ATTACHMENT A
PROPOSAL COVER SHEET

Efficiency Maine Trust - RFP EM-013-2014
Research And Development And Demonstration Projects Under The Renewable Resources Fund

COVER SHEET
This form MUST be completed, signed and attached to the front of your proposal.

Primary Contact (Prime Contractor)/Name: Anthony Plante	**Title:** Town Manager	
Organization: Town of Windham Maine	Phone: 207-894-5900	
	Fax:	
Address: 8 School Road	Email: atplante@windhammaine.us	
City: Windham	State/Prov: Maine	Zip: 04062
Alternate Contact/Name: Ben Smith	**Title:** Planning Director	
Organization: Town of Windham Maine	Phone: 207-8894-5900, x6123	
	Fax:	
Address: 8 School Road	Email: bwsmith@windhammaine.us	
City: Windham	State/Prov: Maine	Zip: 04062

AN INDIVIDUAL AUTHORIZED TO COMMIT THE PRIME CONTRACTOR MUST SIGN THIS FORM BELOW AND ANSWER THE FOLLOWING QUESTIONS:	**YES**	**NO**
Do you accept all of the terms and conditions in the Standard Agreement (Attachment B)? ***If NO, explain your exceptions on a separate page.***	**X**	
Does this proposal include more than one organization? ***If YES, please list organization(s):***		**X**
This offer is valid for 180 days.	**X**	

AUTHORIZED SIGNATURE
I, the undersigned, am authorized to commit my organization to this proposal.

Signature:	**Printed Name:** **Anthony Plante**
Title: Town Manager	**Organization:** **Town of Windham**
Date: **May 7, 2014**	**Phone/email:** 207-894-5900, atplante@windhammaine.us

Table of Contents

Overview

Description of Project

The Town of Windham is applying for demonstration grant funding in order to install a solar photovoltaic (PV) system on Town property. This system will include a carport-type structure mounted array, and a solar tracking ground mounted array. Each array will consist of twenty-four (24) individual panels, so each array will have a rated production capacity of 6.12 kilowatts (kW). The total system capacity of 12.24 kW will offset about 80% of the electrical usage at the Town Office Annex annually.

The system will be sited at the Town property located at 375 Gray Road, identified on Windham Tax Map 9; Lot 71. The site is currently occupied by the Town's Public Safety Building, the skate park, and the Windham Community Garden. This site has been selected because the site:

- is highly visible in Windham due to the multiple community uses and diverse users of the property,
- is located on a section of the federal highway system (US Route 202), and would allow travelers on one of the busiest sections of roadway in the region to see the system,
- is in close proximity to the RSU 14 schools campus, and
- has excellent solar exposure.

The system is anticipated to be located at the skate park facility portion of the property, so as not to interfere with parking, operations or future expansion of the Public Safety facility. The skate park also has a formal entrance and parking area, which the Community Garden portion of the property lacks.

Figure 1 – Carport array

http://www.schletter.us/carport.html

Figure 2 – Sun Tracker array

http://www.allearthrenewables.com/?products/solar/

Figure 3 – Location Map & Property Maps

Grant Amount Requested

The Town is requesting a grant in the amount of $50,000, to be combined with a local match of $10,000, in order to complete the project as outlined above. See detailed budget information that follows in the Budget section of the RFP.

Identification of Grant Category

This grant application is being made for a Renewable Energy Demonstration Project Grant.

Estimated Project Cost-Effectiveness

- Net Present Cost = (All project costs) – (any incentives or rebates) =
  - $56,194 - $0 = **$56,194**
- Net Present Benefit = (Value of avoided costs over Estimated Useful Life of project)
  - [(solar array production annual) x (useful life of project)] x (Town's electricity cost per kilowatt hour)
  - [(11,013 kWhrs for tracker array + 7,208 kWhrs for carport array) x (25 years)] = 455,525 kWhrs
  - 455,525 kWhrs x ($.0599 delivery + $.0682 electricity) = **$58,352.75**

The benefit is greater than the cost of the project which meets the definition of a cost effective project for the purposes of this grant.

Please note that this calculation works with the very conservative numbers presented above. The solar panels are warrantied for 25 years, meaning that they will produce the stated amount of electricity over that time. These solar panels will continue to produce electricity far beyond the 25 year warranty, even if the amount produced starts to tail off after 25 years. Also, the calculation above uses the Town's current electrical rate of $.1281/kWhr, while the standard estimate for electricity costs over the next 25 years provided by Revision is a more realistic, yet still conservative $.15/kWhr. Substituting the $.15/kWhr cost and extending the useful life to 30 years changes the Net Present Benefit calculation to $81,994.50.

Project Approach and Work Plan

The project approach is one that emphasizes ease and speed of installation. The work plan outlined below shows the intent to get the system up and running in Fall 2014, and fulfilling the marketing and public education obligations of the grant in Winter 2014-2015.

In discussing the project approach, the Energy Advisory Committee considered mounting the fixed panel array on a wooden structure to be built by volunteers with discounted or donated lumber. This would further public awareness and involvement in the project. However, the

Committee decided that opting for the installation of the manufactured carport structure would offer at least two significant advantages. First, a carport style array would likely be the first such installation in the state. Second, the manufactured structure would result in a more predictable and timely installation process, because it is pre-engineered, avoiding the need for design of a custom wooden structure, and Town staff or the Energy Advisory Committee would not need to coordinate an manage volunteer construction over potentially several weekends.

The Town of Windham would provide in-kind services related to the earthwork and concrete work for the installation of the arrays.

An estimated timeline for this project is outlined below:

1. **Grant awarded, contracting with Efficiency Maine** **June 2014**
   - Responsible parties: Town of Windham, Efficiency Maine

2. **Contracting with Revision Energy** **July-August 2014**
   - Responsible parties: Town of Windham, Revision Energy

3. **Installation of solar PV system** **September 2014**
   - Responsible parties: Town of Windham, Revision Energy

4. **Reporting of activities for reimbursement from Efficiency Maine** **October 2014**
   - Responsible parties: Town of Windham, Efficiency Maine

5. **Marketing Efforts to complete Demonstration Project Grant** **Nov-Dec 2014**
   - Responsible parties: Town of Windham Efficiency Maine

Project's Value and Viability

1. How the project meets the selection criteria relevant to the project category (see Section 3 above);

> This project will provide value to the community by generating enough energy to offset about 80% of the electrical usage at the Town Hall Annex. See below regarding calculations of cost effectiveness. This project will also provide value to the community through efficient use of Town property by taking advantage of the property's solar exposure.

This project will use 48 solar panels from Canadian Solar, a reputable company with proven technology. These are the same panels used in the Town's 40 kw system installed at the Town of Windham's East Windham Fire station in October 2013 (Figure 4).

Figure 4 – East Windham Fire Station

There is a very good likelihood that this technology will be used on a broader scale in this state, as the community gains a better understanding of solar photovoltaic systems and the fact that are already a proven technology that is becoming more cost effective. This project will be valuable on a Statewide basis as it will directly compare a fixed, structure mounted array (the carport array) with a ground mounted sun tracking array on the same property. The visibility of the system on Town property will be an indicator to residents and all who see the project from Route 202 that the technology is viable.

2. Project goals and the means by which achievement of the goals will be measured, monitored and reported;

As stated above, one of the goals is to have the system offset 80% of the Windham Town Office Annex's annual electrical use. This is easily measured using the web-based tracking information for the arrays, which show energy production for each array on monthly, weekly, or daily levels.

The other goal of the proposed system installation is to show that solar energy makes economic sense for inclusion in residential and commercial settings. The East Windham Fire Station install is a larger system (a 40kw system that takes up the whole southerly roof of the building), but because it is on Falmouth Road, it lacks the visibility that this site can provide. This can be measured by the number of permits issued for solar energy systems in Windham, and attitudes toward solar energy can be measured as part of the upcoming update to Windham's Comprehensive Plan. Energy goals and strategies will be discussed through this planning process, and this installation, along with the existing installation at the East Windham Fire Station, will be part of that discussion.

3. The amount of expected annual energy production of the renewable resource technology and a description of how this was calculated including underlying assumptions and equations. Expected production should be expressed in kilowatt-hours or BTUs. If converted from another metric, please indicate the conversion formula used;

The project is for a 12.24 kw system, which will generate a total of approximately 18,221 kWhrs of electricity annually (7,208 kWhrs from the carport structure mounted system, and 11,013 kWhrs from the ground mounted sun tracking system). This will offset approximately 80% of the Town Office Annex electrical usage. The Annex houses the Town Manager's office, Tax Collection and the Clerk's office, along with an employee kitchen.

4. In the case of Research and Development proposals for the University of Maine System, the Maine Maritime Academy, or the Maine Community College System, information regarding the technical feasibility of the project to become commercially produced;

This is not applicable as the Town is applying for a demonstration project grants, not a research and development grant.

5. The prospects for wider adoption of the technology, including a discussion of whether the project can be replicated or scaled up and how;

A large part of the appeal for this project is that it utilizes two different ways to utilize solar energy arrays, and therefore the prospects of a broader adoption of the technology are greater. It is possible on a specific site like this the advantages of a ground mounted tracking array will be made clear and the Town could add sun tracking arrays to the site in the future. Another exciting possibility is showing an installation of a car-port array, which would be the first such installation in the state the Town or Energy Advisory Committee is aware of. Given the large parking areas that are a hallmark of North Windham's big-box and commercial strip

development patterns, using this installation as a demonstration project would start to build awareness among commercial property owners that this may be a good way to make more efficient use of currently under-utilized real estate to offset existing costs.

6. The benefit to the host facility/community;

As stated above, there would a direct financial benefit to the Town in the form of lower electrical bills. There is also the advantage that this installation, along with the East Windham Fire Station, will start to get residents and businesses talking about Windham as a "solar center" with potential economic development benefits. Though not possible to quantify at this time, being known for championing renewable energy projects and energy-efficiency efforts is valuable to the Town.

7. Any pollution offsets or renewable energy credits expected to result from the project.

The total pollution offsets for this project are 16,727 pounds of CO2 annually (6,617 pounds of CO2 from the carport system, and 10,110 pounds of CO2 from the ground mounted tracker system).

8. The potential of the project to increase awareness and use of renewable energy in the State. Please specify features of the project that will provide valuable information to the public about renewable energy generation and use, even if not resulting in direct generation of power. This could include results of a feasibility study or a project to study and test methods or technologies to address obstacles to the successful implementation of a renewable energy project in a community;

Awareness of renewable energy generation has been addressed through comments related to the siting of the system in an open, accessible property. Also as noted, this system will include a carport mounted array, which we believe to be the first in the state. All of the data regarding the functioning and generation of the system will be available in real-time over the web, and the Town's Energy Advisory Committee envisions getting this data to stream over the Committee's page on the Town web site.

9. A plan for public education and involvement regarding the project.

Information from this install will be posted on the Town's Energy Advisory Committee website, and will be used in discussions around energy issues as part of the Comprehensive Planning Process. The project is also to be sited in the vicinity

of the RSU 14 School Campus (see Figure 3) and this installation may be a resource for school projects as well.

Organizational and Management Capability

The Town has a demonstrated ability to organize and manage similar projects to the proposed solar system installation. The Town expects to Planning Director Ben Smith to serve as project manager for the Town should this grant be awarded. Mr. Smith has a successful track record with similar projects, as illustrated by the following recent projects:

- East Windham Fire Station, 2013. The Town worked with Revision Energy to have a 40kw solar PV array installed at the East Windham Fire Station. The Town entered into a power purchase agreement (PPA) with Revision in the summer of 2013, after learning of the PPA Revision entered into with a local non-profit for a solar PV install on that property. The Town's Energy Advisory Committee played a key role in seeing this project through.
- Efficiency Maine Template Grant & Energy Efficiency and Conservation Block Grant (EECBG), 2010-2011. Windham was awarded a Template Grant in the amount of $10,000, and a subsequent EECBG for about $26,000. Through the Template Grant, the Town formed an Energy Advisory Committee was formed, and the Town adopted an Energy Plan in 2010. The EECBG was used to audit four municipal buildings and make improvements based on those audits, including a complete upgrade of interior lighting in all municipal buildings, insulation and air sealing improvements at the Library and Town Office, and the installation of a gas boiler at the North Windham Fire Station.

Budget

The budget for this project is $59,544. This amount includes the total cost of materials and labor from Revision, quoted at $56,194, plus in-kind services from the Town for the earthwork and trenching associated with the installation of arrays estimated at $3,350. Attachment C, Project Cost Form, is attached to this RPF response, and provides a detailed estimate of costs.

The grant amount requested is $50,000, with Town committing a 20% match of $10,000 toward the project, which will be a combination of be in the form of cash and in-kind services, estimated at $6,650 and $3,350, respectively. This funding will be supported through the budgeting process for FY 2015, which begins on July 1, 2014.

ATTACHMENT C - PROJECT COST PROPOSAL FORM
Efficiency Maine Trust - RFP EM-013-2014

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Research and Development and Demonstration projects under the Renewable Resources Fund

COSTS		Hourly Billling Rate	Task 1 *Tracker Array*		Task 2 *Carport Arraty*		Task 3 *describe*		Task 4 *describe*		Task 5 *describe*		Task 6 *describe*		Other *describe*		Total Hours	Total Cost
			Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost		
LABOR																		
NAME	**TITLE**																	
Revision Installation	Solar Installation Technicians			$4,633		$4,539		$0		$0		$0		$0		$0	-	$ 9,172
Town of Windham Excavation	DPW Equipment & Operator			$2,000		$1,350		$0		$0		$0		$0		$0	-	$ 3,350
				$0		$0		$0		$0		$0		$0		$0	-	$ -
				$0		$0		$0		$0		$0		$0		$0	-	$ -
				$0		$0		$0		$0		$0		$0		$0	-	$ -
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				$0		$0		$0		$0		$0		$0		$0	-	$ -
		SUBTOTAL	**0**	**$6,633**	**0**	**$5,889**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$12,522**
OTHER DIRECT COSTS																		
6.12 kW PV solar array, mounted to Schletter carport	*solar array materials*					$19,264												$ 19,264
6.12 kW AllSun dual axis tracking PV array	*solar array materials*			$27,758														$ 27,758
																		$ -
	describe here																	$ -
	describe here																	$ -
	describe here																	$ -
	describe here																	$ -
		SUBTOTAL		**$27,758**		**$19,264**		**$0**		**$0**		**$0**		**$0**		**$0**		**$47,022**
SUBCONTRACTOR COSTS																		
	describe here																	
	describe here																	
	describe here																	
	describe here																	
		SUBTOTAL	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**
TOTAL ESTIMATED COSTS			**0**	**$34,391**	**0**	**$25,153**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$0**	**0**	**$59,544**

Energy Savings

Show annual and lifetime energy savings by measure separately. Clearly state all assumptions and their sources. Label all numbers with units.
This information is included in the grant application in *Estimated Project Cost Effictiveness, on page 5.*

PRIMARY CONTACT (Prime Contractor): **Anthony Plante**	**TITLE:** **Town Manager**
ORGANIZATION: **Town of Windham**	**PHONE:** **894-5900**
COMPLETED BY: Ben Smith	**TITLE:** Planning Director