



**SBIR & Global Trade Summit**  
**Uncasville, CT**  
**July 26, 2012**

***EERE Small Business Innovation Research and  
Small Business Technology Transfer***

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# OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY



## ENERGY EFFICIENCY

- **Advanced Manufacturing**
- **Building Technologies**
- **Federal Energy Management**
- **Weatherization & Intergovernmental**



## RENEWABLE ENERGY

- **Geothermal Technologies**
- **Solar Energy Technologies**
- **Wind & Water Technologies**



## TRANSPORTATION

- **Biomass & Biorefinery Systems**
- **Hydrogen & Fuel Cell Technologies**
- **Vehicle Technologies**

# Outline

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- EERE has Heard from and Responds to Small Businesses
  - Broad topics
  - Pre-solicitation Topics Webinar
  - Pre-applications
- Metrics & Evaluation—Success Stories!
- DOE Laboratory Technologies (TTO)
- Other Reauthorization Items
  - Basic/+150% Award Amounts
- Other DOE
  - Energy Innovation Portal
  - STARTUP America
- FY 2013 SBIR/STTR Schedule and Beyond SBIR

# EERE has Heard from Small Businesses

During fact-finding roundtables in 2011 with our previous Assistant Secretary, Henry Kelly, small businesses complained that our SBIR/STTR solicitations are not:

- **Timely** (innovative ideas happen more than once a year), or
- **Flexible** (narrow/rigid topics can be an obstacle to innovative solutions).

They also pointed out that EERE's **SBIR Award Rate** is far too low.



Doc finishing his Phase I grant with prototype testing.

# What DOE/EERE is Doing to Respond

- DOE released its 3<sup>rd</sup> SBIR/STTR solicitation in FY2012 with EERE BROAD topics, but with specific performance objectives.
- Using *mandatory pre-applications* to ensure that the proposed solutions are viable before asking potential applicants to write a full application.
- And also responding to reauthorization
  - Metrics and evaluation
  - National laboratory technologies
  - Award amount



Doc with his commercialized “ Mr. Fusion “ Post Phase II.

# EERE 'Broad Topic' Development

## Broad Topics

1. Based on program goals as described on EERE website ([www1.eere.energy.gov/hydrogenandfuelcells/index.html](http://www1.eere.energy.gov/hydrogenandfuelcells/index.html))
2. Clearly specify technical and economic problems to be solved with high hurdles for success and deadlines
3. Background information (introduction/ references) minimized.

**Performance-based metrics:** what the problem is, not how to get there.

**Ambitious, specific targets, timetables and goals** e.g. for EERE's Fuel Cell Technologies (FCT) Program improving durability to equivalent of 150,000 miles of driving for automotive fuel cell systems by 2017.

- Transportation fuel cell system components subtopic projects must contribute to an 80 kW (net) FC system cost of \$30/kw by 2020.
- Fibers, resins and/or composite additives projects under the Hydrogen Storage subtopic must result in gas cylinders for hydrogen storage that meet or exceed the performance specifications of today's cylinders ...with costs at least 25% lower.

# Pre-solicitation Topics Webinar

- Purpose:
  - Potential applicants' ask (or hear others ask) questions of DOE technical topic managers (TTMs)
  - TTMs explain exactly how pre-applications will be evaluated
  - Provides a resource once solicitation is open and direct questions to TTMs are no longer an option
- The first was a Phase I Release 3 (EERE only) Topic Webinar  
March 19, 2012
  - 9 topics, 30 subtopics covered
  - >1200 registrants
- Planned for FY13
  - DOE-SBIR will hold a topic webinar for three subgroups of topics in the forthcoming solicitation ~ 1-2 weeks after topics are issued.
  - Monday, July 30, 2012 FY13 Release 1 Webinar

# Mandatory Pre-Applications (Release 3)

- Primary purpose
  - Identify applicants whose projects address the topic and subtopic AND the specified objectives; only applicants who receive a letter of encouragement may submit a full application
- Role of Topic Managers
  - Provide justification for discouraged pre-applications based on topic and program priorities.
  - Identify reviewers for encouraged pre-applications solicitation.

## Content:

Title

Topic and subtopic

Project description (<2000 words and up to 5 pages)

List of collaborators

Small business information

Name, address

Business official name, signature, and contact information

Principal investigator



# Congressional Mandate on Metrics

“The head of each Federal agency required to participate in the SBIR program or the STTR program shall develop metrics to evaluate the effectiveness and the benefit to the people of the United States of the SBIR program and the STTR program of the Federal agency that

- **(A) are science-based and statistically driven;**
- **(B) reflect the mission of the Federal agency;**  
and
- **(C) include factors relating to the economic impact of the programs”**

# EERE SBIR Metrics/Evaluation—Success Stories!

- Evaluate commercialization metrics (developed by DOE-SBIR and interagency group) and performance metrics (developed by EERE program)

A Hydrogen/Fuel Cell Project from 1997 has the best score on our proposed Commercialization metric: EIC Laboratories' *CO-Tolerant Anodes for PEM Fuel Cells* by the 2006 DOE survey already had a Sales to Investment ratio of **61:1**

- Develop EERE SBIR/STTR Program “logic model”
- Retain world class evaluators for
  - design metrics that can be rigorously analyzed
  - questionnaires to eliminate bias
- Use one or more Control Groups

REB Research & Consulting,  
*ME100 Methanol Reforming  
Hydrogen Generator*  
([www.rebresearch.com/hydrogen\\_generators.html](http://www.rebresearch.com/hydrogen_generators.html))



This 2004 SBIR grant led to the only metal membrane-based hydrogen generator makes water-free, 99.99995%-pure hydrogen safely from a 1:1 mix of methanol and water.

a. Performance Metrics: purity of H<sub>2</sub>; amount of H<sub>2</sub> generated to date (Btus).

b. Commercialization metric: Sales/Investment: **30:1**

# Topic Development with DOE Lab Technologies

- DOE/SBIR Office invited all Tech Transfer Offices at DOE Labs to participate in topic development based on their lab technology opportunities.
- 10 Labs participating in FY13 at right
- Technology transfer opportunities (TTOs) and guidance was circulated with the July 16, 2012 call for topics for Release 1.

National Lab	TT director/lead
Ames National Lab (SC)	Debra Covey
Argonne National Lab (SC)	Deborah Clayton
Brookhaven National Lab (SC)	Walter Copan
Idaho National Lab (NE)	Steve McMaster
Lawrence Berkeley National Lab (SC)	Cheryl Fragiadakis
Lawrence Livermore National Lab (NNSA)	Erik Stenehjem
Los Alamos National Lab (NNSA)	John Mott
Oak Ridge National Lab (SC)	Michael Paulus
Sandia National Lab (NNSA)	Hal Morgan
Savannah River National Lab (NNSA)	Dale Haas

*The TTO Topic approach offers flexibility.*

# FY 2013 Awards—Basic to +150% Award Amounts

- New Legislation
  - \$150,000 for Phase I (\$1,000,000 for Phase II)
  - Agencies can set amounts up to 150% of the guideline amounts (\$225,000 for Phase I) without requiring a waiver from SBA (\$1,500,000 for Phase II)
- FY 2013 FOAs
  - Two different award amounts appear in Release I. The amount is specified with each topic description as desired by the program.
  - Phase I award amounts for FY13 FOAs (and Phase II amounts for FY14 FOAs)
    - \$150,000/\$1,000,000 OR \$225,000/\$1,500,000
  - Amounts in excess of \$225,000/\$1,500,000 are possible but the program must request waiver (in advance) for each topic from SBA.

# Energy Innovation Portal

Web application bridging the information gap between commercial partners and DOE-created technologies that are covered by more than 16,000 issued patents and patent applications.

The Portal includes 640+ business-friendly technology summaries that provide high-level descriptions, benefits and potential applications of DOE National Laboratory technologies (with others coming soon).

Designed to support...

- Investors
- Corporate Technology Scouts
- Entrepreneurs
- Innovators
- Knowledge Seekers
- Builders
- Scientists
- Analysts

Provides....

- Faceted search and browse
- Authorized API
- Distributed Content Widgets
- Lead Tracking
- Contextualized Patent Search
- Patent Taxonomy



# Double # Startups based on Lab Technology

## START-UP AMERICA

- Administration-level effort & private partnership
  - <http://www.whitehouse.gov/startup-america-fact-sheet>
  - <http://www://startupamericapartnership.org>
- Pilot Program ends December 31, 2012
  - Template option agreement for any DOE patent
  - **\$1,000 up-front fee**
  - Licensing option for up to 12 months
  - 6-month option with a no-cost extension for 6 months
  - Portfolio of up to 3 patents for a specific technology from a single laboratory
  - Deferment of patent costs for up to 2 years
  - Optional VC mentoring available
  - Showcase at ARPA-E Innovation Summit
  - \*These are patents held by the contractors that manage DOE Laboratories. For patents owned by DOE, license agreements with similar terms will be offered.



90% off  
standard  
fees !

# EERE SBIR/STTR Schedule and NEXT Steps

## Fiscal Year 13 Solicitation Schedule

	Phase I		
	Release 1 (SC)	Release 2	Release 3
Pre-Release	<a href="#">07/16/12</a>	10/29/12	TBD
FOA Release	08/13/12	11/26/12	TBD
Pre-Apps Due	09/04/12	12/17/12	TBD
Applications Due	10/16/12	02/05/13	TBD
Award Notification	~01/13*	~05/13*	TBD
Grant Start Date	~02/13*	~05/13*	TBD
	Phase II		
	Release 1	Release 2	Release 3
FOA Issued	10/22/12	02/27/13	07/15/13
Applications Due	12/11/12	04/17/13	05/5/13
Award Notification	~02/13*	~06/13*	~11/13*
Grant Start Date	~03/13*	~07/13*	~12/13*

In FY 2013

- Phase I: \$150k **or** 225K, 1 yr
- Phase II: \$1..0M **or** 1.5M, 2 yrs

Beyond **SBIR**



- EERE supports the **Clean Energy Alliance (comprising 40+ technology incubators)** to link small businesses—especially Phase II graduates—with these incubators to facilitate commercialization.

**LoadIQ**, a 2012 SBIR Phase I grantee, developed *Utility Accountant* technology, which enables consumers to see their energy use itemized in real time and reduce their energy costs.



**LoadIQ** recently raised **\$1.1M** from public and private sector sources and landed pre-purchase commercial trials for a food service company.



Energy Efficiency & Renewable Energy

**BACKUP after this**

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**BACKUP**



# SBIR Reauthorization: Major Provisions

- Allocation Increase and Extension of Termination Dates
  - To September 30, 2017

	<i>FY11</i>	<i>FY12</i>	<i>FY13</i>	<i>FY14</i>	<i>FY15</i>	<i>FY16</i>	<i>FY17</i>
<b>SBIR</b>	2.5%	2.6%	<b>2.7%</b>	2.8%	2.9%	3.0%	3.2%
<b>STTR</b>	0.30%	0.35%	<b>0.35%</b>	0.40%	0.40%	0.45%	0.45%
<b>combined</b>	2.80%	2.95%	<b>3.05%</b>	3.20%	3.30%	3.45%	3.65%

- Continued Studies by National Academy of Sciences
- Annual Report on SBIR and STTR Program Goals, Metrics and Evaluation
- Still Awaiting SBA's "June 30" Policy Directive