

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

# New Technology Research & Development Program

NTRD Applicant Workshop

Air Quality Division      K. Williams, C. Donovan      October 25, 2010

## NTRD Objectives

- Facilitate the development, verification / certification, and deployment of commercialized technologies to reduce emissions of NO<sub>x</sub> in nonattainment areas designated in this state.
- Help Texas become a leader in new technologies that can solve the state's environmental challenges while creating new business and industry in the state.
- Improve the quality of air in this state in order to meet standards established under the federal Clean Air Act.

Exhaust Gas Recirculation (EGR) system  
Photo courtesy of Southwest Research Institute - San Antonio, Texas

Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 2

## NTRD and the Texas Emissions Reduction Plan (TERP)

TERP and NTRD focus primarily on reducing Nitrogen Oxides (NO<sub>x</sub>)

Major sources of NO<sub>x</sub> include:

- Vehicles
- Power Plants
- Burning of Fuels

Drawing courtesy of National Aeronautics and Space Administration (NASA)

Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 3

## NTRD Project Categories

- TERP Eligible
- Stationary Sources
- Advanced Technologies
- Qualifying Fuels
- Field Validation

Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 4

## TERP Eligible

Definition:

- Development, testing, and certification or verification of retrofits, after-treatment systems, and other advanced technologies that reduce NO<sub>x</sub> emissions from *existing* equipment and engines.

Schematic of a Selective Catalytic Reduction (SCR) System

Drawing courtesy of U.S. Department of Energy

Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 5

## TERP Eligible

Technology must:

- Reduce NO<sub>x</sub> emissions by minimum 25%
- Not significantly decrease fuel economy
- Be eligible for funding under the TERP program

Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 6

## Advanced Technologies

### Definition:

Development and testing of advanced technologies that produce very low or zero NO<sub>x</sub> emissions from:

- New stationary engines
- New mobile engines
- New vehicles



Photo of Toyota hybrid engine

## Advanced Technologies

### Applicant must:

- Propose a *new* low-NO<sub>x</sub> or zero-NO<sub>x</sub> vehicle and/or mobile or stationary engine
- Include some validation or certification testing to verify emissions reductions, if proposing low-NO<sub>x</sub>

## Stationary Sources

### Definition:

- Development and testing of advanced technologies that reduce NO<sub>x</sub> emissions from stationary sources.



Photo of model William H. Zimmer Power Plant with scrubbers  
Mascov, Ohio

## Stationary Sources

### Technology must:

- Reduce NO<sub>x</sub>
- Reduce other emissions from stationary sources

## Qualifying Fuels

### Definition:

Development of

- innovative qualifying fuels or
- qualifying fuel production technologies

that make use of energy resources in Texas.



Fuel being tested for emissions performance at Southwest Research Institute in San Antonio, Texas

## What is a Qualifying Fuel?

Any liquid or gaseous fuel or additive that is ultimately dispensed into a motor vehicle, on-road heavy-duty vehicle, non-road equipment, or a stationary engine that reduces emissions of nitrogen oxides, as determined by the TCEQ, beyond reductions required by state or federal law.

## Qualifying Fuels

*If a potential qualifying fuel:*

- Must propose verification testing

**OR**

*If a qualifying fuel production technology:*

- Must have already verified the emission reduction impact of the fuel with EPA or CARB

Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 13

## Qualifying Fuels

Preference is given to projects that:

- make use of otherwise unusable energy sources in Texas

OR

- enable production of qualifying fuels in Texas at lower prices.

Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 14

## Field Validation

**Definition:**

Field validation of technologies that

- have been shown to reduce NO<sub>x</sub> emissions (through verification/certification); and
- require demonstration of viability for full commercial acceptance.

Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 15

## Field Validation

Applicant must:

- Propose validation of a fully developed technology
  - Must be certified/verified if applicable
- Propose validation within Texas
  - Esp. non-attainment or near-nonattainment areas

Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 16

## Field Validation

Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 17

## Eligible Applicants

*Applicants for all categories must:*

- Propose only 1 stage of development/testing
- Be the primary technology holder or demonstration site

Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 18



## Application Process

Prior to filling out application, we recommend reviewing:

- NTRD Guidelines
- RFGA

both available at [terpgrants.org](http://terpgrants.org)

Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 19



## Application Process

**PART A**  
(Project background info & contacts)

- All applicants must fill out *same form*

**PART B**  
(Technical project info)

- Applicants must fill out (1) form *corresponding to their project category*

Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 20



## Applications

Be sure to submit:

- 3 signed paper copies of all forms
- 1 electronic copy
- Labeled and separate confidential information



Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 21



## Applications

Provide clear and extensive details about:

- Project Stage
- Testing Protocols
- Activities Planned
- Technical Merits of Technology
  - \* especially previous test results
- Commercialization Plan

Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 22



## Applications

Avoiding application rejection:

- Matching funds (minimum 25%)
- Applicant is the primary technology holder
- Project stage - pick earliest one
- Timeline - work complete before 5/31/2013
- Appropriate project category



Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 23



## Applications

Strengthening applications:

- Technical support for all claims
- Clear decision points in SOW & timeline
- Understanding of certification/verification
- Clear and immediate commercialization potential
- Only eligible expenses



Air Quality Division • NTRD, KW, CD, October 25, 2010 • Page 24

## Commercialization



In Commercialization Plan, please identify and describe:

- Market for technology (Texas and elsewhere)
- Target year
- End user or customer
- Cost / cost effectiveness
- Partnerships

Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 25

## Confidential Info

- **MUST** be submitted separately
  - Separate envelope
  - Every page marked: *“Confidential/Proprietary: inform applicant & Seek AG opinion before releasing”*
  - DO NOT submit electronically
- Supporting info only



Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 26

## Funding



- No maximum award amount
- All funds awarded in FY 2011 must be used by May 2013
- Matching funds reported
- NTRD Grants adhere to Uniform Grants Management Standards

Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 27

## Contract

Shell contract on website – Please Review!  
TCEQ Will Not Modify Terms

Notable Terms:

- Reporting requirements
  - Status reports
  - Financial reporting
- UGMS & eligible expenses
- IP language

Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 28

## Reporting




1. During Project
  - Monthly Status
  - Monthly Financial
2. Wrap Up
  - Final Status
  - Final Financial
3. Follow Up
  - Quarterly Disposition
  - Quarterly Commercialization

Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 29

## NTRD Contacts

Kate Williams - Colin Donovan  
 (512) 239-4950  
[www.terpgrants.org](http://www.terpgrants.org)



Air Quality Division • NTRD, KW, CD: October 25, 2010 • Page 30