

IRI Intros: 5 Questions with Tim Lieuwen

Georgia Institute of Technology

You've probably heard that Georgia Tech has a number of Interdisciplinary Research Institutes (IRIs) - but do you know much about them?

This article is the second in a series of Q&As to introduce the Tech community to the eight IRIs and their faculty leaders. In this installment, Executive Director Tim Lieuwen answers questions about the [Georgia Tech Strategic Energy Institute](#). [1]

Q. A lot seems to be going in energy these days. Can you summarize the big trends and where Tech lies in this?

A. Energy is one of the defining issues of this generation. The changes within the broader energy landscape are unparalleled in history; what makes them so significant is the sheer massiveness of the energy industry and the rapid pace at which the changes are taking place. For example, renewable energy is truly growing up: The worldwide renewables business totaled over \$180 billion in 2012, with new wind projects constituting 50 percent of new generating capacity in the U.S. Over the last few years, the price of photovoltaic solar panels has plummeted. In addition, biofuels - primarily ethanol derived from corn - provides about 5 percent of our transportation sector fuel. There has also been growth in resources and use of hydrocarbons; the biggest absolute growth in energy use worldwide over the last decade has come from coal. Shale gas and oil production are also way up in the U.S., and natural gas prices are the lowest they have been in a decade. This has caused the power generation industry to substantially increase the utilization of natural gas, which has led to decreased carbon dioxide emissions in the U.S. in the last few years. The major spread between gas and oil prices has also triggered an interest in the possibility of increased use of natural gas for the transportation sector; companies like UPS are already converting their fleets.

The bottom line is that the energy industry is undergoing historic transformations. Georgia Tech is a leader in most of the areas I mentioned above. For example, we have substantial solar work going on; we are leaders in power transmission and smart grid; we have the largest geomechanics group in the country, which has been working on the shale gas problem; we have the country's best chemical separations and combustion groups; we also have major expertise in nuclear research. And the list goes on! This points to one of the things that makes this job both exhilarating and hard - clearly, Tech needs to focus and prioritize its efforts to be effective, but we also want to do this in a way that capitalizes on the breadth and depth that Tech brings to bear.

Q. What is the Strategic Energy Institute (SEI) and what does it do?

A. The SEI is intended to be a voice for all of the exciting energy research taking place across Tech. We want to amplify the impact of everyone's work by facilitating cross-campus and external collaborations and helping grow our sponsored research in a way that provides the biggest economic and societal benefit to Georgia Tech, our state, nation, and world. Our efforts are organized around three key thrusts:

- Developing and nurturing the energy community at Tech.
- Growing the resource base for energy research at Tech.
- Growing Tech's thought leadership.

The SEI leadership team has expended significant energy connecting people across campus. I have personally met with most school chairs and deans from all colleges across the Institute, as well as numerous faculty. In addition, I have met with individuals from UGA, regionally based economic development agencies, and state energy and environmental affairs offices.

We have also hosted multiple networking opportunities, such as our executive seminar series on natural gas (developed in collaboration with the Materials and Manufacturing Interdisciplinary Research Institutes) and Research Panel Sessions, to bring together the campus community and the extended Metro-Atlanta energy/clean technology community. We are now planning a *How to Work With Industry* session.

Q. What is the SEI doing to help grow energy research across all of Georgia Tech?

A. Facilitating diverse and collaborative proposal development teams is one way the SEI and Tech's interdisciplinary research institutes (IRIs) provide value across all of Tech. We have been working on several large proposal opportunities; one such effort, in response to a National Science Foundation solicitation, involved collaboration between four different campus units on a single proposal. Another NSF effort involved coordinating a collaborative response, which included two Tech academic units, two state agencies, and two industry partners.

Apart from working to coordinate responses to large government solicitations, we have been very successful in connecting large energy-focused companies with researchers all across Tech, and we are actively working to broaden the types of companies partnering with us.

Additionally, I want to grow the philanthropic funding that will enable us to support some of the aspirational work we wish to pursue that is not ordinarily funded through government/corporate sponsorship. We have been working with Georgia Tech Development to pursue new opportunities, and we've already had success:

SEI, working with Brook Byers Institute for Sustainable Systems, has received funding from the Ray Anderson Foundation for a project focused on sustainable manufacturing and workforce needs in Georgia.

Q. How does the SEI support the growth of Georgia Tech thought leadership?

A. A repeated observation from our external energy advisory groups, my meetings with faculty, the internal Strategic Planning Committee, and others is that projecting thought leadership should be a major focus of our activities. One example of how we have begun doing this is the introduction of our Energy101 massive open online course. Led by SEI's Sam Shelton, the course has been very well received and has made us realize the need to further leverage this resource. We have been working to identify additional funds to further support such course development, which helps position Tech as a thought leader in energy research.

We're also working on nominating Tech faculty for a number of high-profile energy-related government advisory boards, and adding communication resources to help publicize Tech's work – both internally and externally.

Another point we're cognizant of is that we have significant breadth and depth in energy research at Tech but need to be more effective in framing the grand challenges and the way society thinks about the complex, highly integrated problems in energy. So, we will also sponsor a variety of workshops and development of white papers that will consist of problem definition or scenario-planning exercises that will provide tools and frameworks for tackling these problems. For example, we are sponsoring a COE-COS-Ivan Allen study that is analyzing the most strategic deployment of our nation's natural gas resources. The results from this study should be helpful in driving policy that will maximize economic impact while minimizing carbon emissions.

Q. How can someone engage with the SEI?

A. I encourage faculty and staff to reach out to me with thoughts, ideas, and questions. I've been meeting with faculty weekly and continue to learn more about the exciting and leading-edge energy research taking place across Georgia Tech. I urge all those I have not yet connected with to reach out to me (tim.lieuwen@aerospace.gatech.edu [2]), so I can keep broadening my support of Tech's world-changing research work.

Related Links

- [Energy and Sustainable Infrastructure Research at Georgia Tech](#) [3]
- [Strategic Energy Institute](#) [1]

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Published on Electronic Component News (<http://www.ecnmag.com>)

- [Brook Byers Institute for Sustainable Systems](#) [4]

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Links:

[1] <http://www.energy.gatech.edu/>

[2] <http://www.gatech.edu/newsroom/mailto:tim.lieuwen@aerospace.gatech.edu>

[3] <http://tlw-proxy.gatech.edu/research/areas/energy-and-sustainable-infrastructure>

[4] <http://www.sustainable.gatech.edu/>