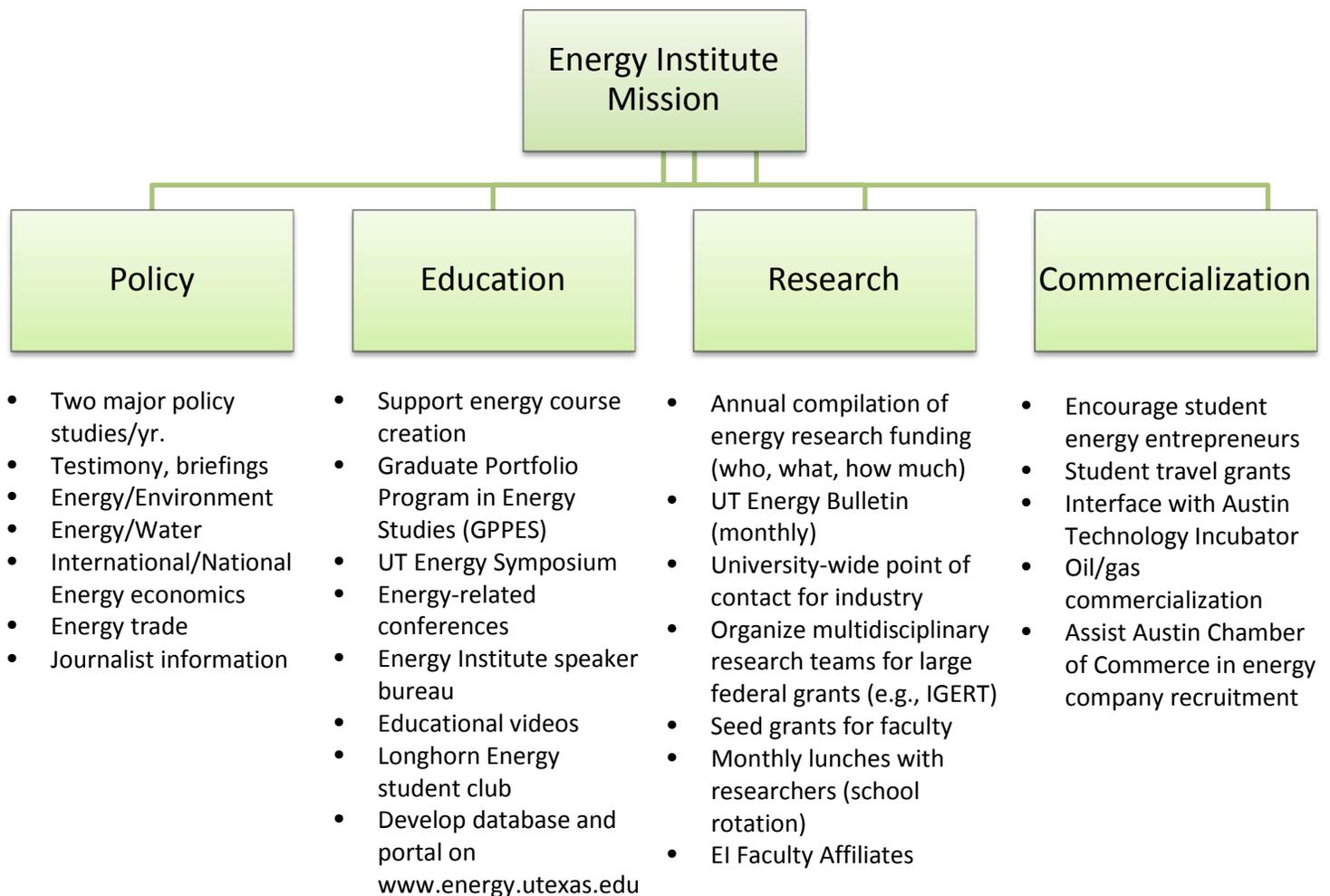


STRATEGIC PLAN
ENERGY INSTITUTE
The University of Texas at Austin

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In response to the input from the Energy Institute Advisory Board (EIAB), which includes deans from seven UT Colleges/Schools, as well as energy industry leaders, a strategic plan has been developed for the future mission of the Energy Institute, as depicted in the figure below. Each of the four components of the mission (Policy, Education, Research, and Commercialization) is described in this document.



Policy

The policy arena is a new area of focus for the Energy Institute, and thus it will take some time to develop a plan and business model for carrying out policy studies. The Institute has already begun a shift in staff resources to pursue this goal, including the appointment of a deputy director who specializes in energy policy, in addition to several other staff with expertise in policy issues (while keeping staff headcount the same). In discussions with the Energy Institute Advisory Board, analysis of the scientific and economic basis of energy policies is needed in the U.S. dialog about energy production, prioritization, utilization, and trade. There is also an important international component to energy policy, which includes the U.S. neighbors of Canada and Mexico as well as comparisons with countries who are going through major shifts in their energy sources (e.g., Germany), with a stronger governmental emphasis on sustainability and greenhouse gas emissions.

Because the EIAB has recommended that EI place strong emphasis on energy policy, the EI will solicit ideas for new policy studies from UT faculty and the EIAB. Then EI and UT faculty/staff experts would select two topics each year and develop a study scope for discussion with the EIAB. UT Austin has a number of faculty who are interested in conducting their research with a view towards its policy ramifications. One of the policy and economics/environmental issues of greatest interest to Texas is the natural gas renaissance, which has significant implications for power production, environmental impact (mostly positive, though not uniformly so), petrochemical production, geopolitics, and revival of U.S. manufacturing. One of the important areas of expertise needed for analyzing the impact of such a shift is economics, which is present in the McCombs and LBJ Schools and the BEG Economics Group. The Energy Institute needs to develop a protocol for carrying out a study. Such a study would include technical assessments, data availability and analysis, information collection, issue identification, stakeholder interviews, and possible solutions, along with policy options. There also needs to be a financial model for carrying out policy studies; one suggestion is to create an external advisory board where a foundation or company would pay a membership fee to participate. However, more details will need to be developed.

While the larger studies would be useful vehicles for engaging in the policy formulation process, the EI also plans to participate through other means. For example, the Energy Institute expects to periodically perform short-term targeted studies to educate the public on topics of pressing interest. These studies might be summaries of relevant on-campus research, or include interpretation of third party data and research in a policy context. The conclusions could be published as executive summaries in the form of factsheets that would be available on the EI website. In addition, the Energy Institute will help foster the authorship of op-eds, feature articles, and general interest pieces by on-campus experts for a broader audience. These educational pieces might also include short TED-style educational videos. Lastly, the Energy Institute will seek to engage directly with policymakers through background briefings and/or formal testimony with elected officials, committees, and staffers.

Education

The Energy Institute is well-positioned to take a world-leading position on promoting energy literacy. As such, it should ensure that adequate energy curricula are available to undergraduate

and graduate students at UT. The leadership of EI needs to interface with specific faculty in colleges/schools to encourage the ongoing availability of energy-related courses both specialized and general, such as the successful “Energy Technology and Policy” courses developed by Profs. Edgar (ChE) and Webber (ME) that are cross-listed in CSE, EER, LBJ, and Business programs; Professor Spence’s class on Energy Policy in McCombs that allows students from other disciplines to enroll; and the recent Law School course on energy projects that was taught by Prof. Adelman. Professional short courses (one to three days) on specific energy subjects can also be made available through the EI (in partnership with executive education programs in the different schools) to educate the general public, government agency staffers, and industry.

A proposal to start a Graduate Portfolio Program on Energy Studies (GPPES) has recently been approved by the Graduate School. The program will be made available to graduate students starting in the spring semester of 2014, and will allow them to carry out coursework on Energy Studies while simultaneously pursuing their M.S. or Ph.D. degree within traditional departments. This portfolio program takes advantage of the many energy-related courses offered on campus in seven colleges and schools, and involves 29 departments and graduate studies committees. EI can help foster the development of additional undergraduate courses, possibly through partnership with the School of Undergraduate Studies (Webber and Edgar have successfully created and administered freshman signature courses on the topic of energy) and as electives in departments across campus.

The Institute now actively publicizes the many energy-related conferences that are held on campus. In addition to providing financial support, in 2013 the EI communications staff has assisted in pre-conference and post-conference publicity for the Energy Forum in February (entirely student-run), Latin American Forum on Energy in March, and the Electricity Symposium in April, among others. Key insights from these meetings are featured on www.energy.utexas.edu. The UT Energy Symposium (UTES) has been a fixture for several years whereby energy leaders from industry, government, and academia present a weekly seminar to interested graduate students. The UTES is a for-credit course that students pursuing the Graduate Portfolio Program in Energy Studies can take while earning this certificate. Finally EI could support students interested in energy through the newly formed Longhorn Energy Club (with direct financial support plus the provision of meeting space). These students form the nucleus of volunteers who organize the annual Energy Forum.

In terms of public education and outreach, the Energy Institute can set up a speaker bureau made up of UT faculty and staff who are willing to present energy talks on specific topics to groups around the state. We also believe that the EI website can be used to promote the availability of educational videos produced by UT faculty (for example, Dr. Tinker’s Switch Energy Project, among others) and that doing so would be a valuable asset to elevate UT’s standing in the energy field. Finally, interacting with news journalists is an important function of EI and we can develop some proactive programs to make this more effective. The communications officer at EI already has extensive contacts in news organizations, including key Texas newspapers. Other options might include the development of a fellowship program to host energy journalists on campus.

Educating the public about the areas of energy expertise existing on campus is also an important goal for EI. We plan to host an extensive portal of information about UT energy researchers and

projects compiled in a database that will be accessible on our website. We want any person who visits the site to be able to use keywords related to energy to determine which faculty or staff researchers work in that area and be provided basic information and links. Future versions might also include a companion repository for publications to help raise awareness of the research taking place on campus.

Research

Four years ago, a one-time survey on funding of energy research at UT was carried out by Dr. Carey King with the cooperation of the UT Sponsored Projects Office. Dr. King is updating this comprehensive survey, which will be a valuable resource not only for campus leaders, but also for external stakeholders (including prospective students, faculty recruits, potential sponsors, policymakers, and journalists). The updated report should be completed in 2013, and we intend for it to become an annual effort and publicized on the Energy Institute website.

We have significantly modified the content on our website (www.energy.utexas.edu) to cover a broader range of faculty and student research accomplishments starting in March, 2013. We push content out to interested stakeholders with a monthly news blast (“UT Energy Bulletin”) that highlights energy-related news on campus and connects to the website. We have significantly expanded the previous EI mailing list for printed reports from 100 to over 1500 for electronic distribution, including interested parties outside campus, and will integrate the website with social media. We also have begun regular engagement with EI Faculty Affiliates at UT-Austin, which enables us to have a direct dialog with faculty from seven schools/colleges on how to increase the impact of the Institute.

The EI can be effective in facilitating research project development, i.e., helping put together interdisciplinary research teams. Often this might begin by a faculty member from one school approaching the EI for help in responding to a solicitation for proposals by a government agency. One current example of a large interdisciplinary project at UT-Austin is the NSF IGERT (Integrative Graduate Education and Research Traineeship) Program, which provides funding for \$3 million over five years on the subject of sustainable electrical grids. For new projects the EI would work with Associate Deans of Research in various colleges/schools to develop interdisciplinary teams of researchers, and EI staff could provide advice on elements of a successful research proposal. If such a proposal is funded, then the PI would come from a participating department.

EI also can be instrumental in the development of broad research relationships, especially those that are cross-campus or international in nature. Several of those efforts are underway. For example, the Netherlands Cultural Exchange in smart cities and smart grids involving 20 faculty is being fleshed out during 2013, with possible funding from Dutch and U.S. governments and industry. Queensland University in Australia wants to develop a cooperative research agreement in the areas of smart grids, water management, and CO₂ management. We are initiating some discussions with Technical University of Munich about a joint study on energy topics of mutual interest in Texas and in Germany. The EI is also a logical point of contact with industry people and for foreign governments with no previous relationship with UT. As the conversation with these external stakeholders becomes more specific, deans of the appropriate colleges/schools can become involved.

A number of internal EI projects are nearing completion. A case study on “Water Quality in the Barnett Shale” is at the draft paper stage and undergoing review during 2013. We are adhering to new policies on publication review issued by the Vice President for Research on authors stating conflict of interest and submitting their individual reports to an anonymous peer-review process in parallel with drafting the report.

Seed grants are another area where the Energy Institute could help promote interdisciplinary energy research on campus, the purpose of which is to fund the development of a new research project that could be submitted as a full proposal to an external funding source. Funds would be provided based on proposals from three faculty in three different schools/colleges to support several graduate students and/or postdoctoral researchers for one year. Funding from industry is one possible source of support for such an initiative. The goal of such grants is to encourage faculty who have not worked together previously to collaborate on a new project idea. The typical funding level would be three projects funded at \$60,000 per project, but this would require matching funds from the Deans and Provost or external fund-raising to sustain it within the EI. A mechanism to receive, review, and fund proposals would be developed during 2013.

Other ideas that could be pursued would be bringing together groups of researchers periodically to discuss energy research topics of interest and to help the group better understand the capability of different faculty at UT. An EI Faculty Affiliates program has been set up, using the Graduate Portfolio Program as a connecting mechanism for teaching and research interests. ICES has a similar approach of connecting researchers who have a common interest in computational engineering and science.

Commercialization

This part of the mission is less well-defined but could exploit the high level of technology innovation in Central Texas, organized through the Austin Technology Incubator operated at UT. In particular, we recommend encouraging student entrepreneurs through various programs in colleges/schools (sponsoring startup competitions, etc.), by providing travel grants for student entrepreneur competitions, and meeting space for collaborative efforts. Assisting organizations and faculty interested in commercializing innovative oil/gas and clean energy technologies at UT will be part of the strategy. The Austin Chamber of Commerce uses UT energy expertise as an attractive feature for recruiting new companies to Austin, which includes a growing number of companies allied with both types of industries.