



GREEN ENERGY OHIO RESIDENTIAL SOLAR THERMAL REBATE PROGRAM (GEO NOFA 09-01)

**GEO Residential Solar Thermal Rebate Program
Green Energy Ohio
850 Euclid Avenue
Suite 1027
Cleveland, Ohio 44114
Phone: (216) 526-5545
georebate@greenenergyohio.org**

OVERVIEW & REQUIREMENTS

SECTION 1 - SUMMARY

1.1 Overview

Green Energy Ohio (GEO) is a statewide nonprofit organization dedicated to promoting economically and environmentally sustainable energy policies and practices in Ohio. GEO serves as the Ohio Chapter of the American Solar Energy Society.

GEO is pleased to announce that it has been selected by The Sierra Club to receive funding to administer a solar thermal rebate program in Ohio. GEO is now receiving applications for rebates on solar water heating systems purchased after April 1, 2009 on residential properties in Ohio for the primary purpose to supplement domestic water heating. Qualifying applicants may apply for the rebate to cover a portion of the costs of eligible projects. Rebate funds are limited, but subject to program conditions and requirements, qualifying applications will be funded until all the funds allocated for this Notice of Funding Availability (GEO NOFA 09-01) have been exhausted.

1.2 Incentive Level

Eligible applicants can receive a rebate to cover a portion of the system cost based on the projected energy output from the solar collectors. Rebates will be calculated at \$30 per kBtu/day based on SRCC rating for 'Clear Day / C Interval' (see <http://www.solar-rating.org/ratings/ratings.htm>, download "Summary of SRCC Certified Solar Collector and Water Heating System Ratings"). The maximum rebate amount is \$2,400 per applicant.

1.3 How to Participate

- A. Review all *GEO Solar Thermal Rebate Application Forms*.
- B. Submit PART I of the *GEO Solar Thermal Rebate Application Form* to GEO, along with the required documentation.
 1. Applicants will be notified by email that the application has been received. Applicants will be notified by email within 30 days if their applications have been approved, denied, or if more information is required. Approved applicants will receive a Rebate Reservation Confirmation Number from GEO.
 2. Upon receiving a Rebate Reservation Number from GEO, applicants will have six (6) months to complete the system installation.
- C. After the installation is complete, submit PART II of the *GEO Solar Thermal Rebate Application Form* along with required documentation. Applicants will be notified by email that the application has been received.
- D. Systems are subject to random inspection. Once GEO receives PART II of the application, GEO may schedule a final inspection with the Applicant. Rebate funds will NOT be distributed until project is complete and meets final inspection requirements.
- E. Please allow 4-6 weeks from approval of the inspection by GEO for processing and issuing of the rebate check.
- F. Receive your rebate check.
- G. Enjoy clean and renewable energy and energy savings!

For all inquiries regarding the GEO Solar Thermal Rebate Program, contact GEO Solar Program Manger, Athan Barkoukis, by email at georebate@greenenergyohio.org or phone at (216) 526-5545.

SECTION 2 - ELIGIBILITY & REQUIREMENTS

2.1 Eligible Projects

Solar water heating systems purchased after April 1, 2009 on residential properties in Ohio are eligible for a rebate under this NOFA, provided the primary purpose of the system is to supplement domestic water heating, the system is installed by an eligible installer that meets all terms and conditions, and the system meets all minimum requirements. In addition, GEO is partnering with educational institutions to provide solar thermal training, and these institutions are eligible to receive a rebate under this NOFA.

2.2 Eligible Installers

- A. All systems must be installed by solar contractors pre-approved by GEO.
 1. Refer to Appendix 1 for the GEO Solar Thermal Installer Eligibility Form
 2. Refer to Appendix 2 for the List of Approved GEO Solar Thermal Installers

2.3 Minimum Requirements

- A. Projects can offset either natural gas or electrical usage, but an existing natural gas water heater cannot be replaced with an electric backup system.
- B. Portable and pool systems are not eligible for rebates. Systems can be used to supplement space heating, provided the primary purpose of the system is to supplement domestic water heating. Inspections will not include components associated with space heating systems.
- C. Each solar thermal system is eligible for one rebate not to exceed \$2,400.
- D. A Solar Pathfinder or substitute approved by GEO with a Site Analysis Report and Site Diagram must be included in PART I of the *GEO Solar Thermal Rebate Application Form*.
- E. All project components must be new equipment and come with a manufacturer's warranty of at least one year.
- F. The system must include at least a two-year installation warranty that covers any defect in the workmanship of the installation at no charge to the owner.
- G. All applicable permitting, licensing and building code requirements must be followed.
- H. Rebate applications may be submitted by the customer or by their solar energy contractor (with the customer's approval and consent).
- I. By accepting the rebate, rebate recipients agree to participate, for two years from the time of issued rebate, as a site on the Ohio Solar Tour coordinated by GEO in conjunction with the American Solar Energy Society's National Solar Tour. In addition, the recipient's name, photographs of the residences where the solar system is installed and information about the system may be used in various communications to the media and in educational publications.

2.4 System Requirements

A. Summary

1. Equipment installation must meet the following requirements in order to qualify for the rebate. These requirements are not all-encompassing and are intended only to address certain minimum safety and efficiency standards. Proposed deviations from the requirements will be considered, but they must be documented by the Applicant and approved by GEO.

B. Code Requirements

1. The installation must comply with the provisions of the National Electric Code (NEC), Ohio Plumbing Code, Ohio Mechanical Code and all other applicable local, state or federal codes.
2. All required permits must be properly obtained and posted.
3. All required inspections must be performed.

C. Solar Collectors

1. Collectors must be OG-100 certified by the Solar Rating and Certification Corporation (SRCC) and must be properly installed according to manufacturer's instructions. A list of SRCC Certified Collectors and Systems: <http://www.solar-rating.org/ratings/ratings.htm>

D. System

1. SRCC certified systems meeting the OG-300 standard must be used unless circumstances indicate that a non-OG-300 system would be superior for the customer. In that case, applicant **MUST** provide a detailed written explanation of the system design and equipment, indicating how the proposed system varies from the OG-300 standard. GEO will review the proposed system and inform the applicant if it is acceptable within 30 days. In all cases SRCC certified collectors must be used.
2. Systems must be pressurized closed loop antifreeze or drainback utilizing antifreeze or water
3. For pressurized closed loop antifreeze systems:
 - a. the closed loop must be fitted with the following components: a back check valve, a pressure relieve valve, an expansion tank, a pressure gauge, and propylene glycol that provides burst protection to a minimum of -25 degrees F.
 - b. the solar loop must be pressurized to a minimum of 25 pounds per square inch.
4. For drainback systems:
 - a. there is a minimum fall of ¼ -inch per 1 ft. in supply/return piping and the collectors, sloping back to the drainback reservoir.
 - b. if using antifreeze the propylene glycol must provide burst protection to at least -25 degrees F (drainback systems may use water for the solar fluid).
5. Temperature gauges must be installed in the solar collector loop, before and after the heat exchanger.
6. System must include a thermostatic mixing valve (set at 120 degrees F) to limit the maximum temperature of domestic hot water supplied to the house.
7. Storage capacity must be a minimum of 1.25 gallons per square foot of collector area for flat plate collectors, or a minimum of 0.4 gallons per lineal foot for evacuated tube collectors.
8. There is a back-up water heating system. An electric hot water heater cannot be used as a backup if the water was heated using gas prior to the solar thermal installation.
9. Product literature, system description and maintenance instructions must be provided to the customer.

E. Plumbing and Wiring

1. Areas where wiring or pipes pass through ceilings, walls, or other areas of the building must be properly restored and sealed.
2. Thermal insulation in areas where wiring or plumbing are installed must be replaced to “as found or better condition.”
3. All piping in solar loop is copper or stainless steel.
4. All fittings, valves, and gauges are copper, bronze, stainless steel or brass.
5. All plumbing needs to be insulated and rated to withstand over 250 degrees F and capable of withstanding moisture, ultraviolet radiation, and environmental exposure.
6. All piping must be supported every 6 feet.
7. All interconnecting wires must be copper.
8. Wiring connections must be properly made, insulated and weather-protected.
9. All wiring must be attached to the system components by the use of strain reliefs or cable clamps, unless enclosed by conduit.
10. All outside wiring must be rated for wet conditions and/or encased in liquid-tight conduit.
11. Wiring insulation located in areas with potentially high ambient temperature must be rated at 90°C or higher.

F. Siting

1. The installer is responsible for determining the optimal location of the solar collectors. A copy of the Site Analysis Report and Site Diagram must be submitted with this application.
 - a. Collectors must face within 45 degrees east or west of true south.
 - b. Collector tilt angle must be within 20 to 60 degrees of horizontal.
 - c. No annual collector shading based on the Site Analysis Report between 10AM- 2PM.

G. Collector Mounting

1. Collectors must be securely fastened to their mounting structure (roof or rack).
2. If a tilt rack raises the top of the collectors above the roof, the mounting hardware must be bolted to reinforced framing members in the roof or rafter where the bolt has a minimum of 3 inches grab (if reinforcing framing is less than 3 inches, bolts must have nut and washer).
3. If it is not possible to reinforce the roofing system, a rail may be added to the top of the roof, the rail lag bolted to the roof rafters, and the collectors bolted to the rail.

H. Labeling

1. System shall include clear labeling of the following components
 - a. Solar Fluid – Identify type of fluid, brand and concentration used
 - b. Solar Loop – Hot supply from collector
 - c. Solar Loop – Cool return to collector
 - d. Cold water supply to solar storage tank
 - e. Hot water outlet from solar storage tank
2. If external heat exchanger is used:
 - a. Cold water supply to heat exchanger
 - b. Hot water return from heat exchanger to storage tank
3. The system should be equipped with a visual operating status indicator
4. Operating instructions must be posted on or near the system, including recommended maintenance schedule

SECTION 3 – DOCUMENTATION

3.1. Required Documents for Application Part I (One copy each)

- PART I of the *GEO Solar Thermal Rebate Application Form*
- A Site Analysis Report
- Site Diagram
- SRCC *Certified Water Heating System* and *Certified Solar Collector* Data Sheets

3.2. Required Documents for Application Part II (One copy each)

- PART II of the *GEO Solar Thermal Rebate Application Form*
- Itemized paid invoices
- Passed code enforcement inspections (Indicate if not applicable)
- Digital photograph of solar thermal system, including collectors and balance of systems

SECTION 4 - COMMUNICATIONS

4.1 Communication & Inquiries

Applications containing all Required Supporting Documentation regarding GEO NOFA 09-01 may be submitted to the GEO Cleveland Office by mail or email. **ONLY COMPLETE APPLICATIONS WILL BE PROCESSED.** You may contact a GEO staff member by phone, mail, or email regarding any questions or inquiries. GEO accepts no responsibility for applications that are not delivered.

Cleveland Office

Green Energy Ohio
Attention: GEO Solar Thermal Rebate Program
850 Euclid Avenue, Suite 1027
Cleveland, Ohio 44114
Phone: (216) 526-5545
Email: georebate@GreenEnergyOhio.org

Main Office - Columbus

7870 Olentangy River Road, Suite 209
Columbus, Ohio 43235
Phone: 614-985-6131
Toll Free: (866) GREEN OH

SECTION 5 – ADMINISTRATIVE DETAILS

5.1 Cost of Application

All costs of preparing and submitting applications in response to this NOFA are solely the responsibility of the applicant. GEO shall not contribute, in any way, to the cost of the preparation and delivery of the application.

5.2 Confidentiality

All information submitted in response to this NOFA shall be public information unless a statutory exception exists which would exclude the information from being released to the public. Any information submitted with the proposal which the applicant feels is a trade secret must be conspicuously designated as such and shall be treated accordingly if the information is determined to be a trade secret under the laws of the State of Ohio. It is solely the applicant's duty to identify and mark such passages it deems trade secrets. All submitted applications will become the property of GEO and all information submitted in response to this NOFA will not be returned to the applicant.

5.3 Tax Liability

It is the responsibility of the applicant to determine the tax consequences of accepting rebate funding through this NOFA. Please consult your tax professional or the IRS.

5.4 Rebate Approval

- A. Only projects that meet all the requirements of the program will be eligible to receive a rebate award. GEO reserves the right to refuse any rebate application at our discretion; withhold payment until any identified problems with the solar domestic hot water system are resolved; terminate this reward in whole or in part due to the applicant's failure to fulfill the terms and conditions in this document; correct inaccurate awards; make the final determination on whether items meet the standards set forth in the program; inspect the system to ensure that it is consistent with program guidelines; and alter or discontinue the rebate offer at any time without notice.
- B. Rebates will be considered on a first come basis. The order of consideration will be the order of date/time stamped receipt. Incomplete applications will not be considered and will not be "in line" until they are complete, regardless of time-stamp.
- C. If site inspection fails, it is the responsibility of the applicant to address issues with the solar installer, and GEO is not responsible for any cost incurred to rectify the system. No paperwork will be processed for issuance of a rebate until the system meets all program requirements and the inspection checklist is approved by GEO, in its sole discretion.
- D. If, during the review process, it becomes necessary to collect additional information to determine project eligibility, the applicant will be notified in writing of deficiencies.
- E. GEO does not: endorse the workmanship of any eligible installer; or guarantee, warranty, or in any way represent or assume liability for any work proposed or carried out by an eligible installer. GEO is not responsible for assuring that the design, engineering, or installation of a solar water heating system is proper or complies with any particular laws, regulations, codes, licensing, certification or permit requirements, or industry standards. GEO does not make any representations of any kind regarding the results to be achieved by the solar water heating system or adequacy or safety of such measures. GEO makes no representation or warranty regarding the adequacy or comprehensiveness of the program requirements and does not assume any responsibility or liability for the operation, performance, maintenance, efficiency or effectiveness of any equipment or system installed in connection with a rebate from GEO. Nothing in this program shall be interpreted to impose any such responsibility or liability on GEO.



PART I GEO SOLAR THERMAL REBATE APPLICATION FORM

Please carefully read all of the following information. With the help of your Installation Contractor, fully complete Sections 1 through 10 of the GEO Solar Thermal Rebate Application Form Part I.

SECTION 1 – APPLICANT INFORMATION

Applicant Name: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Email Address: _____

Number of Occupants in the household: _____ Number of Bedrooms in the household: _____

SECTION 2 – CONTRACTOR INFORMATION

Applicant Name: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Email Address: _____

SECTION 3 - PROPOSED SYSTEM INFORMATION

System Installation: New Construction Retrofit

Domestic water heating: Domestic Water Heating & Space Heating:

Solar Hot Water System Displacing: Electric Gas Other _____

Back-up Hot Water System: Electric Gas Other _____

One tank acts as both the storage and back-up tank: Yes No

Electrical Distribution Company: _____

Gas Distribution Company: _____

Solar Collector Location: Rooftop Pole Mount or Ground Mount Other

Solar Collector Orientation: _____ degrees (e.g., 180 degrees magnetic South)

Solar Collector Tilt: _____ degrees (e.g., flat mount = 0 degrees; vertical mount = 90 degrees)

Estimated total annual hot water load offset by the Solar Thermal system is: _____%

Annual collector shading is zero between 10:00 AM – 2:00 PM based on Site Analysis Report:

Yes No (Stop: Not eligible for this program if answered 'No')



SECTION 4 – PROPOSED EQUIPMENT INFORMATION

SRCC OG-300^{1,2} System Manufacturer / SRCC #: _____ / _____
 System Type: Drainback w/ water ___ Drainback w/ antifreeze ___ Pressurized Closed Loop ___
 SRCC OG-100¹ Collector Manufacturer / SRCC #: _____ / _____
 Total Collector OG-100 Rating (Clear Day / C Interval): _____ kBtu/day
 Collector Type: Flat Plate ___ Evacuated Tube ___
 Number of Collectors: _____ Size of each Collector (sq. ft.) _____
 Total Rated Output: _____ kBtu/day (Number of Collectors x Collector OG-100 Rating)
 Solar Storage Tank Manufacturer: _____ Model Number: _____
 Tank Type: _____ Capacity: _____ gallons Insulation R-Value: _____
 Back-up Storage Tank Manufacturer: _____ Model Number: _____
 Tank Type: _____ Capacity: _____ gallons Insulation R-Value: _____
 Pump Manufacturer: _____ Model Number: _____

¹Include with application a copy of the *Certified Solar Water Heating System Data Sheet* and *Certified Solar Collector Data Sheet* available at <http://www.solar-rating.org/ratings/ratings.htm>

²Refer to ‘Overview and Requirements, Section 2.4 D’ regarding deviations from an SRCC OG-300 certified system (document any deviations in ‘Application Part I, Section 9’)

SECTION 5 - WARRANTY

Collectors: _____ years Storage Tank: _____ years Pumps: _____ years
 Installation: _____ years Heat Exchanger: _____ years

SECTION 6 - REBATE REQUEST CALCULATION

No annual collector shading between 10 AM – 2 PM based on the Site Analysis Report.
 The Maximum Rebate Amount equals \$2,400

Total Rated Output (Refer to Section 4): _____ kBtu/day x \$30/kBtu/day = \$ _____
 Requested Rebate Amount: \$ _____

SECTION 7 – APPLICATION CHECKLIST

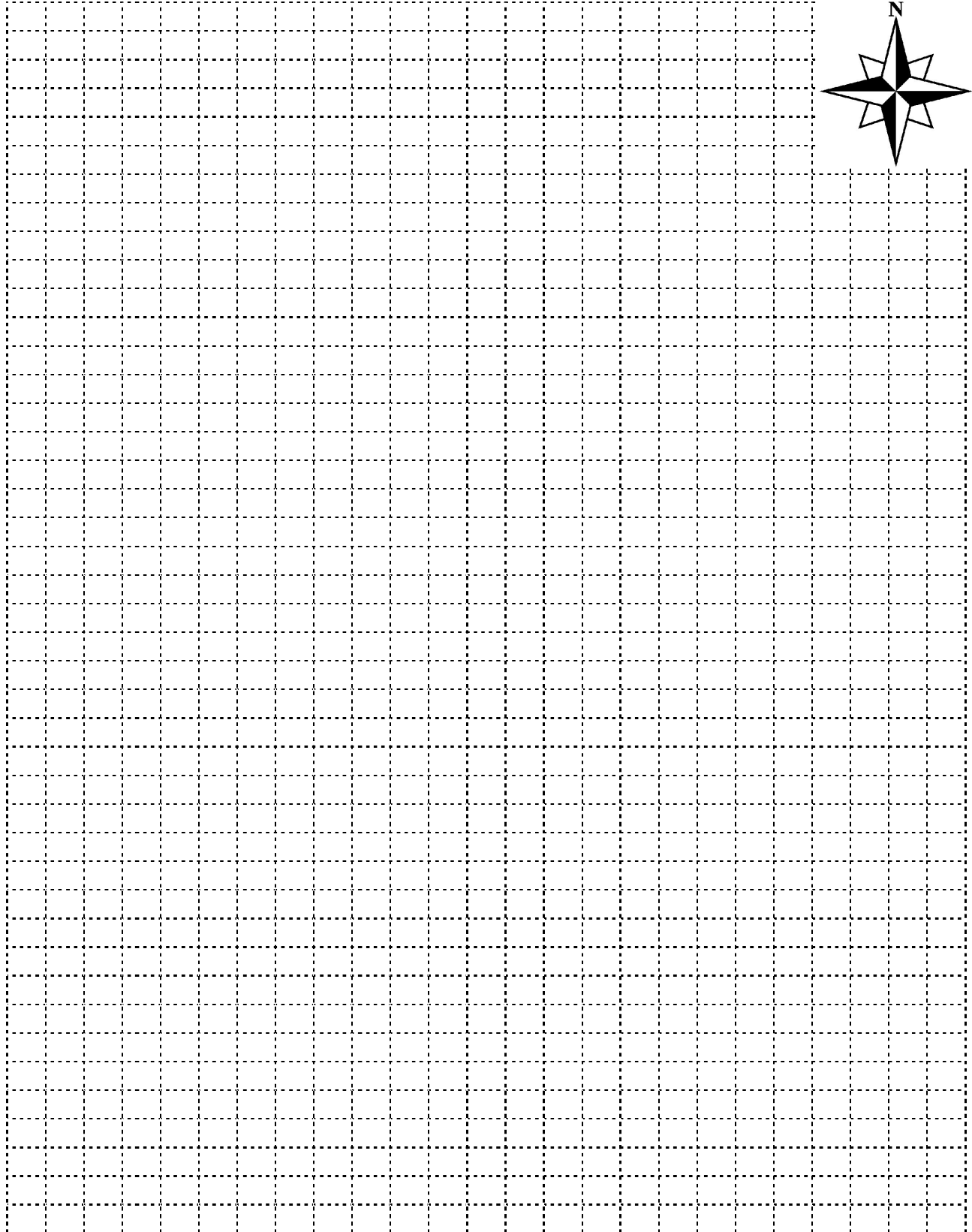
Review all items in the Application Checklist and ensure they have been submitted along with PART I of the GEO Solar Thermal Rebate Program. **ALL ITEMS MUST BE SUBMITTED TOGETHER. ONLY COMPLETE APPLICATIONS WILL BE PROCESSED.**

CHECK- OFF

- _____ PART I – GEO Solar Thermal Rebate Application
- _____ Solar Site Analysis Report
- _____ Site Diagram
- _____ SRCC *Certified Solar Water Heating System* and *Certified Solar Collector* Data Sheets

SECTION 8 – SOLAR THERMAL SYSTEM DIAGRAM

The Diagram should provide a descriptive idea of the structure's orientation, roof slopes, solar obstructions, proposed collector location and electrical service entrance.



SECTION 11 – EVALUATION
(To be completed by Personnel Only)

Application Complete Yes _____ No _____	Application Part I Received By	Date Received
Application Approval Yes _____ No _____	(1) Application Part I Reviewed By	Date Reviewed
Application Approval Yes _____ No _____	(2) Application Part I Reviewed By	Date Reviewed
Rebate Reservation #	Applicant Notified By	Date Notified

Administrative Notes:



PART II GEO SOLAR THERMAL REBATE APPLICATION FORM

Please carefully read all of the following information. With the help of your Installation Contractor, fully complete Sections 1 through 5 of the GEO Solar Thermal Rebate Application Form.

SECTION 1 – APPLICANT INFORMATION

Applicant Name: _____

Rebate Reservation Confirmation Number: _____

Date of Installation Completion: _____

SECTION 2 – INSPECTION CERTIFICATION CHECKLIST

Solar Contractor Check		GEO Inspector Check
Yes	No	Item
		Code Requirements
		The installation complies with the provisions of the National Electric Code (NEC), Ohio Plumbing Code, Ohio Mechanical Code and all other applicable local, state or federal codes or practices.
		All required permits were properly obtained and posted
		All required inspections were performed
		Solar Collectors
		Collectors are SRCC OG-100 Certified
		System
		OG-300 standard was used
		System is closed loop antifreeze or drainback utilizing antifreeze or water
		Temperature gauges are installed in the solar collector loop, before and after the heat exchanger
		System includes an thermostatic mixing valve (set at 120 degrees F)
		Storage capacity is a minimum of 1.25 gallons/ft ² of collector area for flat plate collectors, or a minimum of 0.4 gallons/linear foot for evacuated tube collectors
		A back-up water heating system is present.
		An electric hot water heater is not being used as a back-up if the water was heated using natural gas prior to the solar thermal installation
		Product literature, system description, and maintenance instructions has been provided to the customer
		For closed loop antifreeze systems the following components are present:
		A back check valve, a pressure relief valve, an expansion tank, a pressure gauge, and propylene glycol that provides burst protection to a minimum of -25 degrees F
		The solar loop is pressurized to at least 25 psi
		For drainback systems the following components are present:
		There is a minimum fall of ¼ inch per 1 feet in supply/return piping and the collectors, sloping back to the drainback reservoir
		If using antifreeze, propylene glycol that provides burst protection to a minimum of -25 degrees F
		Plumbing and Wiring
		Areas where wiring/piping pass through ceilings, walls or other areas of the building are properly restored and sealed



	Thermal insulation in areas where wiring or plumbing are installed must be replaced to “as found or better condition.”	
	All piping in solar loop is copper or stainless steel	
	All fittings, valves, and gauges are copper, bronze, stainless steel or brass	
	All plumbing is insulated to withstand over 250 degrees F and capable of withstanding moisture, ultraviolet radiation, and environmental exposure	
	All piping is supported every 6 feet	
	Wiring connections are properly made, insulated and weather-protected	
	All wiring is attached to the system components by the use of strain reliefs or cable clamps, unless enclosed by conduit	
	All outside wiring is rated for wet conditions and/or encased in liquid-tight conduit	
Siting		
	Collectors facing within 45 degrees east or west of true south	
	Collector tilt angle within 20 to 60 degrees of horizontal	
	No annual collector shading based on the Site Analysis Report between 10AM- 2PM	
Collector Mounting		
	Collectors are securely fastened to mounting structure, and reinforced if needed	
Labeling of the Following Components		
	Solar fluid (type, brand, concentration), solar loop (hot supply from collector and cool return to collector), cold water supply to solar storage tank, hot water outlet from solar storage tank	
	If external heat exchanger is used, cold water supply to heat exchanger and hot water return from heat exchanger to storage tank	
	The system is equipped with a visual operating status indicator	
	Operating instructions are posted on or near the system	

SECTION 3 – APPLICATION CHECKLIST

Review all items in the Application Checklist and ensure they have been submitted along with PART II of the GEO Solar Thermal Rebate Program. **ALL ITEMS MUST BE SUBMITTED TOGETHER. ONLY COMPLETE APPLICATIONS WILL BE PROCESSED.**

CHECK-OFF

- Completed PART II – GEO Solar Thermal Rebate Application
- Copies of itemized paid invoices
- Copies of passed code enforcement inspections (Indicate if not applicable)
- Digital photograph of solar thermal system, including collectors and balance of systems

SECTION 4 – APPLICANT CERTIFICATION

I acknowledge by my signature that the solar contractor has reviewed with me all appropriate operating instructions and recommended maintenance schedules for the solar thermal system. I agree to allow access to this system for inspection by a GEO representative or GEO designated subcontractor.

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SECTION 5 –INSTALLER CERTIFICATION

As an authorized agent of the Applicant, I hereby submit PART II – GEO Solar Thermal Rebate Application, to Green Energy Ohio (GEO). I understand that any false statement in this record may



subject the Applicant and Signer to criminal prosecution. I understand that additional information may be requested. I also understand that this document in no way constitutes a commitment of funds by Green Energy Ohio.

I hereby represent and certify that the foregoing and attached information, to the best of my knowledge and belief, is true, complete and accurately describes the completed project for which the rebate assistance is being sought. I further agree to adhere to all terms and conditions and minimum requirements under the GEO NOFA 09-01.

Installer Signature	Installer Name	Title	Date
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SECTION 6 – EVALUATION
(To be completed by Personnel Only)

Application Complete Yes ____ No ____	Application Part II Received By	Date Received
Inspection Approval Yes ____ No ____	Inspection By	Inspection Date
Application Approval Yes ____ No ____	(1) Application Part II Reviewed By	Date Reviewed
Application Approval Yes ____ No ____	(2) Application Part II Reviewed By	Date Reviewed
	Rebate Payment Mailed By	Date Rebate Payment Mailed

Inspector General Notes (List any inconsistencies from the application form and the installed system):

Administrative Notes: