Building Envelope Strategies for Advancing Deep Energy Retrofits
Program Opportunity Notice (PON) 2254
$1,500,000 Available
(Maximum individual awards of $300,000)

Proposals Due: July 13, 2011 by 5:00 PM Eastern Time

OBJECTIVES: The New York State Energy Research and Development Authority (NYSERDA) seeks proposals that will develop, investigate and implement design strategies (materials and methods) that will provide deep energy retrofit solutions to existing residential building envelopes. Teams comprised of building product/material manufacturers, building science professionals and building contractors should combine skills and provide comprehensive proposals that will provide NYSERDA with a field test ready strategy. The strategy will provide an exterior air barrier, have insulation properties, address window and door opening details, accept or include a finished cladding material and be able to fasten to an existing residential building exterior. This "strategy" is deemed necessary to enable cost effective solutions for performing deep energy retrofit projects. A successful strategy from a comprehensive team could stimulate the deep energy retrofit market, providing substantial building heating and cooling load reductions along with additional benefits.

ELIGIBILITY: Successful proposals will describe an emerging product solution and installation technique, that is field test ready (implementable to an existing building) while providing both technical and marketable merit. At a minimum, teams assembled should include: product/material manufacturer, building scientist, and a building contractor, in order to provide a comprehensive solution with attention to development, system adherence and field application. Previous experience with deep energy retrofit exterior solutions will be considered a valuable asset. The team needs to dedicate funds within the awarded grant for providing a suggested quantity (minimum of three) of field trial/demonstrations, utilizing the developed emerging product strategy.

Successful proposals will exemplify the team's understanding of the problem and suggest solutions with detailed descriptions of how the field trials will be conducted. NYSERDA will make multiple awards to teams under this solicitation.

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 2254
NYS Energy Research and Development Authority
17 Columbia Circle
Albany, NY 12203-6399

Address technical questions for PON 2254, to Greg Pedrick at (518) 862-1090, ext. 3378, gap@nyserda.org
Address contractual questions for PON 2254, to Nancy Marucci, ext. 3335, nsm@nyserda.org.

No communication intended to influence this procurement is permitted except by contacting Greg Pedrick (designated contact), at (518) 862-1090, ext. 3378 or gap@nyserda.org. 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 NYSERDA location other than the address above. If changes are made to this solicitation, notification will be posted on NYSERDA's website at www.nyserda.org*

I. Program Overview

The NYSERDA Buildings R&D Group introduced the Advanced Buildings Program (ABP) in 2006, with an objective to drastically improve the building envelope and insulation techniques found in a residential building. In 2010, a Deep Energy Retrofit (DER) Pilot was initiated and yielded four deep retrofit projects with significant heating and cooling reductions and much improved air leakage. http://www.nyserda.org/Programs/IABR/DeepRetrofit.asp
The costs of the deep retrofit activities were found to be very high, greater than $18/ssf (shell square footage). NYSERDA believes deep retrofits of existing homes offer homeowners and the State significant energy savings opportunities. NYSERDA is issuing this PON to develop and demonstrate more cost effective solutions for improving the building shell exterior. Included in the cost reduction goal is the need to drive the labor content of the application down considerably, creating a minimum a 50/50 split between material and labor. NYSERDA feels that a collaborative effort between product manufacturers, building science professionals and building contractors can produce and demonstrate the desired cost reduction improvements. NYSERDA continues to strive for these cost effective energy use reduction solutions, and places a high priority on performing the work on existing buildings to provide the most comprehensive benefit to NYS homeowners.

The term "***deep***" energy retrofit refers to a practice that goes well above and beyond the current common practice of performing energy efficiency work. This involves substantially improving the exterior building envelope with aggressive, emerging insulating practices (*e.g.* installing polyurethane rigid panel insulation, application of open cell polyurethane spray foam insulation after build out), installing new or relocating existing windows, sealing the below grade foundation to the wall connections and sealing the roof to the wall connection with insulation that also provides an air barrier. The following mechanical practices are then implemented to complete the overall retrofit; incorporation of whole house ventilation and downsizing the mechanical plant typically found in residential buildings. Performing a comprehensive deep energy retrofit with attention to detail in the Pilot study of 2010 produced reductions in whole building energy loads (all four houses) between 55 - 65%, reduced air leakage (CFM 50) by 75%, and provided great insight into the issues associated with achieving these results.

NYSERDA believes the heating and cooling load reductions from deep retrofits of existing residential buildings will provide homeowners with significant energy savings and generate new business opportunities for building Contractors. The objectives of the ABP are: to always educate, lead by example, and prime the resources for deployment to the larger construction market. Driving down the cost of deep energy retrofits to rival typical home improvement projects is expected to greatly increase market adoption.

II. Program Requirements

NYSERDA specifically seeks proposals from collaborative teams with a combination of the following services/skills - product/material manufacturer, building scientist, and building contractor. A collaborative team approach will provide a comprehensive solution with attention to development, system adherence and field application of the developed strategy.
The program seeks to discover an exterior building solution that will have market appeal for both the homeowners, and existing building contractors (remodelers, siding professionals, roofers) Providing a solution that coincides with a home improvement project, with both energy and appraisal value attributes, will enable the deep energy retrofit solution to gain market acceptance.
A representative example project to satisfy these program objectives *could* resemble the following:

- *Product manufacturer of sheet stock material partners with building science professional and develops a system that provides an air barrier, insulation and smooth surface to accept cladding. In-house testing and development reveals a tongue and groove method to adhere the system to the exterior of a building, including siding finish. This team locates and engages a building contractor willing to install this system to at least three residential buildings. Team oversees installation, provides follow-up with homeowner and performs a degree of data collection, to compare the system improvement to conditions prior to application.*

A deep energy retrofit project provides ancillary benefits beyond energy savings. Tightening a building and providing mechanical ventilation will lead to improved indoor air quality with ancillary health and safety improvements to occupants susceptible to allergies, increased structural resilience, and reduced maintenance, environmental noise, and

smaller more efficiency HVAC systems. All of these benefits, including the improved home equity component via appraised value will need to be marketed to participants.

A solution consisting of materials and methods that provide a DER strategy needs to address the following conditions (Proposers should elaborate on others that may apply as well):

- Durability requirement, which deals with properly addressing vapor transport in the building assembly (*i.e.* moisture management)
- Adhesion to the exterior sheathing surfaces: fastening must be reliable, robust and simplified
- Compliance with local and State building codes
- Provide measureable benefits in terms of air leakage, insulation, and cost reduction
- Allows for build out/details around rough openings of windows and exterior doors

Technical performance and market specifications that teams will adhere to within their strategy solutions:

- Air barrier and sealants to provide total envelope air leakage level < 0.25 CFM 50/ssf (shell square footage)
- Provide whole wall assembly (excluding windows) insulation value of R > 25
- Field implementation (material & labor) cost less than $10/ssf

Proposals should describe how the solution presented will provide bulk water, vapor, air, and thermal control for the building envelope while meeting the technical performance specifications described above.

Project Awards – This solicitation promotes both product development and demonstration of the developed strategy. **It is NYSERDA's intent to make maximum awards of $300,000 intended to provide ample product development resources, along with ample funding to provide a minimum of three demonstration sites**. NYSERDA will select proposal(s) which best exemplify the ability to provide methods/materials comprising an exterior assembly strategy comprised of; air barrier, insulation and cladding to accomplish the technical specifications. Background, field experience and practical application of the concept will be considered when reviewing the submitted proposals.

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

III. Proposal Requirements

- 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 <u>not</u> 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 evaluation criteria questions the Technical Evaluation Panel (TEP) will use to evaluate your proposal.***

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

- The approach to the problem and the opportunity it will provide
- How is the proposed approach going to achieve the technical performance and cost goals
- Likely performance and economic benefits to your firm and New York State.
- Team qualifications

Evaluation Criteria:

- Does the Team understand the requested service, and are they competent to deliver?
- Is the proposed solution/approach going to achieve the technical and cost goals?

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 material/method that will be promoted as a strategy
  - Innovative/repeatable characteristics of the strategy
  - Barriers to success and/or project risks
  - Readiness of material/methods to be demonstrated (*e.g.* testing data available to address likely code concerns)
  - Cost analysis with assumptions stated showing the expected $/ssf of the proposed solution

Evaluation Criteria:

- Is the team's strategy well defined, comprehensive and described clearly?
- Is the approach practical and technically feasible?
- Does the approach meet or exceed stated Technical Specifications?

3. Project Benefits: - Provide:

- Quantify estimated energy benefits as if three buildings will be influenced by the proposed strategy implemented, utilize existing utility bills for current and projected usage (*e.g.* kWH, kW, Btu, $ savings)
- Describe the methods used for quantifying benefits after project completion
- Estimate other benefits, for example:
  - Improved air quality, appraised home value, reduction of labor costs, product(s) supplied to market
  - Non-energy related greenhouse gas emissions, maintenance costs, capital, etc. reductions
  - Provide a cost/benefit projection

Evaluation Criteria:

- Are energy benefits significant (for building owner and New York State)?
- Are environmental and economic benefits significant for the building owner and New York State?
- Do estimates of benefits seem reasonable, and their associated costs reasonable?
- Is there an effective plan to quantify actual benefits after project completion?

4. Tech Transfer of the Tabulated Results to be monitored: - Please discuss:

- Market acceptability with suggested financial mechanisms to help aid the adaptability of the developed strategy,*e.g*. home improvement loan values the extra cost of the strategy linked to the to the home improvement
- Marketing the developed strategy to appropriate contractor types; roofers, siding implementers

Evaluation Criteria:

- How likely will trained/capable contractors embrace, provide and implement the developed strategy, and sell the job?
- How likely will the strategy solution be recognized and requested for by homeowners looking to make home energy improvements?
- Has the opportunity for commercialization of the proposed solution(s) been discussed?

5. 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.

Evaluation ***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: assembling materials and methods to develop a strategy, "bench testing" the strategy in mocked up setting, identifying building contractor to implement the strategy in field settings, method and approach to collecting representative data (costs, energy savings), and outlining a tech-transfer strategy?
- Have three or more field trial/ demonstration sites been included?
- Are the benefits quantified realistic?

6. Cost Sharing:

- The proposal will require a minimum of 20% cost share, with larger cost share looked upon as favorable. 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.
- NYSERDA 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	$	$	$

<u>If you include indirect costs in your budget, you MUST attach supporting documentation to support indirect cost (overhead) rate(s)</u> <u>in your proposal</u> 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 NYSERDA 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 NYSERDA through a royalty agreement. (see Attachment D, sample agreement. Article VIII 8.03 Payments to NYSERDA)

Evaluation Criteria:

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

7. Budget - Complete the **Contract Pricing Proposal Form** (Attachment C) (see CPPF instructions). Indicate requested NYSERDA funding in the column labeled "Funding & Co-funding via NYSERDA." Include non-NYSERDA cash and in-kind contributions in the column labeled "Cost-sharing and other co-funding." In addition, provide the per field site/demonstration costs. Provide size of field site/demonstration and surface area to be retrofitted. Delineate costs for materials, installation labor, and post project completion evaluation. If field sites/demonstrations are not known at the time of proposal submission, state the assumptions on which costs are based.

Evaluation Criteria:

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

8. 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.

Evaluation Criteria:

- Is the business financially sound and stable?
- Are there significant letters of support /commitment from business members? Are there any references to similar work activities supporting this proposal?

9. Project Team: the following is important for the team description:

- List team members, including the lead 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.

Evaluation Criteria:

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

10. Letters of Commitment or Support:

- If other organizations or businesses are doing some of the work, providing services or equipment, serving as building contractors, 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 will solicit for donated building materials or equipment, include letters of interest from potential providers.

Evaluation Criteria:

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

IV. PROPOSAL EVALUATION

Proposals will be reviewed by a Technical Evaluation Panel (TEP) and will be scored and ranked according to the evaluation criteria indicated above in Section III., 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 accepted. See Public Officers Law, Section 89(5) and the procedures set forth in 21 NYCRR Part 501 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/fillin/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/fillin/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

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 soles 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

Attachment A: Proposal Checklist
Attachment B: Disclosure of Prior Findings of Non-responsibility Form
Attachment C: Contract Pricing Proposal Form
Attachment D: Sample Agreement