this Exhibit.

**504.5. Exceptions and Extension of Payment Due Date.** NYSERDA has determined that, notwithstanding the provisions of Sections 504.3 and 504.4 of this Exhibit, any of the following facts or circumstances, which may occur concurrently or consecutively, reasonably justify extension of the Payment Due Date:

(a) If this Agreement provides Payment will be made on a specific date or at a predetermined interval, without having to submit a written invoice, if any documentation, supporting data, performance verification, or notice specifically required by this Agreement or other State or Federal mandate has not been submitted to NYSERDA on a timely basis, then the Payment Due Date shall be extended by the number of calendar days from the date by which all such matter was to be submitted to NYSERDA and the date when NYSERDA has actually received such matter.

(b) If an inspection or testing period, performance verification, audit or other review or documentation independent of the Contractor is specifically required by this Agreement or by other State or Federal mandate, whether to be performed by or on behalf of NYSERDA or another entity, or is specifically permitted by this Agreement or

by other State or Federal provision and NYSERDA or other entity with the right to do so elects to have such activity or documentation undertaken, then the Payment Due Date shall be extended by the number of calendar days from the date of Receipt of an Invoice to the date when any such activity or documentation has been completed, NYSERDA has actually received the results of such activity or documentation conducted by another entity, and any deficiencies identified or issues raised as a result of such activity or documentation have been corrected or otherwise resolved.

(c) If an invoice must be examined by a State or Federal agency, or by another party contributing to the funding of the Contract, prior to Payment, then the Payment Due Date shall be extended by the number of calendar days from the date of Receipt of an Invoice to the date when the State or Federal agency, or other contributing party to the Contract, has completed the inspection, advised NYSERDA of the results of the inspection, and any deficiencies identified or issues raised as a result of such inspection have been corrected or otherwise resolved.

(d) If appropriated funds from which Payment is to be made have not yet been appropriated or, if appropriated, not yet been made available to NYSERDA, then the Payment Due Date shall be extended by the number of calendar days from the date of Receipt of an Invoice to the date when such funds are made available to NYSERDA.

**504.6. Interest Eligibility and Computation.** If NYSERDA fails to make Prompt Payment, NYSERDA shall pay interest to the Contractor on the Payment when such interest computed as provided herein is equal to or more than ten dollars (\$10.00). Interest shall be computed and accrue at the daily rate in effect on the Date of Payment, as set by the New York State Tax Commission for corporate taxes pursuant to Section 1096(e)(1) of the Tax Law. Interest on such a Payment shall be computed for the period beginning on the day after the Payment Due Date and ending on the Date of Payment.

**504.7. Sources of Funds to Pay Interest.** Any interest payable by NYSERDA pursuant to Exhibit shall be paid only from the same accounts, funds, or appropriations that are lawfully available to make the related Payment.

**504.8. Incorporation of Prompt Payment Policy Statement into Contracts.** The provisions of this Exhibit shall apply to all Payments as they become due and owing pursuant to the terms and conditions of this Agreement, notwithstanding that NYSERDA may subsequently amend its Prompt Payment Policy by further rulemaking.

**504.9. Notice of Objection.** Contractor may object to any action taken by NYSERDA pursuant to this Exhibit that prevents the commencement of the time in which interest will be paid by submitting a written notice of objection to NYSERDA. Such notice shall be signed and dated and concisely and clearly set forth the basis for the objection and be addressed to the Vice President, New York State Energy Research and Development Authority, at the notice address set forth in Exhibit B to this Agreement. The Vice President of NYSERDA, or his or her designee, shall review the

objection for purposes of affirming or modifying NYSERDA's action. Within fifteen (15) working days of the receipt of the objection, the Vice President, or his or her designee, shall notify the Contractor either that NYSERDA's action is affirmed or that it is modified or that, due to the complexity of the issue, additional time is needed to conduct the review; provided, however, in no event shall the extended review period exceed thirty (30) working days.

**504.10. Judicial Review.** Any determination made by NYSERDA pursuant to this Exhibit that prevents the commencement of the time in which interest will be paid is subject to judicial review in a proceeding pursuant to Article 78 of the Civil Practice Law and Rules. Such proceedings shall only be commenced upon completion of the review procedure specified in Section 504.9 of this Exhibit or any other review procedure that may be specified in this Agreement or by other law, rule, or regulation.

**504.11. Court Action or Other Legal Processes.**

(a) Notwithstanding any other law to the contrary, the liability of NYSERDA to make an interest payment to a Contractor pursuant to this Exhibit shall not extend beyond the date of a notice of intention to file a claim, the date of a notice of a claim, or the date commencing a legal action for the payment of such interest, whichever occurs first.

(b) With respect to the court action or other legal processes referred to in subdivision (a) of this section, any interest obligation incurred by NYSERDA after the date specified therein pursuant to any provision of law other than Public Authorities Law Section 2880 shall be determined as prescribed by such separate provision of law, shall be paid as directed by the court, and shall be paid from any source of funds available for that purpose.

New York State Energy Research and Development Authority (NYSERDA)

## 2016 Report Content Guide

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Revised 12/10/2015

(Replaces the 2015 NYSERDA Report Content Guide)

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## Purpose

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This document explains how to prepare and submit a report to the New York State Energy Research and Development Authority (NYSERDA). It includes details on the elements of the report, specifications for formatting and accessibility, and information on electronic submission. Please follow these instructions unless your NYSERDA contract specifies otherwise.

NYSERDA will publish the finished report deliverable online and/or in print unless the NYSERDA Project Manager approves special circumstances. Please direct questions about technical content and submission deadlines to your NYSERDA Project Manager. For questions related to formatting and electronic submission of the report, contact Diane Welch in NYSERDA Marketing at 518-862-1090, ext. 3276 or [Diane.Welch@nysesda.ny.gov](mailto:Diane.Welch@nysesda.ny.gov).

## Required Elements

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Section 6 includes a checklist of the required elements. This section contains details about the items that are required in all reports (unless noted as optional). Items should appear and be paginated in the following sequence:

- Title page (no page number):
  - Include title of report, draft or final, prepared for NYSERDA, NYSERDA Project Manager (name and title), prepared by name of organization, individuals and affiliation, report number (NYSERDA will provide during editing), contract number and date report submitted.
- Notice (small Roman numerals for page numbers i.e., ii):
  - Option 1—When NYSERDA is the project’s sole sponsor, this notice must be used:

### Notice

This report was prepared by [Insert Preparer's Name] in the course of performing work contracted for and sponsored by the New York State Energy Research and Development Authority (hereafter “NYSERDA”). The opinions expressed in this report do not necessarily reflect those of NYSERDA or the State of New York, and reference to any specific product, service, process, or method does not constitute an implied or expressed recommendation or endorsement of it. Further, NYSERDA, the State of New York, and the contractor make no warranties or representations, expressed or implied, as to the fitness for particular purpose or merchantability of any product, apparatus, or service, or the usefulness, completeness, or accuracy of any processes, methods, or other information contained, described, disclosed, or referred to in this report. NYSERDA, the State of New York, and the contractor make no representation that the use of any product, apparatus, process, method, or other information will not infringe privately owned rights and will assume no liability for any loss, injury, or damage resulting from, or occurring in connection with, the use of information contained, described, disclosed, or referred to in this report.

NYSERDA makes every effort to provide accurate information about copyright owners and related matters in the reports we publish. Contractors are responsible for determining and

satisfying copyright or other use restrictions regarding the content of reports that they write, in compliance with NYSERDA's policies and federal law. If you are the copyright owner and believe a NYSERDA report has not properly attributed your work to you or has used it without permission, please email [print@nyserda.ny.gov](mailto:print@nyserda.ny.gov).

- Option 2—When there are project co-sponsors in addition to NYSERDA, use the following notice instead:

#### Notice

This report was prepared by [Insert Preparer's Name] in the course of performing work contracted for and sponsored by the New York State Energy Research and Development Authority and the [Insert Co-Sponsor's Name] (hereafter the "Sponsors"). The opinions expressed in this report do not necessarily reflect those of the Sponsors or the State of New York, and reference to any specific product, service, process, or method does not constitute an implied or expressed recommendation or endorsement of it. Further, the Sponsors, the State of New York, and the contractor make no warranties or representations, expressed or implied, as to the fitness for particular purpose or merchantability of any product, apparatus, or service, or the usefulness, completeness, or accuracy of any processes, methods, or other information contained, described, disclosed, or referred to in this report. The Sponsors, the State of New York, and the contractor make no representation that the use of any product, apparatus, process, method, or other information will not infringe privately owned rights and will assume no liability for any loss, injury, or damage resulting from, or occurring in connection with, the use of information contained, described, disclosed, or referred to in this report.

NYSERDA makes every effort to provide accurate information about copyright owners and related matters in the reports we publish. Contractors are responsible for determining and satisfying copyright or other use restrictions regarding the content of the reports that they write, in compliance with NYSERDA's policies and federal law. If you are the copyright owner and believe a NYSERDA report has not properly attributed your work to you or has used it without permission, please email [print@nyserda.ny.gov](mailto:print@nyserda.ny.gov).

- Abstract and Keywords (optional; small Roman numerals for page numbers):
  - The Abstract is a brief, approximately 200-word description of project objectives, investigative methods used, and research conclusions or applications. This information will be used when NYSERDA registers the report with the New York State Library and the Library of Congress. A list of keywords that describe the project and identify the major research concept should be submitted with the report. Four to six precise descriptors are generally sufficient and will be used for indexing, registering and distributing the report.
- Acknowledgments (optional; small Roman numerals for page numbers):
  - If included, the Acknowledgments page precedes the Table of Contents and is generally no longer than two paragraphs in length.
- Table of Contents (small Roman numerals for page numbers):
  - The Table of Contents should list front matter material (except the Table of Contents) and titles and section numbers for heading levels one through four. Additional levels should not

be used in the report. If the heading styles are applied in Word, the list can be automatically generated.

- List of Figures (small Roman numerals for page numbers).
  - If the report contains three or more figures, they should be listed using the style of the Table of Contents. (If the figure titles in text have the caption function applied in Word, the list can be automatically generated.)
- List of Tables (small Roman numerals for page numbers).
  - If the report contains three or more tables, they should be listed using the style of the Table of Contents. (If the figure titles in text have the caption function applied in Word, the list can be automatically generated.)
- Acronyms and Abbreviations List (small Roman numerals for page numbers):
  - All acronyms and abbreviations should be spelled out and followed by the acronym or abbreviation in parentheses on first use.
  - First reference to NYSERDA in text should be “the New York State Energy Research and Development Authority (NYSERDA).” Subsequent references should read simply “NYSERDA.”
  - When referring to New York State, use “New York State” on first use and abbreviate “the State” for subsequent uses.
  - Use a one- or two-column layout for the list, but do not use a table.
- Executive Summary or Summary (optional; ES-1 or S-1 etc. for page numbers of Executive Summary and Summary, respectively):
  - An Executive Summary is two pages in length maximum. A Summary is a shorter version of the report and varies in length but less than 10 percent of the main report is a good guideline.
- Main Text (sequentially numbered pages i.e., 1, 2, 3 etc. preferred, but chapter-page numbering is acceptable).
- Figures and tables with sequential numbering (Figure 1, Figure 2, etc. preferred but sequential chapter-number are acceptable), callouts in text (i.e., Figure 1 shows...) and Alternative Text to comply with ADA Accessibility are required. Refer to ADA guidelines for the best way to represent data with reference to colors. Preferences for tables are listed in this document.
  - Figures and tables at the back of the document are preferred for documents that NYSERDA will be formatting; figures and tables placed in-line with text near callout is acceptable. Do not use wrap text.
- References Cited and Bibliography information (as needed; continue sequential page numbering):
  - References Cited vs. Bibliography: References Cited has specific references called out in text to document sources of specific information, and a bibliography is a list of sources used to compile a document but does not have callouts for specific facts in the text.
  - Endnote style for reference citations is preferred but footnotes are acceptable.
  - Format of reference callout in text for footnote or endnote is the author-date callout in text (i.e., Wood and Stone 2010).

- Full reference citations listed alphabetically by the last name of the first author.
- Citation format is based on Chapter 15 (Documentation II: Author-Date References) of The Chicago Manual of Style (16th edition).
- Use the following format to refer to reports published by NYSERDA:

New York State Energy Research and Development Authority (NYSERDA). Year of publication. “Title of Report,” NYSERDA Report Number xx-yy. Prepared by organization, company or individual names and city/state location (optional).  
 nysERDA.ny.gov/publications

- Appendices (optional; A-1 etc for Appendix A, B-1 etc for Appendix B page numbering):
  - In NYSERDA reports, Appendices should be called appendices and not Attachments. Attachments are used to append a document to an appendix. (Attachments may have different definitions in emails and legal documents.)
- Alternative text that describes figures and tables to meet Accessibility requirements. (A separate Word file is fine—see Section 2.2 for more details).

## Copyright for Intellectual Property

All material borrowed or adapted from other sources should be properly identified (i.e., document, source, date, and page). The contractor must obtain and submit to NYSERDA the copyright owner’s written permission to use any illustrations, photographs, tables, figures, or substantial amounts of text from any other publication.

For each figure and table, the contractor must also provide a source line that gives the original source and any language stating permission to reprint that should be published with each respective table or figure.

## Proprietary or Confidential Information

Propriety or confidential information must be clearly labeled in the report submission as “proprietary” or “confidential.” To the extent possible, the information should be contained within one section or appendix that can be easily removed prior to publishing. Consult your NYSERDA Project Manager with any questions.

## Americans with Disabilities Act (ADA) Accessibility Compliance

As a State Authority, NYSERDA is obligated to ensure that all documents published on NYSERDA’s website are accessible, pursuant to Section 508 of the Rehabilitation Act (29 U.S.C. 794d), as amended by the Workforce Investment Act of 1998 (P.L. 105-220 August 7, 1998).

To meet the needs of persons with visual or mobility disabilities, reports must be in a format that allows for conversion of written words of an electronic document into speech, thus allowing the person with a disability to hear the text. The formatting of these documents is critical to the success of the conversion from text to speech. Screen reading software will read the document as one long series of paragraphs with no differentiation for new topics unless properly formatted with Heading Styles. (Imagine reading a textbook with no difference in text from one paragraph to the next.)

Reports submitted to NYSERDA must meet the following requirements:

- Use numbered headings in the document up to Level 4 (i.e., 1.1.1.1).
- Pick one of the formatting options outlined in Section 3 of this document.
- Provide short titles for all tables, images, and figures.
- Provide Alternative Text (also known as alt-text) that describes the visual elements of each image and figure—and does not just repeat the title or caption. Include alt text for any tables that are inserted as images.
  - Write out links in documents that will be printed. Write the sentence so that the URL is not at the end and followed by a period. See the last bulleted item for an example (“Visit...”).
  - Avoid linking to “click here” or including extremely long URLs. For web-only documents, use contextual links, such as linking NYSERDA’s website to “NYSERDA” instead of putting a long URL in text.
  - Visit <https://www.nyserda.ny.gov/Doing-Business-with-NYSERDA> for more information about how to make a document accessible.

## Formatting

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Contractors have two options for the format of a submitted document:

### Option 1—NYSERDA does the formatting

- Contractor emails to NYSERDA Project Manager a Word file of all report components with all text in Times New Roman 10 pt font.
- File should include outline level numbering with each section head (1 is Level 1 Heading, 1.1 is Level 2 Heading, 1.1.1 is Level 3 Heading, 1.1.1.1 is Level 4 Heading), not to exceed Level 4.
- Each figure and table should have a call-out in the main text (i.e., Figure 1 shows... or According to Figure 1,... or (Figure 1) at the end of a sentence).
- Figures and tables along with their titles and sources (and captions if necessary) should be grouped together at the back of the file or supplied in a separate file. Contractor can request inline or back-of-report placement of figures.
- NYSERDA will format the document according to the 2016 NYSERDA Marketing’s Template for Reports.

### Option 2—Contractor does the formatting

- Visit <https://www.nyserda.ny.gov/Doing-Business-with-NYSERDA> to download:
  - Report template (2016 NYSERDA Marketing’s Template for Reports).
  - Details about report formatting (2016 NYSERDA Report Formatting Guide).
- Apply each of the Word Styles in the template to the elements of the document as appropriate, such as apply Heading 1 to all first-level headings, Body Text to all body text and References to reference materials. Place figures and captions after each respective call-out OR in order at the back of the report.

## Submitting a Report to NYSERDA

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No print drafts of the report are required. An electronic Word version of the draft report should be emailed to the NYSERDA Project Manager. Contact the Project Manager regarding how to transfer large files. The contractor is responsible for satisfactorily addressing comments from NYSERDA and other stakeholders. When making corrections, the contractor must ensure that technical content is not compromised. After editorial corrections have been made, the contractor must email to the Project Manager a Word version of the final report. NYSERDA will consider high-resolution image submissions for report covers.

## Contacts

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- The NYSERDA Project Manager should be the contractor's primary point of contact.
- For additional questions, contact Diane Welch in NYSERDA Marketing at [Diane.Welch@nyserda.ny.gov](mailto:Diane.Welch@nyserda.ny.gov) or 518-862-1090 ext. 3276.
- Contractors can also email [print@nyserda.ny.gov](mailto:print@nyserda.ny.gov) or call 518-862-1090 and ask for Marketing.

## Required Elements Checklist

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The following elements should be included in reports, unless noted as optional, along with the style of page numbers is listed in parentheses:

- Title page (no page number).
- Notice (small Roman numeral page numbers, i.e., ii).
- Abstract
- Keywords (optional; small Roman numerals).
- Acknowledgments (optional; small Roman numerals).
- Table of Contents (small Roman numerals).
- List of Figures (small Roman numerals).
- List of Tables (small Roman numerals).
- Acronyms and Abbreviations List (small Roman numerals).
- Executive Summary or Summary (optional; ES-1 or S-1 etc).
- Main Text (pages sequentially numbered i.e., 1, 2, 3 etc.).
- Figures and tables with sequential numbering (Figure 1, Figure 2, etc.), callouts in text (i.e., Figure 1 shows...), and Alt Text for ADA Accessibility.
  - Figures and tables at the back of the document are preferred for documents that NYSERDA will be formatting; figures and tables placed in-line with text after first callout are acceptable. Do not wrap text.
- References Cited and Bibliography information.
- Appendices (optional; page numbering is A-1 etc. for Appendix A, B-1 etc. for Appendix B).
- Copyright information for intellectual property (i.e., images, figures, tables or large pieces of text that have been previously published)—include written permission from the copyright holder

at the end of the document and use appropriate language in the captions of the images, figures and tables such as “Reprinted with permission from [publisher’s name].”

- Alternative text that describes each image and figure (include Alt text for tables that are included as images) —and does not just repeat the title or caption. (See Section 2.3 for more information.) The text should be listed at the end of the document or provided in a separate file.

## WEB-RELATED CONTRACT ADDENDUM

Addendum to Agreement between **NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY** (“NYSERDA”) and the \_\_\_\_\_ (“the Contractor”). This Addendum is made a part of the Agreement to which it is attached.

### Section 1. Definitions.

- A) **Contractor Content** refers to the dynamic web pages and static content, developed under this Agreement and includes, but is not limited to text HTML (Hyper-Text Markup Language), image, audio, video, server and browser based scripts and programs, and other presentation materials and computer files designed to be presented to a web browser by a web server using standard Internet protocols and accessible through a URL (Universal Resource Locator) address.
- B) **Contractor Tools** means the software tools of general application, whether in the public domain, or owned or licensed to the Contractor, which are used to develop the Web Site.
- C) **Data** includes, *[fill in or state “none”]*
- D) **Documentation** means the documentation for all materials necessary to develop, implement, and maintain a fully functional Web Site as developed by Contractor.
- E) **Error** means any failure of the Web Site (i) to meet the specifications in the Statement of Work or the Section of this Addendum addressing hosting requirements and/or (ii) to operate with the hardware or software owned or licensed by the selected Internet Service Provider.
- F) **Final Version** means a non-copy protected and unencrypted digital master of the final version of the Web Site, recorded in executable form on the specified medium with any necessary supporting software and data, as to which all development work hereunder has been completed and which meets all requirements of the Statement of Work.
- G) **Licensed Content** includes, *[fill in or state “none”]*
- H) **Licensed Software and Tools** includes, *[fill in or state “none”]*
- I) **NYSERDA Content** includes, but is not limited to text, HTML, image, audio, video, server and Browser based scripts and programs and other presentation materials provided by NYSERDA.
- J) **Open Source Software and Tools** includes, *[fill in or state “none”]*
- K) **Public Domain** means property rights that are held by the public at large.

L) **Server Environment** means the Web Site Content, Open Source Software and Tools, and Licensed Software and Tools that make up the presentation layer, business logic layer, and persistence layer.

M) **Web Site Content** includes the Contractor Content, NYSERDA Content, Licensed Content and all Data presented in the Web Site.

N) **Web Site** shall mean the Server Environment, and related systems and non-server hardware necessary to implement, operate and maintain the Final Version.

Section 2. Warranties and Representations. Contractor warrants and represents that:

(A) The Contractor has been informed that NYSERDA intends to use the equipment supplied and work performed under this Contract, or that Contractor will do so upon NYSERDA's behalf or in accordance with the Agreement, for *[specify particular purpose of NYSERDA]* and that NYSERDA is relying on the Contractor's skill and judgment to select or furnish equipment suitable for that purpose. The Contractor warrants that the equipment and work performed will be fit for the particular purpose of NYSERDA.

(B) The Web Site (1) will be of high quality and free of viruses and defects in material and workmanship in all material respects; and (2) will conform in all respects to the functional and other descriptions contained in the specifications for the Web Site as set forth herein and in the Statement of Work. For a period of one year after the date of acceptance of the Final Version by NYSERDA (the "Warranty Period"), Contractor agrees to fix at its own expense any Errors.

(C) Any information or materials developed for, or any advice provided to NYSERDA, shall not rely or in any way be based upon confidential or proprietary information or trade secrets obtained or derived by Contractor from sources other than NYSERDA unless Contractor has received specific authorization in writing to use such proprietary information or trade secrets.

(D) Notwithstanding the definition of Licensed Content, the use, public display, public performance, reproduction, distribution, or modification of the Web Site does not and will not violate the rights of any third parties, including, but not limited to, copyrights, trade secrets, trademarks, service marks, publicity, privacy, and patents. The use of the Contractor Tools and any other software in the Web Site does not and will not violate the rights of any third parties, including but not limited to, copyrights, trade secrets, trademarks, service marks, publicity, privacy, and patents.

(E) The Contractor's performance of this Agreement will not conflict with any other contract to which Contractor is bound, and while developing the Web Site. The Contractor will not engage in any such consulting services or enter into any agreement in conflict with this Agreement, or that which demonstrably, negatively affects this Agreement.

(F) The Contractor Content and the Documentation was or will be created solely by Contractor's employees during the course of their employment, or independent contractors who assigned or will assign all right, title and interest worldwide in their work to Contractor.

(G) Contractor is the owner of all right, title and interest in the tangible forms of the Contractor Content and Documentation and all intellectual property rights protecting them. The Contractor Content and Documentation and the intellectual property rights protecting them are free and clear of all encumbrances, including, without limitation, security interests, licenses, liens, charges or other restrictions.

(H) The Contractor Content and the Documentation are not in the Public Domain.

(I) The Final Version shall not be defamatory, trade libelous, unlawfully threatening or unlawfully harassing or contain any viruses or other computer programming routines that are intended to damage, detrimentally interfere with, surreptitiously intercept or expropriate any system, data or personal information.

Section 3. Proprietary Rights.

(A) NYSERDA's Ownership Rights. Contractor acknowledges and agrees that except as stated in subsection (C) of this section, the Contractor Content, Data, and Documentation, are and shall be the property of NYSERDA. Title to any and all now known or hereafter known tangible and intangible intellectual property rights including but not limited to copyrights, trademarks, service marks, patents and trade secrets in the Contractor Content, Data, and Documentation is with, and shall remain with NYSERDA.

(B) Assignment of Rights. Except as provided in subsection (C) of this section, Contractor hereby irrevocably assigns, conveys and otherwise transfers to NYSERDA, and its respective successors and assigns, all rights, title and interests worldwide in and to the Contractor Content, Data, and Documentation and all copyrights, trade secrets, patents, trademarks, service marks and other intellectual property rights and all contract and licensing rights, and all claims and causes of action of any kind with respect to any of the foregoing, whether now known or hereafter to become known. In the event Contractor has any rights in and to the Contractor Content, Data, and Documentation that cannot be assigned to NYSERDA, Contractor hereby unconditionally and irrevocably waives the enforcement of all such rights, and all claims and causes of action of any kind with respect to any of the foregoing against NYSERDA, its distributors and customers, whether now known or hereafter to become known and agrees, at the request and expense of NYSERDA and its respective successors and assigns, to consent to and join in any action to enforce such rights and to procure a waiver of such rights from the holders of such rights. In the event Contractor has any rights in and to the Contractor Content, Data, and Documentation that cannot be assigned to NYSERDA and cannot be waived, Contractor hereby grants to NYSERDA, and its respective successors and assigns, an exclusive, worldwide, royalty-free, perpetual license to reproduce, distribute, modify, publicly perform and publicly display, with the right to sublicense through multiple tiers of sublicensees and assign such rights in and to the Contractor Content, Data, and the Documentation including, without limitation, the right to use in any way whatsoever the Contractor Content, Data, and Documentation. Contractor retains no rights to use the Contractor Content, Data, and Documentation except as stated in subsection (E) of this section and agrees not to challenge the validity of the copyright ownership by NYSERDA in the Contractor Content, Data, and Documentation. In the event that any development work under this Agreement is to be performed by a subcontractor, Contractor agrees to include the provisions contained in this subsection in any such subcontract.

(C) Ownership of Components. Except as specifically provided in the definition of Contractors Content, the Contractor grants to NYSERDA a royalty-free, worldwide, perpetual, irrevocable, assignable, nonexclusive license, with the right to sublicense through multiple tiers of sublicensees, to use, reproduce, distribute, modify, publicly perform, publicly display, digitally perform, make, have made, sell, offer for sale, or transfer without compensation the Retained Components on the Web Site or any Web site operated by or for NYSERDA and related marketing material.

(D) Power of Attorney. Contractor agrees to execute, when requested, patent, copyright, or similar applications and assignments to NYSERDA, and any other lawful documents deemed necessary by NYSERDA to carry out the purpose of this Agreement. Contractor further agrees that the obligations and undertaking stated in this subsection (D) will continue beyond the termination of this Agreement. In the event that NYSERDA is unable for any reason whatsoever to secure Contractor's signature to any lawful and necessary document required to apply for or execute any patent, copyright or other applications with respect to the Contractor Content and Documentation (including improvements, renewals, extensions, continuations, divisions or continuations in part thereof), Contractor hereby irrevocably designates and appoints NYSERDA and its duly authorized officers and agents as Contractor's agents and attorneys-in-fact to act for and in Contractor's behalf and instead of Contractor, to execute and file any such application and to do all other lawfully permitted acts to further the prosecution and issuance of patents, copyrights or other rights thereon with the same legal force and effect as if executed by Contractor.

(E) License to Web Site Content and NYSERDA Content. NYSERDA grants to Contractor a nonexclusive, worldwide license to reproduce and modify NYSERDA Content and the Contractor Content for the sole purpose of developing and maintaining the Web Site.

*[choose and insert one "(F)" below, as appropriate]*

(F) Licenses to Third-Party Content. Contractor shall be responsible for obtaining and paying for any necessary licenses to use third-party content other than the third-party content listed on Schedule "A" as NYSERDA Content. NYSERDA shall be responsible for obtaining and paying for any necessary licenses to use third-party content listed on Schedule "A". *[Make sure Schedule "A" is attached to the addendum.]*

or

(F) Licenses to Third-Party Content. Contractor shall be responsible for obtaining and paying for any necessary licenses to use third-party content.

(G) Licenses to Contractor Tools and Other Software. Contractor shall be responsible for obtaining licenses for and paying license fees for any Contractor Tools used in this project that are not owned by Contractor and for obtaining licenses for and paying license fees for any other software used in this project *[, including but not limited to [specify those known at time of contracting]]* that is not owned by Contractor.

*[Domain Name subsection to be included if Web Site will use a Domain Name registered to NYSERDA]*

(H) NYSERDA's Domain Name. Any domain name registered in connection with the Work performed under this Agreement shall remain the sole property of NYSERDA. Contractor acknowledges that Contractor has no right to use NYSERDA's domain name other than in connection with the Web Site development and maintenance project covered in this Agreement. If Contractor registers NYSERDA's domain name, the Contractor shall specify NYSERDA's Manager of Computer Systems, or such other NYSERDA employee as NYSERDA shall direct Contractor in writing, as the administrative and technical contact when registering the domain name.

#### Section 4. Confidentiality.

(A) Confidential Information. Information from or regarding a third party and obtained by, through, from, or as a result of this Agreement or the Web Site, either directly or indirectly, and any Web Site Content or other information or materials, whether or not from or regarding a third party, which NYSERDA designates as confidential, including any passwords used in connection with the Web Site. Nothing in this section shall in any way be interpreted as superseding any right or obligation NYSERDA might have to disclose, or not disclose, any third party information pursuant to the New York State Freedom of Information Law or other applicable law.

(B) Restrictions on Use. Contractor agrees that except as authorized in writing by NYSERDA: (i) Contractor will preserve and protect the confidentiality of all Confidential Information; (ii) Contractor will not disclose to any third party, the existence, source, content or substance of the Confidential Information or make copies of Confidential Information; (iii) Contractor will not deliver Confidential Information to any third party, or permit the Confidential Information to be removed from Contractor's premises; (iv) Contractor will not use Confidential Information in any way other than to develop or maintain the Web Site or perform its obligations under the Statement of Work as provided in this Agreement; (v) Contractor will not disclose, use or copy any third party information or materials received in confidence by Contractor for purposes of work performed under this Agreement.

(C) Limitations. Information shall not be considered to be Confidential Information if Contractor can demonstrate that it (i) is already or otherwise becomes publicly known through no act of Contractor; (ii) can be shown by Contractor to have been independently developed by it without use of the Confidential Information; or (iii) is

authorized in writing by NYSERDA to be disclosed, copied or used.

Section 5. Accessibility. Any web-based information and applications development, or programming delivered pursuant to the contract or procurement, will comply with New York State Enterprise Information Technology Policy NYS-P08-005, Accessibility of Web-Based Information and Applications as such policy may be amended, modified or superseded, which requires that state agency web-based information and applications are accessible to persons with disabilities. Web-based information and applications must conform to New York State Enterprise Information Technology Policy NYS-P08-005 as determined by quality assurance testing. Such quality assurance testing will be conducted by the contractor and the results of such testing must be satisfactory to NYSERDA before web-based information and applications will be considered a qualified deliverable under the contract or procurement.

Section 6. Privacy Policy Statement. Contractor shall develop from the draft provided in Appendix 1, an appropriate privacy statement for the Web Site, which privacy statement must address, at a minimum, the issues of: notice, choice, access, security and, as applicable, enforcement, with respect to the information obtained from or learned about visitors to the Web Site. ***[The privacy statement must be approved in advance by NYSERDA and must be posted on the Web Site as instructed by NYSERDA,] prior to the web site going live.***

Section 7. Disclaimer Statement. Contractor shall post the Disclaimer Statement as provided in Appendix 2 on the Web Site prior to being available to the public as provided by NYSERDA.

Section 8. Hosting.

(A) Standards. Contractor's hosting of the Web Site shall conform to the following:

(i) Availability. The Web Site shall be publicly available to users a minimum of 99.9% of the time, exclusive of a daily maintenance window between 2:00 a.m. and 5:00 a.m. EST. In cases of needed maintenance that affect Web Site availability, written notification must be provided to NYSERDA no later than 24 hours in advance.

(ii) Security. Contractor shall comply with New York State Enterprise Information Security Office (EISO), Cyber Security Policy P03-002, NYSERDA's Information Security Policy, and other New York State policies/procedures including but not limited to prevent unauthorized access to restricted areas of the Web Site and any databases or other sensitive material generated from or used in conjunction with the Web Site; and Contractor shall notify NYSERDA's Information Security Office as soon as possible of any known security breaches or holes. Questions concerning this policy may be directed to the EISO (518) 474-0865, attn: Director. Or visit EISO at <https://www.its.ny.gov/eiso>.

(iii) Inapplicability of Force Majeure. The foregoing standards shall apply regardless of the cause of the interruption in service, even if the interruption in service was beyond the control of the Contractor.

(B) Maintenance. Contractor shall provide all hosting related maintenance for the Web Site on an ongoing basis during the term of the Agreement, including backups, server maintenance, and troubleshooting.

(C) Site Backup. Contractor shall maintain daily backups of the Server Environment sufficient to reestablish a fully functional site within 5 business days. Such backups shall be made available to NYSERDA within 3-5 business days upon request.

(D) Activity Logs. Contractor shall configure its web servers to capture standard visitor log information needed to provide detailed traffic/site performance reports for the Web Site. Contractor shall provide such traffic/site performance reports and access to activity data to NYSERDA on a monthly basis. Preferred platform for activity logs is

Google Analytics.

(E) Termination During Web Site Hosting. In the event of expiration or termination of this Agreement while Contractor is providing Web hosting services, Contractor shall download all materials on the Web Site to a medium of NYSERDA's choosing and deliver such materials to NYSERDA within 3-5 business days of expiration or termination of this Agreement. In addition, at no cost to NYSERDA, Contractor shall: (a) keep the Web Site publicly accessible for a period of 90 days following the date of termination of this Agreement; (b) if the transfer requires a change in the Domain Name, immediately upon the date that the Web Site is no longer publicly accessible, and for a period of 12 months thereafter, maintain the Web Site's URL and, at such URL, provide 1 page (including a hypertext link) that NYSERDA may use to direct its users to its new Web Site or some other URL of NYSERDA's choosing; and (c) if the transfer does not require a change in the Domain Name, cooperate with NYSERDA in assigning a new IP address to the Domain Name as NYSERDA may request and transferring all operations of the Web Site to a new provider.

Section 9. Termination. In the event this Agreement is terminated by NYSERDA pursuant to the provisions of Article XII, NYSERDA will have the right, in addition to all of its other rights, to require Contractor to deliver all of Contractor's completed work and work in progress, including all originals and copies thereof, as well as any other materials provided to Contractor by NYSERDA or third parties, or created by Contractor under this Agreement. Any payments made pursuant to Articles IV and XII of this Agreement shall be deemed payment in full for all of such work in progress, including full payment for all source code, object code, documentation, notes, graphics, and all other materials and work relating to the portion of the Web Site and the assignment or licenses of rights relating to the Web Site which has been completed as of the time of termination. Subject to Contractor's obligations under the provision of this Addendum addressing Termination During Web Site Hosting, Contractor shall remove all copies of the Web Site Content from servers within its control and use reasonable efforts to remove any reference to NYSERDA or the Web Site Content from any site which caches, indexes or links to the Website. This Addendum shall survive termination of this Agreement.

Section 10. Portability Requirement. Contractor shall develop the Web Site in such manner that a fully functional site can be reestablished from Contractor's servers to the servers of NYSERDA or the servers of a specific third party designated by NYSERDA within 3-5 business days without losing functionality or operation.

Section 11. Creative Control. The parties acknowledge that NYSERDA possesses final creative control over all content including that which is developed by Contractor.

Section 12. Conflicts. To the extent that any provision of this Addendum conflicts with any provision of the balance of the Agreement, the provisions contained in this Addendum shall control.

Section 13. Subcontractor Contracts. Contractor shall cause each subcontractor which is to perform work to be performed pursuant to this Addendum and those provisions of the Statement of Work related to Web Site Content or a Web Site to execute a contract regarding confidentiality and assignment of rights prior to each such individual or company's commencement of services thereunder. Such subcontracts shall (in addition to any provisions required pursuant to Article V): (a) include a full assignment of all rights to NYSERDA, (b) include a waiver of any moral or similar rights, (c) be freely assignable, and (d) contain restrictions on use and disclosure at least as protective of NYSERDA's interests as those contained in this Addendum. The Contractor shall submit to NYSERDA's Contract Administrator for review and approval any subcontracts(s) for work to be performed pursuant to this Addendum and those provisions of the Statement of Work related to a Web Site. All provisions of Article V not specifically in conflict with this Section shall continue to apply.

## APPENDIX NO.1

### INTERNET PRIVACY POLICY

#### 1. Introduction

Thank you for visiting the New York State Energy Research and Development Authority's ("NYSERDA") website. This website is designed to make it easier and more efficient for individuals and businesses to interact with NYSERDA. NYSERDA recognizes that it is critical for individuals and businesses to be confident that their privacy is protected when they visit NYSERDA's website.

Consistent with the provisions of the Internet Security and Privacy Act, the Freedom of Information Law, and the Personal Privacy Protection Law, this policy describes NYSERDA's privacy practices regarding information collected from *users* of this website. This policy describes **what** information is collected and **how** that information is used. Because this privacy policy only applies to this website, you should examine the privacy policy of any website, including other *state agency websites*, that you access using this website.

For purposes of this policy, "*personal information*" means any information concerning a natural person who, because of name, number, symbol, mark, or other identifier, can be used to identify that natural person. **NYSERDA does not collect any personal information about you unless you provide that information voluntarily by sending an e-mail, responding to a survey, or completing an on-line transaction.**

**Information Collected Automatically When You Visit this Website** When visiting this website NYSERDA may automatically collect and store the following information about your visit:

- (i) *User* client hostname. The hostname or Internet Protocol address of the *user* requesting access to a *state agency website*.
- (ii) HTTP header, "*user agent*." The *user agent* information includes the type of browser, its version, and the operating system on which that the browser is running.
- (iii) HTTP header, "*referrer*." The referrer specifies the web page from which the *user* accessed the current web page.
- (iv) System date. The date and time of the *user's* request.
- (v) Full request. The exact request the *user* made.
- (vi) Status. The status code the server returned to the *user*.
- (vii) Content length. The content length, in bytes, of any document sent to the *user*.

- (viii) Method. The request method used.
- (ix) Universal Resource Identifier (URI). The location of a resource on the server.
  
- (x) Query string of the URI. Anything after the question mark in a URI.
  
- (xi) Protocol. The transport protocol and the version used.

None of the foregoing information is deemed to constitute *personal information*.

The information that is collected is automatically used to improve this website's content and to help NYSERDA understand how *users* are interacting with the website. This information is collected for statistical analysis, to determine what information is of most and least interest to our *users*, and to improve the use of the material available on the website. The information is not collected for commercial marketing purposes and NYSERDA is not authorized to sell or otherwise disclose the information collected from the website for commercial marketing purposes.

#### **Cookies**

Cookies are simple text files stored on your web browser to provide a means of distinguishing among *users* of this website. The use of cookies is a standard practice among Internet websites. To better serve you, we occasionally use "session cookies" to enhance or customize your visit to this website. Session cookies can be created automatically on the device you use to access this website but do not contain *personal information* and do not compromise your privacy or security. We may use the cookie feature to store a randomly generated identifying tag on the device you use to access this website. A session cookie is erased during operation of your browser or when your browser is closed.

If you wish, you may complete a registration to personalize this website and permit a "persistent cookie" to be stored on your computer's hard drive. This persistent cookie will allow the website to recognize you when you visit again and tailor the information presented to you based on your needs and interests. NYSERDA will use persistent cookies only with your permission.

The software and hardware you use to access the website allows you to refuse new cookies or delete existing cookies. Refusing or deleting these cookies may limit your ability to take advantage of some features of this website.

#### **Information Collected When You E-mail this Website or Complete a Transaction**

During your visit to this website you may send an e-mail to NYSERDA. Your e-mail address and the contents of your message will be collected. The information collected is not limited to text characters and may include audio, video, and graphic information formats included in the message. Your e-mail address and the information included in your message will be used to respond to you, to address issues you identify, to improve this website, or to forward your message to another State agency for appropriate action. Your e-mail address is not collected for commercial purposes and NYSERDA is not authorized to sell or otherwise disclose your e-mail address for commercial purposes.

During your visit to this website you may complete a transaction such as a survey, registration, or order form. The information, including *personal information*, volunteered by you in completing the transaction may be used by NYSERDA to operate NYSERDA's programs, which include the provision of goods, services, and information. The information collected by NYSERDA may be disclosed by NYSERDA for those purposes that may be reasonably ascertained from the nature and terms of the transaction in which the information was submitted.

NYSERDA does not knowingly collect *personal information* from children or create profiles of children through this website. *Users* are cautioned, however, that the collection of *personal information* submitted in an e-mail will be treated as though it was submitted by an adult, and may, unless exempted from access by federal or State law, be subject to public access. NYSERDA strongly encourages parents and teachers to be involved in children's Internet activities and to provide guidance whenever children are asked to provide *personal information* on-line.

#### **Information and Choice**

As noted above, NYSERDA does not collect any *personal information* about you unless you provide that information

voluntarily by sending an e-mail, responding to a survey, or completing an on-line form. You may choose **not** to send us an e-mail, respond to a survey, or complete an on-line form. While your choice not to participate in these activities may limit your ability to receive specific services or products through this website, it will not normally have an impact on your ability to take advantage of other features of the website, including browsing or downloading information.

#### **Disclosure of Information Collected Through This Website**

The collection of information through this website and the disclosure of that information are subject to the provisions of the Internet Security and Privacy Act. NYSEDA will only collect *personal information* through this website or disclose *personal information* collected through this website if the *user* has consented to the collection or disclosure of such *personal information*. The voluntary disclosure of *personal information* to NYSEDA by the *user*, whether solicited or unsolicited, constitutes consent to the collection and disclosure of the information by NYSEDA for the purposes for which the *user* disclosed the information to NYSEDA, as was reasonably ascertainable from the nature and terms of the disclosure.

However, NYSEDA may collect or disclose *personal information* without consent if the collection or disclosure is: (1) necessary to perform NYSEDA's statutory duties, or necessary for NYSEDA to operate a program authorized by law, or authorized by state or federal statute or regulation; (2) made pursuant to a court order or by law; (3) for the purpose of validating the identity of the *user*; or (4) of information to be used solely for statistical purposes that is in a form that cannot be used to identify any particular person.

Further, the disclosure of information, including *personal information*, collected through this website is subject to the provisions of the Freedom of Information Law and the Personal Privacy Protection Law.

NYSEDA may disclose *personal information* to federal or state law enforcement authorities to enforce its rights against unauthorized access or attempted unauthorized access to NYSEDA's information technology assets.

#### **Retention of Information Collected Through this Website**

The information collected through this website is retained by NYSEDA in accordance with the records retention and disposition requirements of the New York State Arts & Cultural Affairs Law. Information on the requirements of the Arts & Cultural Affairs Law may be found at [http://www.archives.nysed.gov/records/mr\\_retention.shtml](http://www.archives.nysed.gov/records/mr_retention.shtml). In general, the Internet services logs of NYSEDA, comprising electronic files or automated logs created to monitor access and use of Agency services provided through this website, are retained for the equivalent of three backup cycles and then destroyed. Information, including *personal information*, that you submit in an e-mail or when you complete a survey, registration form, or order form is retained in accordance with the records retention and disposition schedule established for the records of the program unit to which you submitted the information. Information concerning these records retention and disposition schedules may be obtained through the Internet privacy policy contact listed in this policy.

#### **Access to and Correction of Personal Information Collected Through this Website**

Any *user* may submit a request to NYSEDA's privacy compliance officer to determine whether *personal information* pertaining to that *user* has been collected through this website. Any such request shall be made in writing and must be accompanied by reasonable proof of identity of the *user*. Reasonable proof of identity may include verification of a signature, inclusion of an identifier generally known only to the *user*, or similar appropriate identification. Requests should be addressed to:

New York State Energy Research and Development Authority  
Attn: Privacy Compliance Officer  
17 Columbia Circle  
Albany, New York 12203-6399

The privacy compliance officer shall, within five (5) business days of the receipt of a proper request, provide access to the *personal information*, should any exist; deny access in writing, explaining the reasons therefore; or acknowledge the receipt of the request in writing, stating the approximate date when the request will be granted or denied, which date shall not be more than thirty (30) days from the date of the acknowledgment.

In the event that NYSEDA has collected *personal information* pertaining to a *user* through the NYSEDA website

and that information is to be provided to the *user* pursuant to the *user's* request, the privacy compliance officer shall inform the *user* of his or her right to request that the *personal information* be amended or corrected under the procedures set forth in section 95 of the Public Officers Law.

#### **Confidentiality and Integrity of Personal Information Collected Through this Website**

NYSERDA is strongly committed to protecting *personal information* collected through this website against unauthorized access, use or disclosure. Accordingly, NYSERDA limits employee access to *personal information* collected through this website to only those employees who need access to the information in the performance of their official duties. Employees who have access to this information follow appropriate procedures in connection with any disclosures of *personal information*.

In addition, NYSERDA has implemented procedures to safeguard the integrity of its information technology assets, including, but not limited to, authentication, monitoring, auditing, and encryption. These security procedures have been integrated into the design, implementation, and day-to-day operations of this website as part of our continuing commitment to the security of electronic content as well as the electronic transmission of information.

For website security purposes and to maintain the availability of the website for all *users*, NYSERDA may employ software to monitor traffic to identify unauthorized attempts to upload or change information or otherwise damage this website.

#### **Disclaimers**

Information is provided on this website to allow the public immediate access to public information. Every reasonable attempt is made to provide only accurate, current and reliable information. However, NYSERDA, its officers, agents and employees expressly disclaim any express or implied warranty or representation as to the accuracy, completeness, currency, suitability or reliability of any information provided by this website.

In order to provide *users* with certain information, this website may provide links to other websites including local, State, and federal governmental agencies. A website link does not constitute an endorsement of the content, viewpoint, accuracy, opinions, policies, products, services or accessibility of that website. Once you link to another website from this website, including one maintained by the State, you become subject to the terms and conditions of that website including, but not limited to, its privacy policy.

Further, the information provided in this privacy policy should not be construed as giving business, legal, or other advice.

#### **Contact Information**

For questions regarding this Internet privacy policy, please contact:

New York State Energy Research and Development Authority  
Attn: Privacy Compliance Officer  
17 Columbia Circle  
Albany, New York 12203-6399

#### **Definitions**

The following definitions apply to terms appearing in *italics*, in this policy:

*Personal Information* shall have the meaning set forth in subdivision 5 of section 202 of the State Technology Law.

*State Agency Website* shall have the meaning set forth in subdivision 7 of section 202 of the State Technology Law.

*User* shall have the meaning set forth in subdivision 8 of section 202 of the State Technology Law.

**This Policy last updated June 10, 2002**

## APPENDIX NO. 2

### DISCLAIMER

#### DISCLAIMER OF WARRANTY

Information contained on this web site is provided "as is," without warranty of any kind. In particular, the New York State Energy Research and Development Authority ("NYSERDA"), its employees, officers, and members, and the State of New York, make no warranties or representations, expressed or implied, as to the fitness for a particular purpose or merchantability of any product, apparatus, downloaded computer software product, service, or the usefulness, completeness, or accuracy of any processes, methods, downloaded computer software product, or other information contained, described, disclosed, or referred to herein. NYSERDA, its employees, officers and members, and the State of New York, make no representation that the use of any product, apparatus, process, method, downloaded computer software product, or other information will not infringe privately owned rights.

#### DISCLAIMER OF LIABILITY

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## ATTACHMENT \_\_\_\_

## PROJECT PERSONNEL &amp; RATES

 1. DIRECT PERSONNEL COSTS:

Title Classification	Not to Exceed Hourly Rate Range	
	Year 1	
	Minimum	Maximum

 2. MULTIPLIER (Including Profit/Fixed Fee):

a. Profit / Fixed Fee: \_\_\_\_\_%

b. Multiplier \_\_\_\_\_

 3. DIRECT NON-PERSONAL SERVICE COSTS:

Direct non-personal service costs will be allowed and reimbursed at cost for project related expenses. Items not listed but necessary to complete the work must be pre-approved by NYSERDA:

Computer Services  
 Laboratory Tests  
 Overnight Mail  
 Postage  
 Report Reproduction/Outside Printing

Subcontracts  
 Supplies  
 Test Equipment Rentals  
 Travel

## Attachment I

### **NYSERDA - INSTRUCTIONS FOR SUBMITTING ELECTRONIC PROPOSALS**

**Please read the following instructions before submitting a proposal.**

1. Submit one proposal for each session.
2. Enter your e-mail address and click the "Validate Email" button.
3. You will receive an automatic email containing a link to validate your email address. Click the link to be taken back to the Funding Opportunity to begin the online submission process.
4. Upload as many files as needed, one at a time.
5. The electronic file names should include the proposing entity's name in the title of the document. The character limit is **100** characters.
6. You may submit Word, Excel, Zip, or PDF files. Individual files should be less than **1GB** file size.
7. PDF files must be searchable and therefore should be converted directly from an electronic document to PDF, rather than scanned.
8. After clicking the "Upload File" button, a list of your files will appear on the web page. You can delete files from this list if needed.
9. After all necessary files have been uploaded; review the list of documents to ensure that your proposal is complete and accurate.
10. Click the "Submit Proposal button."
11. You will then be brought to a confirmation page listing the files received. Please print and save the confirmation page.
12. An auto-generated confirmation e-mail will be sent to the e-mail address you entered. Please save this e-mail.
13. When choosing to submit files electronically, the award/non-award notification letter will be sent to the e-mail address of the **Primary Contact listed on the Proposal Checklist.**

#### **Important Reminders:**

1. **The electronic proposal system closes promptly at 5pm Eastern Time on the due date of the solicitation.** Files in process or attempted for submission after 5pm will be locked out of the system. Please allow at least 15-30 minutes to submit proposals.
2. E-mail or facsimile submittals will not be accepted.

#### **If you make an error:**

If after you click "Submit Proposals" you discover that the document(s) you submitted are incomplete or inaccurate follow these instructions:

1. Start the process over again and **resubmit the entire proposal**. You will receive another confirmation e-mail.
2. Immediately forward both confirmation e-mails (original and resubmission) to [proposals@nyserda.ny.gov](mailto:proposals@nyserda.ny.gov) with the subject line of "**Resubmittal**" and the PON/RFP/RFQ number.
3. NYSERDA will accept the second submission as your proposal. The first submission will be disregarded.

#### **If you need help:**

If you need help with this electronic proposal submission process, please contact Roseanne Viscusi at [rdv@nyserda.ny.gov](mailto:rdv@nyserda.ny.gov) or 518-862-1090 ext. 3418 and the Program contact listed in the solicitation.