



**Emerging Technologies for Residential Buildings  
Program Opportunity Notice (PON) 1294  
\$1.5 Million Available**

**Proposals Due: June 11, 2009 by 5:00 PM Eastern Time, Round 1  
October 8, 2009 by 5:00 PM Eastern Time, Round 2**  
*All, or none, of the available funds could be allocated to projects selected from any one due date.*

**OBJECTIVES:** The New York State Energy Research and Development Authority (NYSERDA) seeks proposals for development or demonstration of technologies that could lead to commercial solutions which benefit residential buildings, (1 -4 Single family home). The commercializable technology should promote the containment, production, distribution or durability of the energy system coupled with the building. The energy systems under consideration typically improve the production and delivery of either cooling, heating, domestic hot water distribution or some combination.

**ELIGIBILITY:** Preferred projects will have a strong commercialization attribute. Projects that can transfer their findings into the established residential commercialization stream of solutions will be considered as qualified offerings. Some examples of products or demonstrations to consider are:

- Dynamic window/fenestration products that improve solar heat gain, and thermal conductivity
- Building shell tightening techniques/solutions that address: air leakage, thermal insulation and ease of installation
- Point source heating and/or cooling systems that eliminate distribution networks
- Compressor-less air conditioning systems
- Integrated heat pumps or other systems that utilize Hydronic means to deliver heating and/or cooling and hot water
- On-site energy production/recovery systems, e.g. micro Combined Heat & Power (CHP), improved whole house ventilation systems, geothermal systems with minimum complexity

Successful proposals will optimize first cost, enhance installation techniques, improve reliability and energy performance along with well defined commercialization strategies.

NYSERDA anticipates making multiple awards in both categories:

Category A – Product Development or Development of scalable Prototype modules

Category B – Product Demonstration

The maximum NYSEERDA funding per project is \$300,000, with preferred cost share of 50%.

Proposers must submit one (1) paper copy and one (1) electronic version (CD) of the proposal with a completed and signed proposal checklist attached to the front of paper copy. Proposals must be clearly labeled and submitted to:

Roseanne Viscusi, PON 1294  
NYS Energy Research and Development Authority  
17 Columbia Circle  
Albany, NY 12203-6399

Address technical questions for PON 1294, to Greg Pedrick at (518) 862-1090, ext. 3378, [gap@nyserda.org](mailto:gap@nyserda.org)

Address contractual questions for PON 1294, to Nancy Marucci, ext. 3335, [nsm@nyserda.org](mailto:nsm@nyserda.org).

No communication intended to influence this procurement is permitted except by contacting Greg Pedrick at contact above. 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 and proposals lacking the appropriate completed and signed Proposal Checklist will be returned. Faxed or emailed proposals will not be accepted. Proposals will not be accepted at any other NYSEERDA location other than the address above. If changes are made to this solicitation, notification will be posted on NYSEERDA’s website at [www.nyserda.org](http://www.nyserda.org)*

## **I. Program Overview**

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The NYSERDA Buildings R&D Group introduced the Advanced Buildings Program (ABP) in 2006, with the intent to drastically improve the discrete components found in a residential building to develop and encourage advanced integral building techniques associated with the construction of the entire residential building. An ABP goal is to develop products and methods that enhance the energy performance of residential buildings substantially beyond current practice. This portion of the ABP seeks to develop technologies that are best suited for residential buildings, developed and designed with their use, occupant types and construction type in mind.

For example, a well built residential building with attention to air leakage and high insulation levels beyond conventional practice, may require a much smaller heating system. A Contractor may only be able to obtain certain sizes of commercially available heating systems, all too large for the well built residential building. This program seeks to develop such systems that would complement the use of advanced building envelope techniques by offering smaller, more efficient energy systems.

Developing and demonstrating discrete technologies can provide owners and builders with greater opportunities to improve overall energy efficiency. Residential Buildings account for over 21% of total energy consumption in the U.S., and this consumption is growing due to increased building footprint, etc. Continued developments of technology that can change this trend are important for the residential building market. Discrete components can be integrated into a well built residential building providing a total energy reduction solution.

## **II. Program Requirements**

NYSERDA specifically seeks proposals that can utilize existing discrete building technologies, improve their overall energy efficiency, and have high probability of being commercialized. These building technologies need to be robust, easy to maintain, easy to install, and most importantly reliable. Technologies that rely on the platform of other existing technologies are acceptable. The preferred technologies will optimize the first cost by contributing to an overall reduction in energy demand and be simple for the homeowner to use, requiring minimum maintenance.

This solicitation encourages innovation in the following areas:

- **New product and materials development to improve energy utilization** - heating system improvements, cooling system improvements, ventilation improvements, humidity controls, hot water systems, whole building energy monitoring and energy production systems.
- **Demonstration of equipment or configurations in residential buildings** – utilize discrete technologies within a residence to demonstrate proper installation and provide data collection to substantiate the improvement(s).

This Program Opportunity Notice encourages the development of high performance building sub-systems that minimize on-site labor, and can tolerate installations that may not be optimal. Proposers are encouraged to address technologies at varying stages of maturity, from early prototype assessments through prototype bench test and from early product development to field evaluation and market introduction.

Projects considered under this solicitation will be limited to building technologies applicable to one to four family homes, *e.g.* Residential Buildings. The solicitation has two (2) award categories. Proposer must indicate which category they are proposing.

**Two Project Award Categories** – These categories of projects will be considered for funding, and should contain detailed commercialization plans:

### **Category A: Product Development**

Development of systems or materials that improve the existing performance and lead to a technology that can be installed in a residential building. Product Development projects should be completed within a 30 month period. NYSERDA's share of funding for any project in this category will be limited to a maximum of **\$300,000** with preferred proposer cost share of 50%.

## Category B: Product Demonstration

Demonstration of a system or materials that improves the energy efficiency of the system (at least prototype level) or combination of systems within a building. Demonstration projects should be completed within a 36 month period. NYSERDA's share of funding for any project in this category will be limited to a maximum of **\$300,000** with preferred proposer cost share of 50%.

*It is important to follow "Proposal Requirements" carefully and answer all questions.*

## III. Proposal Requirements

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- Proposers must submit one (1) paper copy of their completed proposal (double-sided preferred), and one (1) electronic version on CD (preferably combined into 1 pdf file) to the attention of Roseanne Viscusi at the address indicated on the first page of this PON.
- A completed and signed Proposal Checklist must be attached as the front cover of your proposal.
- **Bindings, report covers, or other presentation materials should not be used (a single staple in the upper left-hand corner is preferred).**
- **Limit your proposal to 10 pages (12-point font) excluding letters of support, resumes, and NYSERDA forms (Attachments A, B, and C).**
- Do not include unnecessary attachments beyond those sufficient to present a complete, comprehensive, and effective response.
- Each page of the proposal should state the name of the proposer, the PON number, and the page number.
- **Late proposals and proposals lacking the appropriate completed and signed Proposal Checklist will be returned.**
- Faxed or e-mailed copies will not be accepted.

*Please provide the information requested in each section below.*

- *Each required section below is followed by questions, which are the criteria by which the Technical Evaluation Panel (TEP) will evaluate your proposal.*

### 1. Executive Summary (one page) - Provide a brief response to each of the following:

- The problem or opportunity you are addressing and its background.
- What you are trying to do to address the problem/opportunity, and how you are going to do it.
- Likely energy, environmental and/or economic benefits to you and New York State.
- Team qualifications

### 2. Problem Statement and Proposed Solution – Please discuss:

- The problem or opportunity you are addressing and its background.
- The proposed solution and how it addresses the problem/opportunity, including:
  - Description of technology and project
  - Innovative characteristics
  - Current stage of research/development/commercialization
  - Alternative solutions and why the proposed solution is superior, and
  - Barriers to success and/or project risks

#### *Criteria:*

- Are the problem and proposed solution described clearly?
- Is the concept practical and technically feasible?
- Is the technology innovative?
- Is the technology better than other options?

### 3. Project Benefits: - Provide:

- Quantify estimated energy benefits to the extent possible (*e.g.* kWh, kW, Btu, \$)
- Estimate other benefits, for example:
  - Increased: revenue, product quality, productivity, units sold, or new/retained jobs; or

- Decreased: non-energy related greenhouse gas emissions, maintenance costs, waste, capital, etc.
- Provide a cost/benefit projection
- Discuss what entity/entities will reap these benefits

**Criteria:**

- Are energy benefits significant (for proposer and New York State)?
- Are environmental and economic benefits significant for the proposer and New York State?
- Do estimates of benefits seem reasonable?
- Is the cost/benefit projection reasonable?
- Is there a plan to quantify actual benefits after project completion?

**4. Commercialization Plan for Product Development Projects:** Provide:

- A timeline showing the paths, activities, milestones, resources, costs and timing estimated to take the technology from its current state of development to the next stage, and ultimately to commercial deployment.

**Criteria:**

- How likely will this product be commercially viable in 5 years or less?

**5. Marketing:** Please address the following:

- Define your target markets (in and outside of NYS) and their relevant characteristics, e.g., size, competition, trends (regulatory, technological, etc.).
- Estimate the price of the product technology that will be commercialized and compare the price to that of similar technology already available.
- Discuss the customer’s economic motivation for buying the product technology versus alternatives

**Criteria:**

- Is there market demand for the product?
- Does the proposed market strategy seem effective?

**6. Scope of Work and Schedule:**

- Describe each task required to accomplish goals and who will perform each task.
- Prepare a schedule of when each task will be performed, milestones and budget for each milestone, using the format below (add as many lines as necessary; give total on bottom line):

| Milestone Description | Labor (hours) | Labor (\$) | Materials & Equipment (\$) | Other (\$) | Total (\$) | Start Date | End Date |
|-----------------------|---------------|------------|----------------------------|------------|------------|------------|----------|
|                       |               |            |                            |            |            |            |          |

*Total milestone budget should be the same as the total budget on the Contract Pricing Proposal Form.*

**Criteria:**

- Is the approach likely to meet the proposal’s goals?
- Is the schedule reasonable for the scope defined?
- Does the Statement of Work include tasks for: acquiring materials, developing an experiment procedure, collecting representative data, acquiring a demonstration site (if applicable), and outlining a commercialization strategy?
- Are the benefits quantified realistic?

## 7. Cost Sharing:

- The proposal should show non-NYSERDA funding of preferably 50% of the total cost of the project. Cost sharing can be from the proposer, other team members, and other government or private sources. Contributions of direct labor (for which the laborer is paid as an employee) and purchased materials may be considered “cash” contributions to proposer’s cost share. Unpaid labor, indirect labor, or other general overhead may be considered “in-kind” contributions.
- NYSEDA will NOT fund efforts that have already been undertaken. The proposing teams CAN NOT claim as cost-share any expenses that have already been incurred.
- Show the cost-sharing plan in the following format (expand table as needed).

| Source                     | Cash | In-Kind Contributions | Total |
|----------------------------|------|-----------------------|-------|
| NYSERDA                    | \$   |                       | \$    |
| Proposer                   | \$   | \$                    |       |
| Others (list individually) |      |                       |       |
| Total                      | \$   | \$                    | \$    |

**If you include indirect costs in your budget, you MUST attach supporting documentation to support indirect cost (overhead) rate(s) in your proposal as follows:**

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

NYSERDA reserves the right to audit indirect rates presented in the proposal and adjust for differences. Requests for financial statements or other financial information may be made if deemed necessary.

Product developers may be required to repay NYSEDA through a royalty agreement. (see Attachment D, sample agreement. Article VIII 8.03 Payments to NYSEDA)

### ***Criteria:***

- Does the level, type and source of cost sharing indicate a sufficient commitment to the project by the proposer and proposing team?

**8. Budget** - Complete the **Contract Pricing Proposal Form** (Attachment C) (see CPPF instructions). Indicate requested NYSEDA funding in the column labeled “Funding & Co-funding via NYSEDA.” Include non-NYSERDA cash and in-kind contributions in the column labeled “Cost-sharing and other co-funding.”

### ***Criteria:***

- Is cost reasonable when measured against project goal, scope of work, and expected benefits?
- Are costs clearly specified?

## 9. Business Description:

- Describe your business: number of employees, what you produce, or what services you provide; what kind of facilities you have, patents, significant sales, or commercialized products developed.
- Identify any investments from, or discussions with venture capital firms, investment bankers, etc.

- Is there a site identified (if a demonstration project), and does the site have good visibility?

**Criteria:**

- Is the business financially sound and stable?
- Is there a letter of interest/commitment from host site, if demonstration project?

**10. Project Team:** the following is important for the team description:

- List team members, including the project manager, subcontractors and other participants and co-funders involved in the project.
- Explain their roles and responsibilities.
- Describe qualifications and relevant experience or expertise.
- Identify any special facility, equipment or capability possessed by the project participants that is relevant to the project.

**Criteria:**

- Does the project team have the qualifications and resources needed to succeed?

**11. Letters of Commitment or Support:**

- If other organizations or businesses are doing some of the work, providing services or equipment, serving as a demonstration site, or share in the non-NYSERDA cost, include a signed letter from that organization or business (on their letterhead) describing their commitment (include cash/in-kind dollar commitment if applicable). If you are developing a product, include letters of interest from potential customers.

**Criteria:**

- If applicable, do letters of support exist and do they reflect the level of involvement (e.g., co-funding, potential interest in buying product, services, etc.) from the supporter(s)/potential customer(s)/ partner(s), commercialization supporter(s)?

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**IV. PROPOSAL EVALUATION**

Proposals will be reviewed by a Technical Evaluation Panel (TEP) and will be scored and ranked according to the **criteria** indicated above in the Proposal Requirements. After the proposals are reviewed, NYSERDA will issue a letter to each proposer indicating whether the proposal was recommended for funding. A proposer receiving a favorable evaluation will be invited to enter into contract negotiations with NYSERDA. The proposer may also be asked to address specific questions or recommendations of the TEP before contract award.

**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 accept 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 [www.nyserda.org/nyserda.regulations.pdf](http://www.nyserda.org/nyserda.regulations.pdf). However, NYSERDA cannot guarantee the confidentiality of any information submitted.

**Omnibus Procurement Act of 1992** - It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority- and women-owned business enterprises, as bidders, subcontractors, and suppliers on its procurement Agreements. Information on the availability of New York subcontractors and suppliers is available from: Empire State Development, Division for Small Business, 30 South Pearl Street, Albany, NY 12245. A directory of certified minority- and women-owned business enterprises is available from: Empire State Development, Minority and Women's Business Development Division, 30 South Pearl Street, Albany, NY 12245.

**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.state.ny.us/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.state.ny.us/pdf/2006/killin/st/st220td\\_606\\_fill\\_in.pdf](http://www.tax.state.ny.us/pdf/2006/killin/st/st220td_606_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.state.ny.us/pdf/2006/killin/st/st220ca\\_606\\_fill\\_in.pdf](http://www.tax.state.ny.us/pdf/2006/killin/st/st220ca_606_fill_in.pdf) ). The Department has developed guidance for contractors which is available at [http://www.tax.state.ny.us/pdf/publications/sales/pub223\\_606.pdf](http://www.tax.state.ny.us/pdf/publications/sales/pub223_606.pdf).

**Contract Award** - NYSERDA anticipates making multiple awards under this solicitation. It may award a contract based on initial proposals 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 proposals. NYSERDA will use the Sample Agreement to contract successful proposals. NYSERDA, at its sole discretion, will decide whether to contract successful projects using time and materials terms or milestone delivery terms. 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. NYSERDA expects to notify proposers in approximately 10 weeks from the proposal due date whether your proposal has been selected to receive an award.

**Recoupment** - For any new product development projects requesting NYSERDA funding over \$50,000, NYSERDA will require a royalty based on sales of the new product developed. NYSERDA's standard royalty terms are 1.5% of sales for products produced in New York State (for a period of fifteen years or until the Contractor pays NYSERDA an amount equal to the amount of funds paid by NYSERDA to the Contractor, whichever comes first) and 5% of sales for products produced outside of New York State (for a period of fifteen years or until the Contractor pays NYSERDA an amount equal to the amount of funds paid by NYSERDA to the Contractor, whichever comes first).

**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.

### **Attachments**

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Attachment A: Proposal Checklist

Attachment B: Disclosure of Prior Findings of Non-responsibility Form

Attachment C: Contract Pricing Proposal Form

Attachment D: Sample Agreement