

**NC SOLAR CENTER**  
**Clean Fuel Advanced Technology Program**  
**REQUEST FOR PROPOSALS**

*The North Carolina Solar Center at North Carolina State University has been awarded \$1.6 million in federal funds from the NC Department of Transportation with additional support provided by the NC State Energy Office and NC Division of Air Quality to develop a three-year Clean Fuel Advanced Technology (CFAT) Program. A primary purpose of the CFAT program is to provide transportation related emission reduction grants in eligible North Carolina counties. This Request for Proposals (RFP) represents Year one funding for the three-year program. Additional RFPs will be issued in 2007 & 2008.*

**2006 funds available: \$338,807**  
**Maximum per project award: \$100,000**  
**Application deadline: December 15, 2006**

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| <b>Section One: Eligibility</b> |
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### **1.1 Project Location**

The CFAT Program will rebate applicants for projects that reduce mobile related emissions in eligible North Carolina counties. The North Carolina Solar Center is seeking proposals from vehicle and fleet operators and fuel providers for transportation related projects that reduce emissions in North Carolina's non-attainment and maintenance counties for National Ambient Air Quality Standards. Both public and private entities whose mobile emission reduction projects take place in the following counties are encouraged to apply for CFAT funding: **Cabarrus, Catawba, \*Chatham, Davidson, Davie, Durham, Edgecombe, Forsyth, Franklin, Gaston, Granville, Guilford, \* Haywood, \*Iredell, Johnston, Lincoln, Mecklenburg, Nash, Orange, Person, Rowan, \*Swain, Union, Wake.**

**\* Represents partial counties.** The non-attainment portion of Swain and Haywood Counties is the Great Smoky Mountains National Park boundary. The non-attainment portion of both Chatham and Iredell are defined by townships from the Census. In Chatham the eligible townships are Baldwin, Williams, New Hope and Center. In Iredell County the non-attainment portions are Davidson and Coddle Creek. Projects that are adjacent to eligible areas that result in reduced emissions in the eligible area may apply for funds in proportion to the percent of emission reduction that takes place in the eligible area.

### **1.2. Eligible Technologies**

The CFAT program is designed to be as flexible and accommodating as possible to reach public and private sector applicants that have an interest in and commitment to mobile-related emission reduction technologies. The basic criteria for eligibility are that the project:

- Is a Transportation Project
- Reduces emissions
- Is located in a non-attainment or maintenance area

The specific transportation related technologies eligible for CFAT program reimbursement include:

### **1.2.1 Alternative Fuel Vehicles (AFVs)**

Up to 80% of the incremental costs of AFVs are eligible for funding. AFVs are defined as light and heavy-duty vehicles and construction equipment that operate on compressed natural gas (CNG), liquefied natural gas (LNG), propane (LPG), or electricity. The incremental costs of Original Equipment Manufacturer (OEM), EPA certified conversions and retrofits are eligible.

The incremental cost of an AFV is considered to be the difference between the base price of an AFV and a similar gasoline or diesel-powered vehicle. For vehicles that have no comparable vehicle from which to base incremental cost, the CFAT program may fund up to 80% of the base vehicle purchase price. For example Neighborhood Electric Vehicles (NEVs) and Personal Transporters (PTs) are eligible for up to 80% funding if used in place of a conventional vehicle.

### **1.2.2 Refueling Infrastructure**

Infrastructure to dispense and store alternative fuels is eligible for CFAT funding. Refueling infrastructure includes tanks, dispensers, signage, hoses and related equipment to store and pump biodiesel (B20 and greater), ethanol (E85), CNG, LNG, and LPG as well as electric vehicle charging stations for on-road vehicle use. Bulk storage tanks for biodiesel and ethanol distribution are eligible for funding as refueling infrastructure.

Up to 80% of the cost of alternative fuel refueling infrastructure may be reimbursed through the CFAT program. The value of land and existing related equipment may be considered as part of the required 20% match. Fair market land value must be stated when used as cost share. Old, outdated refueling infrastructure may not be used as cost share. Only equipment that will be directly used in proposed project, like the value of an existing underground storage tank to store E85 that will be dispensed through a new CFAT funded pump, is eligible to be used as cost share.

Infrastructure grant recipients will be required to sign a memorandum of agreement stating that only alternative fuel will be dispensed or sold from the equipment in a North Carolina non-attainment or maintenance area for a minimum of three (3) years after installation.

In the case of biodiesel (B20-B100) and ethanol (E85), priority will be given to preparing and converting existing equipment to store and dispense the fuels versus new refueling equipment. Capital expenses for cleaning existing storage tanks and converting and installing ethanol-compatible tank and dispenser components are eligible for reimbursement. However, all equipment must meet the NC Department of Agriculture Weights and Measures requirements for dispensing units and NC Department of Environment and Natural Resources requirements for storage tanks. All applicable local laws and zoning requirements must be met.

Stations that are convenient and open to the motoring public are favored over infrastructure that is limited to private or government fleets. In other words, priority will be given to projects that provide the greatest access to alternative fuels for the least cost.

Ineligible costs include but may not be limited to:

- Acquisition of property
- Construction of canopies

- Retail operating expenses and fuel costs, including the incremental cost of fuels

### **1.2.3 Idle Reduction Technologies**

Several technologies to reduce truck idling are eligible for CFAT funding and fall into two general categories: stationary and mobile. Mobile idle reduction technologies (MIRTs) include direct-fired heaters, auxiliary power units (APUs), and automatic engine idling reduction systems. Stationary technologies include truck stop electrification (TSE) and advanced truck stop electrification (ATSE). TSE and ATSE projects must be located in CFAT eligible areas.

TSE refers to a system of pre-wired distribution components that connect shore power to a truck's on-board equipment to provide heat, air conditioning, and other amenities without needing to run the main engine.

ATSE systems consist of stationary structures near each parking space that deliver heat and air conditioning, and other amenities. A minimum 20% cost share is required for all idle reduction technology applicants. However, ATSE proposals are strongly encouraged to provide greater levels of cost share (or at least 50%) in order to stretch 2006 CFAT program dollars.

Mobile idle reduction technologies (MIRTs), such as auxiliary power units, direct-fired heaters and, automatic engine idling systems must be used in an eligible area. Reimbursement for MIRTs will be based on the percentage of time the vehicle spends in the eligible area. For example if a truck is based in or adjacent to an eligible area and operates in the eligible region 50% of the time, the project is eligible to be reimbursed for up to 40% of the project cost (or 80% of the eligible 50%). Drivers will be required to keep a log of MIRT use.

Fleets applying for funding through this category are strongly encouraged to implement and enforce an idle reduction policy and will be awarded extra points for adopted idle reduction policies through the proposal evaluation process.

For a list of idle reduction technologies visit:

<http://www.epa.gov/smartway/idlingtechnologies.htm#loco-mobile-sdsu>

### **1.2.4 Hybrid Electric Vehicles**

The incremental cost of hybrid electric (HE) buses as compared to conventional diesel or gasoline buses are eligible for reimbursement. A minimum 20% cost share is required for all hybrid electric bus applicants. However, HE bus proposals are strongly encouraged to have greater levels of cost share (or at least 50%) in order to stretch 2006 CFAT program dollars.

For a list of heavy duty bus and vehicle manufactures (including HE buses) visit:

<http://www.eere.energy.gov/afdc/progs/related2alt.cgi?42>

### **1.2.5 Diesel Retrofits**

Diesel retrofits technologies that have been verified or certified by the U.S. Environmental Protection Agency, the California Air Resources Board or other such boards/ agencies are eligible for funding through the CFAT program. Diesel retrofits include: engine, re-powering (with

alternative fuels), and after-burn technologies but does not include fuel additives. Examples include diesel oxidation catalysts, crank case filtration systems and diesel particulate filters. Both on-road and off road retrofit projects are eligible for funding. On road applications include buses, service and utility vehicles. Off-road applications are limited to construction equipment.

Learn more about diesel retrofit technologies and verified technologies at:

<http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>

<http://www.arb.ca.gov/diesel/verdev/verdev.htm>

<http://www.arb.ca.gov/diesel/verdev/verifiedtechnologies/cvt.htm>

## Section Two: Project Purpose, Priorities and Requirements

### 2.1 Purpose and Priorities

The primary purpose of CFAT program grants is to provide funding to reduce regulated transportation related emissions in North Carolina counties that have poor air quality. Regulated emissions include carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), volatile organic compounds (VOCs) and particulate matter (PM). Unregulated emissions of concern include air toxics and greenhouse gases such as carbon dioxide (CO<sub>2</sub>). The reduction of air toxics helps protect human health by reducing exposure to carcinogenic material and prevents build up of this matter in our environment. The reduction of greenhouse gases is important because of a growing consensus that climate change is of significant concern and awareness that the burning of fossil fuels is primarily responsible for the rise in green house gas emissions. The use of alternative transportation fuels and advanced technologies can help provide cleaner, healthier air. Alternative fuels also help diversify fuel supplies at a time when U.S. reliance of imported oil is at an all-time high. Biofuels such as ethanol and biodiesel, by being agriculturally based and renewable, help support our agricultural heritage. Achieving these ancillary benefits, while reducing regulated transportation related emissions, is a priority of the CFAT program.

Expanded use of alternative fuels is sometimes hampered by the increased costs associated with their use. Biofuels such as biodiesel and E85 can be more expensive than petroleum fuels but do not have additional costs associated with the vehicles in which they operate. However, providing infrastructure to supply the fuels can be costly and present a barrier to more expanded use. Propane, electricity and natural gas, on the other hand, often cost less than gasoline and diesel but the vehicles in which these fuels operate cost more to purchase. Furthermore, acquiring equipment to accommodate vehicle refueling can present a significant barrier to fleet managers and fuel providers that are considering a switch to, or an addition of, an alternative fuel option to their operations. One of the purposes of the CFAT program is to demonstrate the availability and use of these environmentally preferable technologies. More information about alternative fuel vehicles (AFVs) and alternative fuels is available at: <http://www.eere.energy.gov/cleancities/afdc/>

Children are especially vulnerable to the health effects of poor air quality. Projects that reduce emissions in existing diesel vehicles, especially those used by North Carolina school children are encouraged. Because of new federal emission standards for heavy-duty diesel vehicles, new

vehicles are far cleaner than older vehicles that are on the road today and will be for years to come. The retrofitting this “legacy fleet” of older diesel vehicles such as school buses, construction equipment, delivery, utility, trade and transport trucks, with appropriate retrofit technologies that can significantly reduce emissions, is a priority of the CFAT project.

Along with AFVs, refueling infrastructure and diesel retrofits, idle reduction technologies such as truck stop electrification and mobile idle reduction technologies are a CFAT program priority for transport trucks and other fleets that spend significant hours per day idling. Idle reduction technologies not only will save applicants money by reducing the amount of fuel used in primary engines but will also improve air quality. Idle reduction technology applicants will be asked to provide a fleet baseline of the annual number of hours spent idling and estimate how much idling will be reduced through the proposed projects.

In addition to reducing transportation related emissions and demonstrating the potential for more widespread use of alternative fuels and advanced technologies, priorities of the CFAT program include:

- funding a diversity of project technologies
- having projects in wide range of eligible counties
- serving a variety of applicant types

## **2.2 Project Requirements**

There are several requirements that must be met by applicants:

1) **COST SHARE.** Applicants must provide a minimum of 20% cost share on proposed projects. Cost share funds must be non-federal dollars and directly related to the project.

For example, if the incremental cost of an AFV is \$10,000, an applicant must demonstrate a minimum contribution of \$2,000 and can request up to \$8,000 in grant funds. In other words the 20% cost share contribution is based on the total project cost or incremental cost, not the amount being requested.

Applicants must clearly state their cost-share contribution and will be granted a specific, not-to-exceed amount of funding based on their proposal and cost share contribution. Any expenses exceeding the proposed project costs will be the applicant’s responsibility. Cost share contributions will be reviewed in a case-by-case manner. In-kind contributions, such as existing infrastructure and administrative time, may be included as a cost share contribution but will not be ranked as high as high actual funds given as cost share.

2) **REBATE PROGRAM.** Successful applicants will be required to expend funds first and will then be reimbursed upon receipt of previously agreed upon proof of expenditures and/or documented in-kind contributions.

3) **LOCATION.** Projects must be located in or directly benefit (reduce emissions) CFAT eligible counties. Refer to Section 1.1 for eligible locations.

4) EMISSIONS REDUCTIONS. Projects must result in emission reductions in eligible areas and applicants must be willing to document emission reductions.

For example, requests for assistance with the incremental cost of purchasing an AFV must estimate the number of miles driven annually in the new vehicle and then document the miles driven for up to a three-year period. Likewise diesel retrofit projects will report the number of miles driven annually and projects that reduce truck idling will report before and after idling times for three (3) years after installation. Refueling infrastructure projects will be required to estimate and report how many gallons of alternative fuel is dispensed/distributed and if possible report on the type/number of vehicles that utilize the infrastructure.

The NC Solar Center will calculate the emissions reduced by the projects and report these benefits to the NC Department of Transportation, Division of Air Quality and State Energy Office.

5) PROJECT APPLICANTS. Applicants may not use project funds to meet any federal alternative fuel, advanced transportation, or petroleum displacement requirements. Federal, state, and local government entities, businesses, non-profits and individuals are all eligible to apply.

6) REPORTING. Brief quarterly and final reports that capture key applicable data on fuel usage, idling reductions, emissions reductions, etc., will be required of successful applicants.

### **Section Three: Evaluation Criteria**

3.1 All CFAT projects will be evaluated on the basis of the emissions that are reduced. Applicants are encouraged to provide emission reduction analysis, however the NC Solar Center will also conduct emission analysis on all proposals as part of the evaluation process. All proposals will be evaluated on a basis of cost versus emissions benefit for criteria emissions. Additional emissions benefits from non-regulated emissions such as green house gas emissions and air toxics will also be taken into consideration. The CFAT program intends to award a diversity of projects and will strive to award projects in all eligible counties over its three (3) planned funding cycles. Individuals, businesses, non-profits, local, state and federal operations located in CFAT eligible areas are encouraged to apply.

3.2 A CFAT evaluation committee will review all proposals. The NC Solar Center reserves the right to set aside up to 25% of Year One funding for pilot projects and other projects deemed of special interest.

3.3 Priority shall be given for projects that rank the highest given the following criteria, representing a total of 100 points:

- 1) **Cost versus regulated emission reductions-** CFAT program organizers seek the greatest reduction of regulated emissions for the least cost. Regulated emissions include carbon monoxide (CO), oxides of nitrogen (NOx), and volatile organic compounds (VOCs) and particulate matter (PM). **(30 points)**

2) **Cost-share contribution** – CFAT program organizers seek partnerships with grant recipients that demonstrate strong project commitment through cost share contributions that exceed the set minimum requirements. Cost share is defined as the funds and resources that an applicant directly contributes to a project. **Project applicants must contribute a minimum of 20% of the total incremental cost (AFVS and HEVs) or project cost (infrastructure, idle reduction technology, diesel retrofits).** Any applicant that provides for a higher percentage cost share contribution will be given more weight in the review process. Actual out-of-pocket contributions will be given more value over in-kind contributions. Actual out-of-pocket contributions include part of the incremental cost of purchasing an AFV versus a conventionally fueled vehicle and the actual cost of purchasing and installing refueling equipment, diesel retrofits and idle reduction technologies. In-kind contributions are defined as the value assigned for administrative time and to existing property in the case of refueling infrastructure and truck stop electrification projects. The value of the existing vehicle that will utilize diesel retrofits and/or mobile idle reduction technologies **will not** be considered as part of the required 20% cost share. Cost share contributions must be clearly explained in the applicant’s proposal.

**(20 points)**

3) **Reduction of non-regulated emissions-** Proposals that reduce non-regulated emissions such as air toxics and greenhouse gas emissions will be given consideration. Motor vehicles emit several air toxics that EPA classifies as known or probable human carcinogens. Benzene, for instance, is a known human carcinogen, while formaldehyde, acetaldehyde, 1,3-butadiene and diesel particulate matter are probable human carcinogens. Learn more about air toxics at: <http://www.epa.gov/OMSWWW/toxics.htm#what> Carbon dioxide is a primary greenhouse gas. Learn more about greenhouse gas emissions and climate change at:

<http://www.eia.doe.gov/oiaf/1605/1605a.html>

**(10 points)**

4) **Diversity of projects** – Program administrators seek proposals for all eligible types of projects that are located throughout the 24 eligible counties. Project evaluators will take into account the diversity of proposals and how the proposed projects support efforts to advance the use of alternative fuels and advanced transportation technologies throughout the eligible area with both public and private sector partners.

**(10 points)**

5) **Continued use/policy commitment** – Program administrators seek projects that will have the most lasting impact on emissions and expanding the use of AFVs, refueling infrastructure, diesel retrofits, and idle reduction technology. This impact is measured by evaluating the likelihood that emission reduction technology use or practice will continue after the grant ends.

For example: a purchase of a dedicated AFV (one that operates exclusively on an alternative fuel) will be weighted more favorably than a bi-fuel vehicle. Proposals for the purchase of bi-fuel vehicles should provide a clear description of how applicant intends to ensure alternative fuel use.

Applicants that have policies that assure related emission reductions will be ranked higher than an applicant that does not have such organizational policies or a stated voluntary commitment to reduced emissions. **(10 points)**

For example: a school system that has an idle reduction policy in place that is enforced will be ranked higher than another applicant that does not. Applicants should provide reviewers with pertinent policies and commitments to continued emissions reductions/expanded use of advanced transportation technologies.

**6) Public Awareness/education:** Expanding awareness about the benefits of alternative fuels and advanced transportation technologies is an important component of increasing use across the state. Evaluators will weight proposals that reflect a strategy to raise awareness through the media, signage, public speaking engagements and other methods more favorably than proposals that do not incorporate any strategy or commitment to raise awareness. **(10 points)**

**7) New Users/Number of Users** – Expanding the use of alternative fuels and advanced transportation technology necessitates expanding these fuels and technologies beyond those entities already using them. Evaluators will give priority to new, “first time” users. However, existing users are encouraged to apply for costs associated with new technologies other than what they are currently using. This “new use” must be described in the application. Priority will also be given to applicants that provide public access to alternative fuel refueling infrastructure. Expanding access to alternative fuels for the motoring public at service stations will be given weight by project evaluators. **(10 points)**

## **Section Four: Applications Procedures**

4.1 The Clean Fuels Advanced Technology Project Application Cover Sheet must accompany all applications. (Use cover page attached to this RFP)

4.2 In addition to cover page, applicants should include a narrative that uses the following section headings:

**DESCRIPTION** – a brief project description/summary and explanation of how this project meets CFAT eligibility requirements

**FUNDING** - Detail the use of proposed funding for the project including matching and in-kind funds. Any quotes that outline project costs should be explained and included here.

**EVALUATION**- explain how the project meets the above stated project evaluation criteria, including emissions analysis, new use, public education and any related policy commitments. Include pertinent information that relates to your project here. For example if you are applying for MIRT funding provide an estimate of the number of annual engine hours spent idling and an estimate of how much (what percentage) this would be reduced



through the proposed project. Be sure to include how this estimate was derived: driver estimate, engine control module, etc. If you are applying for funding for refueling infrastructure be sure to provide an estimate of how much fuel will be dispensed annually and if the station will be open to the public.

**TIMELINE-** briefly outline a procedural plan and timeline to complete proposed project

**SUPPORT-** list and then attach any appendices that include letters of support and letters of intent from contributors of matching or in-kind funds if applicable to project.

4.3 Conference calls are planned for October 30 from 10:00-12:00 and November 20 from 1:00-3:00 for potential applicants to get questions answered about application procedures, project eligibility and other related concerns. The call in number for both call dates is 919-515-7153.

4.4 Applications must be received by the NC Solar Center by 4:00 PM December 15, 2006. Upon initial review applicants may be asked to submit more detailed information. Awards will be announced in January 2007. Recipients will be awarded a specific not-to-exceed dollar amount based on estimated costs. Awards are for a fixed amount. Vehicle, infrastructure, and equipment prices may change over time thereby changing incremental cost estimates. Grantees may have to adjust their purchases accordingly, as the grant amount will not change. Applicants should consider the above stated dates when developing a procedural plan.

4.5 Electronic applications in Word and Excel format are strongly encouraged and will be accepted at [anne\\_tazewell@ncsu.edu](mailto:anne_tazewell@ncsu.edu) . Questions regarding this proposal should be directed to Anne Tazewell at (919) 513-7831 or emailed to [anne\\_tazewell@ncsu.edu](mailto:anne_tazewell@ncsu.edu).

Applications may also be mailed or faxed to:

CFAT Program Attn: Anne Tazewell  
North Carolina Solar Center  
Campus Box7402  
NC State University  
Raleigh, NC 27695

Fax: 919-515-6159

**All applications are due by 4:00 PM on December 15, 2006**

**The Solar Center reserves the right to extend application deadline and accept rolling applications based on availability of funds.**

*CFAT applicants that are interested in applying for Mobile Source Emission Reduction Grant (MSERG) funds from the NC Division of Air Quality are encouraged to submit to both the CFAT and MSERG programs. If selected for CFAT funding your proposal will automatically be withdrawn for consideration by the MSERG program (unless of course it's for a totally different project). For more information about MSERG visit:*

[http://daq.state.nc.us/motor/ms\\_grants/](http://daq.state.nc.us/motor/ms_grants/)

2007 MSERG call for project dates are October 1 - December 31 2006