Ohio Centers of Excellence
ADVANCED ENERGY

Report of the Advanced Energy Centers of Excellence Roundtable
The Blackwell Inn, The Ohio State University
October 26, 2010

University System of Ohio Centers of Excellence

In 2009, the Ohio Board of Regents, under the leadership of Chancellor Eric Fingerhut, initiated the Centers of Excellence program, one of the key elements of the *Ohio Strategic Plan for Higher Education: 2008-2017*. The vision for the program, as stated in the First Round Program Guidelines, was stated as follows:

"For the University System of Ohio to be a magnet for talent and innovation, the quality and reputation of the universities must grow. In a competitive global market for talent, the only way for the system as a whole to raise its quality is for each institution to develop distinctive missions and Centers of Excellence that are recognized by students, faculty and business leaders. The state must support these efforts by targeting resources to programs of excellence and linking subsidies to mission-driven goals and metrics."

The Centers of Excellence program recognized the regional strengths long evident in Ohio – dynamic clusters of business, industry, and academia which drive employment and economic development in the area. Universities were asked to identify fields in which they possessed the talent, technology and capital investment necessary to create and sustain excellence, to form successful collaborations with the private sector, and to grow the economy of the surrounding region. A common set of benchmarking metrics was laid out to gauge progress made in growing the Centers.

Advanced Energy Centers of Excellence

The first Centers of Excellence announced by Governor Ted Strickland and Chancellor Fingerhut were in the area of Advanced Energy. In October 2009, nine Advanced Energy Centers of Excellence at eight universities were identified:

- **Bowling Green State University**: Sustainability and the Environment
- **Case Western Reserve University**: Great Lakes Energy Institute
- **Central State University**: Emerging Technologies
- **University of Cincinnati**: Sustaining the Urban Environment
- **University of Dayton**: Von Ohain Fuels & Combustion; and Strategic Energy and Environment Informatics
- **The Ohio State University**: Climate, Energy and the Environment
- **Ohio University**: Energy and the Environment
- **University of Toledo**: Advanced Renewable Energy and the Environment

Designation was based on information provided in the universities' proposals. It is anticipated that these Centers will accelerate Ohio's advanced energy economy, contribute to successful implementation of Ohio's advanced and renewable energy standards, and increase Ohio's market share in supporting national and international green energy projects. In addition to technological advancements, the Centers provide educational opportunities for Ohio students.

The Advanced Energy Centers of Excellence Roundtable

The University Clean Energy Alliance of Ohio (UCEAO) approached the Chancellor at the time of the announcement with regard to facilitating coordination of the Advanced Energy Centers of Excellence. As an organization founded by the 15 research universities and committed to collaboration in development and deployment of advanced energy technologies, UCEAO is in a unique position to bring together key stakeholders and chart the course of the Centers' progress. It was decided that an annual review and update would be an important component of the program. As such, the first Roundtable was scheduled for October 26, 2010, with representatives of the nine Centers, other college and university faculty and staff, members of the clean energy business community, and state and federal government officials invited to participate. A set of questions was distributed in advance of the meeting to stimulate discussion. The following is a summary of responses.

I. **Collaboration**

i. What areas of research are complementary across the state?

a. Algae
b. Energy Storage
c. Propulsion/Power
d. Biofuels
e. Energy Efficiency
f. Advanced Materials
g. Natural Resources
h. Industrial Energy Use

ii. How can the state best promote collaboration across the Centers of Excellence?

a. Convene high level meetings to discuss progress
b. Stay informed on other Advanced Energy Centers of Excellence initiatives
c. Require collaboration on grant applications

iii. How can the Centers of Excellence achieve greater collaboration with Ohio's business community?

a. Align Centers of Excellence with Third Frontier Strategic Plan
b. Organize outreach initiatives with specific industries and organizations representing industry
c. Involve community and technical colleges
d. Adopt business outreach models that are already in place
e. Involve students in outreach efforts

II. Competitive Advantage

i. How can the Centers of Excellence enhance Ohio's competitiveness for federal funding?

a. Develop regional proposals to take advantage of initiatives, expertise and political strength in adjacent states
b. Develop systems and processes that increase speed and flexibility in responding to RFPs
c. Identify and agree on a focus area or areas – What Ohio can do best
d. Share information on funding opportunities
e. Identify and solicit support from all available resources
f. Address issues that will strengthen industry/university working relationships
g. Submit requests for federal funding on a collective basis

ii. What is the State of Ohio's competitive advantage on a national and global scale with respect to solving the global energy challenge?

a. The aggressive advanced and renewable energy standards established in SB221
b. Development of technologies that are in demand in a global market
c. Ability to market Ohio's strengths abroad
d. Availability of a skilled workforce and re-training programs through community and technical college system
e. Existing manufacturing base, including facilities and equipment
f. Location within a regional innovation cluster
g. Logistical advantages – transportation, easy access to markets

iii. In what areas of advanced energy research and expertise is Ohio ahead of the nation and the world, and how do these align with the energy industry strengths in the state?

a. Data collection
b. Systems approach
c. Linkage between energy and environmental issues
d. Ability to bring resources to the table beyond university expertise
e. Develop a university/industry plan that makes sense for Ohio
f. Identify opportunities to tell our story – "Ohio Advanced Energy Day" on Capitol Hill

III. Fueling Ohio's Energy Future

i. How can the Centers of Excellence contribute to the successful implementation of Ohio's energy policy initiatives and goals?

a. Determine how each university can support implementation of SB221 in order to meet or exceed the standards
b. Advocate signing the University Presidents Climate Commitment
c. Monitor campus progress on HB251 energy efficiency goals
d. Work with Ohio investor-owned utilities

e. Develop a plan for to help manufacturers "transition and transform"
f. Assist manufacturers in response to new environmental policies and regulations

ii. How can the Centers of Excellence participate in regional or statewide economic development efforts?
a. Support "Blocking & Tackling" of energy – the difficult tasks that don't have the "flash and flare" of new technology
b. Work with businesses to establish Internship and Co-Op programs
c. Distinguish between transformational change vs. transitional or i incremental change
d. Sustainable efforts not subject to political change
e. Build confidence of investors
f. Lower costs – Strive to make alternative energy cost competitive
g. Address aggressive environmental regulatory environment of immediate concern to industry
h. Develop sustainable, dynamic business, university, and government partnerships
i. Address the role of utility companies
j. Support demonstration projects such as the Southern Ohio Clean Energy Park

IV. Benchmarks & Success

i. How should the Centers of Excellence success be measured in the short term and in the long term?
a. Growth in new businesses
b. Number of graduate students trained to work in energy field
c. Number of workforce training programs that place graduates in energy sector
d. Number of entrepreneurs attracted to start companies in Ohio
e. Number of new technologies that enter the marketplace
f. Depth of engagement with manufacturers
g. Number of new partnerships established
h. Reduction in emissions from Ohio plants
i. New job creation

ii. Whom should we benchmark against?
a. Other regions
b. Other countries
c. Data from utility companies

iii. How can the State of Ohio best promote and assist the Centers of Excellence in the accomplishment of their goals?
a. Leverage resources
b. Promotion and marketing of projects

The anticipated outcomes from the Roundtable included a set of common metrics unique to the Advanced Energy Centers, a set of goals and objectives for the Centers over the next several years, a set of strategies to achieve those goals, and agreement to hold a trade show/ open house to create greater connection with the state's advanced energy industry.

Common Metrics

An important part of the conversation among the universities related to the criteria used to measure success. In addition to the overall criteria cited in the program guidelines and those submitted by each Center, the participants agreed to a set of common metrics – information to be submitted to the Board of Regents on an annual basis and by which all the Centers will be evaluated.

These metrics are:

1. Number of core members associated with the center
2. Aggregate research expenditures each year for the past year (optional to do last five years):
    - For each year, list sources of funding such as federal agencies (NSF, DOE, DOD, and other key federal agencies), state agencies, industry, university, and foundations
    - For each year, list funding by industry sector (wind, solar, fuel cell, biofuels, etc.)
3. Verifiable refereed publications and citations over the past year (optional to do last five years)
4. Faculty awards/recognition
5. Number of companies with which you are collaborating (and names of those that can be publically disclosed)
6. Technology commercialization (all are for last year, optional for last 5 years):
    - Total number of technology licenses developed that are based on the center's intellectual property
    - Number of invention disclosures
    - Number of awarded patents
    - Total number of new business start-ups during the past 5 years that are based on the center's intellectual property and are physically located within Ohio
7. Number of degrees awarded related to the center each year
8. Number of grant proposals submitted partnering with other Advanced Energy Centers of Excellence and number awarded
9. National and international peer universities/ centers that you compare your center

Optional metrics that can be included in your Center's profile

- Internships for students in research & development activities
- Number of grant proposals submitted for each year and grants received (number and dollar amount for grants above a certain amount)
- Number of graduates placed in graduate study programs

- Number of graduates placed in technology companies in Ohio
- Activities involving the lay and professional community (conferences, workshops, etc.)
- New educational initiatives (such as new degree programs)
- Industry recruitment support and other economic development activities relating to COE
- Other institution-specific metrics

Goals, Objectives and Strategies

The Board of Regents will be convening a sub-group of participants to review the input received at the Roundtable and draft a set of goals, objectives and strategies.

The Advanced Energy Centers of Excellence Showcase

As a follow-up to the Roundtable, the Ohio Board of Regents and UCEAO will host an Advanced Energy Centers of Excellence Showcase on April 26, 2011 as part of the 5th UCEAO Annual Conference. The Showcase will feature projects underway at the nine Centers and will promote new connections and collaborations between the business community and Ohio's research universities.

The format is designed to provide opportunities for businesses to engage directly with faculty researchers, to connect with other business leaders, entrepreneurs and investors, to learn about emerging technologies, and to explore new partnerships. For more information and to register for the Showcase, go to www.uceao.org.