

# Retooling for Ohio's Advanced Energy Markets

**Ohio Third Frontier**

June 16, 2008

Ohio Department of Agriculture

## Ohio Third Frontier Project

- \$1.6 billion economic development initiative to strengthen Ohio's economy
  - State investment will leverage private and federal support for a total investment of \$4.5 billion
  - Represents Ohio's largest-ever investment in expanding research capabilities and promoting start-up companies
  - Designed to encourage collaboration among and between industry, government and universities
  - The return on investment? A vibrant, diverse economy providing high-paying jobs and an enhanced quality of life for all Ohioans
- 

# Technology & Innovation Division Programs

- **Ohio Third Frontier Project**
  - Biomedical Research and Commercialization Program
  - New Research & Development Center Cost Share Program
  - Ohio Research Scholars Program
  - **Wright Centers of Innovation**
  - **Wright Projects**
  - Research Commercialization Program
  - Asset-Based Company Attraction Program
  - **Targeted Industry Attraction Program**
  - Entrepreneurial Signature Program
  - **Ohio Research Commercialization Grant Program**
  - Pre-Seed Funds Initiative
  - **Third Frontier Advanced Energy Program**
  - **Third Frontier Fuel Cell Program**

## Third Frontier Energy Programs

- Two Third Frontier programs support energy research, development and early manufacturing activities:
  - 1) Third Frontier Advanced Energy Program
  - 2) Third Frontier Fuel Cell Program
- Goal

The goal is to accelerate the development and growth of the advanced energy industry in Ohio by direct financial support to organizations seeking to commercialize new products, manufacturing processes or technologies, or to adapt or modify existing components or systems that can reduce the cost of advanced energy systems or address technical and commercialization barriers.

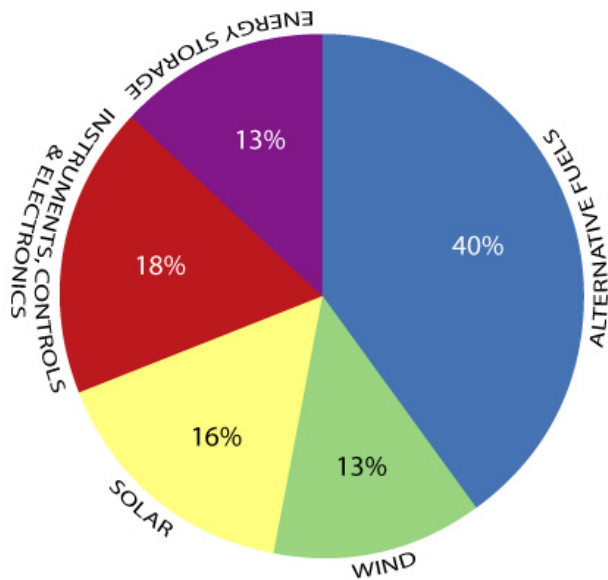
## Previous Energy-Related Investments

- **Fuel Cells – \$69,347,530**
  - TFFCP – \$35,688,640
  - Wright Centers – \$19,600,000 (WFCG)
  - Wright Projects – \$2,000,000 (Stark State)
  - ORCGP – \$699,323
  - Ohio Fuel Cell Initiative Projects – \$9,129,850
  - Ohio Coal Development Office – \$479,717
  - Targeted Industry Attraction – \$1,000,000
  - 166 Loan – \$640,000
  - Edison Program – \$85,000
  - OITP – \$25,000
- **Advanced Energy – \$33,537,236**
  - TFAEP – \$12,037,236
  - Wright Centers – \$18,000,000 (PVIC)
  - Wright Projects – \$3,500,000 (OARDC; UT)

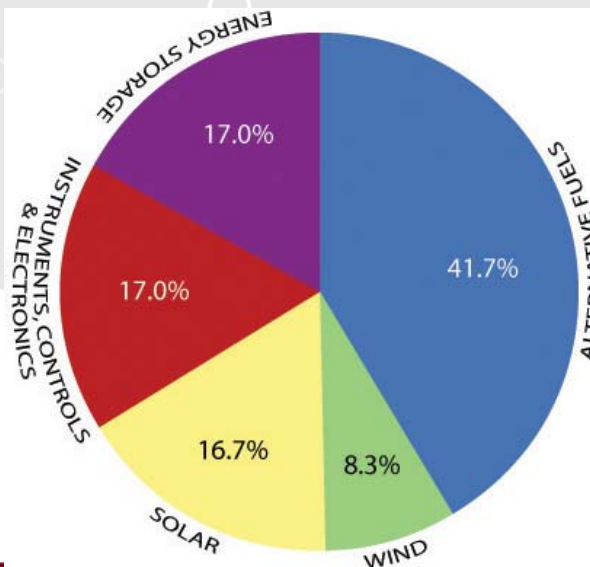
# Third Frontier Advanced Energy Program FY08 Results

- 60 Proposals Received
- 24 Proposals Advanced to Second Round Evaluation
- 17 Proposals Funded, Valued at \$12,037,236

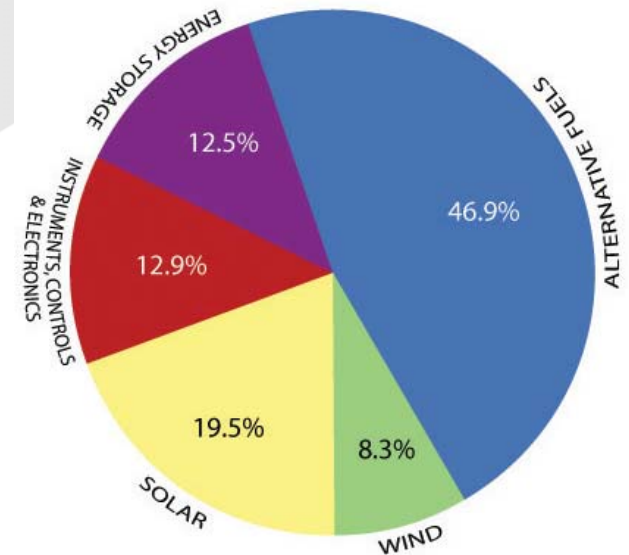
Original Proposals by AE Sector



AE Finalist  
Companies by AE Sector



Total Recommended  
Funding by AE Sector





## Third Frontier Advanced Energy Program FY08 Results

- **Parker Hannifin – \$1,000,000** (Cuyahoga County)  
*“Sub-Megawatt Class Hydrostatic Wind Turbine Drive Train Commercialization”*
- **Velocys, Inc. – \$1,000,000** (Union County)  
*“Microchannel Enabled Process for Synthetic Fuels and Chemicals”*
- **The Garland Company – \$1,000,000** (Cuyahoga County)  
*“Garland Building Integrated Photovoltaic (BIPV) Systems”*
- **EBO Group – \$1,000,000** (Medina County)  
*“Innovative Electric Motor Drive System to Enable Advanced Hybrid Electric Drives for Commercial Vehicles”*
- **The Ohio State University – \$1,000,000** (Franklin County)  
*“Engineering Clostridia for Economic Production of Biobutanol as a Biofuel”*
- **NexTech Materials, Ltd. – \$549,088** (Delaware County)  
*“Market Readiness of Hydrogen Sensor for Advanced Energy Applications”*



## Third Frontier Advanced Energy Program FY08 Results

- **Arisdyne Systems, Inc. – \$1,000,000 (Cuyahoga County)**  
*“Application of static, hydrodynamic cavitation to improve efficiency, productivity and yield in the production of ethanol”*
- **Applied Sciences, Inc. – \$999,999 (Green County)**  
*“Development of Specialty Carbons for Energy Storage”*
- **Catacel Corporation – \$759,502 (Portage County)**  
*“Durability and Performance Evaluation of Catalysts on Metal Foil”*
- **Xunlight 26 Company – \$996,924 (Lucas County)**  
*“Flexible Thin-Film CdTe PV Modules”*
- **Phycal LLC – \$250,000 (Cuyahoga County)**  
*“Development of Non-destructive Algal Oil Extraction Process”*
- **University of Akron Research Foundation – \$250,000 (Summit County)**  
*“Novel Polymeric Membranes for Advanced Energy Storage Devices, Batteries and Fuel Cells”*

## Third Frontier Advanced Energy Program FY08 Results

- **Inorganic Specialists, Inc. – \$250,000** (Montgomery County)  
*“Manufacturing of Next-Generation Lithium Ion Anode”*
- **Replex Plastics – \$350,000** (Knox County)  
*“Concentrated Solar Power”*
- **University of Toledo – \$250,000** (Lucas County)  
*“A novel simultaneous-saccharification-fermentation strategy for efficient co-fermentation of C5 and C6 sugars from biomass using native, non-GMO yeasts”*
- **Ohio University – \$972,922** (Athens County)  
*“A Facility for the Development and Commercialization of Ammonia Based Fuel Integrated Power Systems (ABIPS)”*
- **Ohio State University – \$408,801** (Franklin County)  
*“Carbon Negative Syngas Gas Chemical Looping for Hydrogen Synthesis Using Ohio Coal or Biomass”*

## FY 2009 Plans

### Third Frontier Advanced Energy Program

- RFP opens in July
- RFP closes in September
- Awards announced in December
- \$13 million available for award

### Third Frontier Fuel Cell Program

- RFP opens in July
- RFP closes in September
- Awards announced in December
- \$11 million available for award



*Mike McKay*

*Manager, Technology Business Assistance Office*

*Pete Stock*

*Program Administrator, Third Frontier Fuel Cell Program  
& Third Frontier Advanced Energy Program*

*Ohio Department of Development*

*77 South High Street, 25th Floor*

*Columbus, OH 43215-6130*

*(614) 466-3887*

*[www.thirdfrontier.com](http://www.thirdfrontier.com)*