

Scott Institute for Energy Innovation

Jared Cohon
Director



Mission of the Scott Institute

- The purpose of the Scott Institute is to lead and support Carnegie Mellon in its development of solutions to the Nation's and the world's energy challenges. The Institute will achieve this purpose by: identifying opportunities for **synergy** among existing activities; encouraging **interdisciplinary collaboration** among the Colleges; incentivizing the creation of **new areas** of research and education that build on current strengths; and, by **communicating** the results of the university's energy work to the energy stakeholder community, and especially to policy makers.



- Research
 - Seed Grants
 - Investments in strategic areas
- Education
- Outreach
- Technology Commercialization



Scott Institute Research Program – Seed Grants

Program

- ~\$400K /yr into seed projects

Objectives

- Incubate new ideas
- Invest in growth potential
- Engage new people
- Facilitate synergy

Program Evolution

- 2013, 2014, entering 2015
- Sept. 22, 2014 - reporting by 2013 grantees



Strategic Investments

- Leverage CMU's comparative advantages
- Choose important parts of the energy system where we already have strengths

CMU's Comparative Advantages

- Systems approach to problem-solving and design
- Interdisciplinary collaboration
- Innovative and entrepreneurial
- Location (Marcellus shale, industry, NETL)

Preliminary Priority Areas


- Pathways to a low-carbon future
- Building energy use and efficiency including consumer behavior, devices, control systems and analytical tools
- Energy cyber-physical systems: the smart grid
- Shale gas
- Energy materials for electronic devices, energy storage, solar electric generation and fuel cells

Carnegie Mellon University
Scott Institute
for Energy Innovation 7

Strategic Assessment Workshops

- By invitation
- Faculty drawn from all relevant disciplines
- Possibly others from outside from academia, industry, NGO's and government
- Comprehensive and bi-directional
 - Policy/economics → technology, science research
 - Technology → policy/economic research
- Outputs
 - Research agenda
 - Path to external funding including major center (e.g. STC)
 - Investment needs

Carnegie Mellon University
Scott Institute
for Energy Innovation 8



Shale Gas Policy
Carnegie Mellon University
Scott Institute
for Energy Innovation

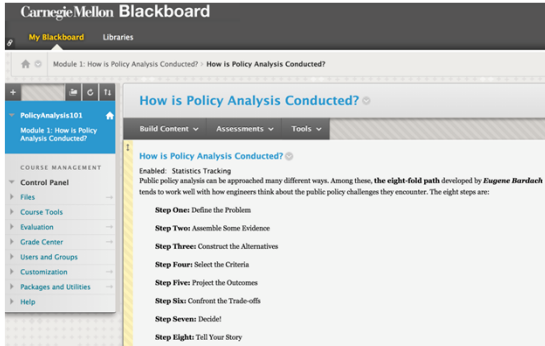
iTunes
University

In Development

- List of Energy related classes
- Energy Minor
- Campus-wide program focused on energy as a system
- Energy concentration in existing Master's programs
- K-12 Activity

Education


Policy Analysis for Engineers Project



Carnegie Mellon University
Scott Institute
for Energy Innovation

Other Investments

- Industrial relations and fundraising
 - In collaboration with Corporate Relations Offices
- Technology commercialization
 - In collaboration with the Center for Innovation and Entrepreneurship
- Outreach
 - In collaboration with Media and Public Relations Offices



Carnegie Mellon University
Scott Institute
for Energy Innovation

Publications



Shale & The Environment

Critical Need for a Government - University - Industry Research Initiative



Renewable Electricity

Managing Variable Energy Resources to Increase Renewable Electricity's Contribution to the Grid



Innovative Energy Technologies: The Next Generation

Carnegie Mellon University Scott Institute for Energy Innovation

Watch: Are you really saving the environment investing in a wind farm or solar power plant?



Scott Institute Monthly External Newsletter & Internal Funding Newsletter

Forthcoming: Smart Transportation Management

Carnegie Mellon University Scott Institute for Energy Innovation

11

Videos



Professor Jay Whitacre
Carnegie Mellon University

Energy Storage and Conversion: The Next Generation

Are you REALLY Saving the Environment investing in a wind farm or solar plant?



Inês Azevedo
Professor, Carnegie Mellon University



Professor Jeremy Michalek
Carnegie Mellon University

Are You REALLY Saving the Environment with Your Hybrid or Plugin Car?"

Forthcoming: China & Manufacturing of Energy Innovations


Solar Fuels



Carnegie Mellon University Scott Institute for Energy Innovation

12

Innovation and Entrepreneurship



HOME
ABOUT
SERVICES
TRAININGS & EVENTS
CONTACT

Trainings

BY CATEGORY

BY TITLE

EVENTS & WORKSHOPS



INNOVATING FOR COMPETITIVE ADVANTAGE: EDIBLE ELECTRONICS

Monthly Video Webinar Series on CMU developed energy technologies on the market

Forthcoming: Consumer Energy Mangement

In order to stay ahead of the competition, manufacturers must constantly innovate. In a new monthly Innovating for Competitive Advantage video webinar series from Carnegie Mellon University's Scott Institute for Energy Innovation and Catalyst connection, you'll learn about innovative technologies developed at Carnegie Mellon University that are ready for the marketplace and ready for consideration for your company. This seminar focuses on Edible Electronics.

Edible Electronics are ingestible electronically active medical devices that are powered by edible batteries made from natural materials and endogenous minerals that are already within the body such as iron and calcium. During this webinar, you'll hear from Carnegie Mellon University Engineering Professor Chris Bettinger, inventor of this device and named by MIT's Technology Review 35 innovators under 35. He'll provide more information on its potential use by manufacturers, and the materials challenges that need to be address in advancing this technology.

No Cost

December 5, 2014
1:00 p.m. - 2:00 p.m.

VENUE
Webinar

Register

Carnegie Mellon University
Scott Institute
for Energy Innovation

13

Public Outreach

Energy Innovation Minute

90.5

W E S A

Pittsburgh's NPR News Station

part of the **U.D.F.** digital network

Blog

Carnegie Mellon University
Scott Institute
for Energy Innovation

Perspectives of Carnegie Mellon University researchers on a variety of energy issues

MONDAY, JUNE 9, 2014

How Much Public Support is Needed for Policymaker Action on Climate Change?

Dr. Kelly Klima, Engineering and Public Policy, Carnegie Mellon University

The vast majority of scientists and researchers in the United States and throughout the world agree that manmade emissions are likely exacerbating climate change. Despite U.S. news articles to the contrary, since 2007 no scientific body has disagreed with this position. Therefore, it may be time to ask: What percentage of Americans need to



Op-Ed

June 18, 2014, 10:00 am

Why Congress should fund social science

By Deborah D. Stine, contributor

"Cosmos," the fascinating television series, tells us not only about science, engineering and mathematics but also its history. In one episode, Neil deGrasse Tyson tells the story of how, during the 17th century, the Royal Society in England funded *Hisotria Piscium*, a groundbreaking (at the time) book on the history of fish. When the book failed to sell, the financial loss was so severe that the Royal Society had to withdraw its funding for printing Isaac Newton's *Philosophiæ Naturalis Principia Mathematica* ("Mathematical Principles of Natural Philosophy") which gave us the three laws

Carnegie Mellon University
Scott Institute
for Energy Innovation

14

Events



American Shale & Manufacturing Partnership



ENERGY FOR THE POWER OF 32

32 Counties, 4 States, 1 Energy Future

Establishing a baseline and catalyzing a regional energy plan and strategy

APRIL 4, 2013
NATIONAL ACADEMY OF ENGINEERING SYMPOSIUM



SHALE GAS: Implications for America's Regional Manufacturing Economies



Carnegie Mellon University
Scott Institute
for Energy Innovation



Carnegie Mellon University
Scott Institute
for Energy Innovation

Overall Building - Lower landscape

SCOT HALL

