

**Energy Policy and Innovation Center
Request For Proposals**

April 2017

Background

Georgia Institute of Technology's Strategic Energy Institute launched the Energy Policy and Innovation Center (EPICenter) in October 2016 with the intent to advance energy policy and technology innovation in the southeastern United States. EPICenter will explore critical intersections between policy, technology, economics, and social considerations that may arise from the convergence of these issues. EPICenter has been conceived to specifically focus on energy innovation within the Southeast in view of a growing awareness that the U.S. energy system is composed of regions, each of which has unique energy needs and opportunities.

EPICenter Mission, Objectives and Related Efforts

Mission: The center's mission is to provide authoritative, unbiased, fact-based policy studies and analyses that address southeastern regional perspectives on global, national, and regional energy issues, while also developing a regional community that is actively working at the intersection of energy technology and policy. In implementing its mission, the center seeks to deepen the technological foundation upon which energy policy decisions are made, and to accelerate the dissemination of pragmatic solutions in the region via broader dialogue among major stakeholders.

Objectives: The center will strive to accelerate a diversity of reliable, affordable and increasingly low-carbon energy options in the Southeast. The center will investigate challenges in both power generation and in transportation on a regional basis. Techno-economic, social and policy factors, as well as near and longer term impacts, are within the scope of consideration. Primary center products include:

- **Work Products including studies and roadmaps:** produce and disseminate rigorous, fact-based policy studies that will address southeastern perspectives on global, national and regional energy issues;
- **Events:** sponsor conferences, workshops and symposiums on relevant energy issues, serving as a nonpartisan facilitator for academic, business and nongovernmental stakeholders;
- **Outreach:**
 - **Facilitation of faculty and student exchanges:** provide opportunities for learning and information exchange among students, faculty and visiting scholars with other regional universities, nonprofits, and research organizations.
 - **Educational development and workforce development:** develop educational tools and methodologies consistent with its mission. It will also support training and workforce development with relevant stakeholders including regional utilities and energy equipment providers and strive to facilitate stakeholder collaboration and public-private energy partnerships.

Focus on Leveraging and Collaboration: The center will draw upon extensive expertise across multiple constituencies in the region, including academia, utilities, industry, key national labs, and

other public and private stakeholders. The center will leverage funds from both the public and private sectors. Potential collaborators include ORNL, and major universities in the region.

The center is currently focusing on two primary means to achieve the above objectives, (1) Directed funding of studies, on topics¹ identified from an advisory council and center leadership, (2) Open calls for proposals to lead or complement studies, initiate regional collaborations, and other means. **This RFP is directed towards the second approach.**

Proposals that nurture regional collaborations and that leverage or accompany external sources funding are particularly encouraged.

Open Request for Proposals - Summer 2017

Eligible Applicants:

This RFP solicits proposals within its three primary objective categories from researchers within the Georgia Tech community individually or in collaboration with public and private entities within their Southeastern U.S. networks. Collaborative projects and exchanges may include, but are not limited to, entities in Georgia, Florida, Alabama, Mississippi, Virginia, and Tennessee. These entities could include universities, national labs, think tanks, NGO's, or other research centers. These funds can be used by external partners in support of their activities, although we strongly encourage them to waive overhead of these foundation funds.

Proposal Categories:

The list below enumerates potential proposal areas. It should be emphasized, however, that this list is not exhaustive; other approaches and ideas are also encouraged.

1. Study Support

Proposals are solicited for complementary policy and roadmapping studies that address center goals. In particular, study ideas are solicited that serve as “add-ons” to existing projects (e.g., state, federal, or industrially funded) at GT or at regional project partners, that will address a distinctly regional view, and leverage funds that the proposer has already obtained. It is anticipated that such add-on studies would be on the order of \$10-20K, but could be larger if they are particularly impactful.

Illustrative examples include, but are not limited to, the following.

- Consider a College of Engineering or College of Science faculty member (or someone who is a faculty member in the region) who is PI on an NSF-funded project that is completely focused on a given technology/science topic. An Ivan Allen or Scheller faculty might partner with them and propose to this RFP to address some policy, economic, or business angle, that adds additional perspectives (e.g., techno-economic or policy scenario assessment) to the S&T study.
- Consider also an ongoing Ivan Allen or Scheller study focused on a socio-economic, policy, or sustainable business project with a need to propose funding to access expertise from the Colleges of Design, Engineering, Science or Computing. Such add-ons can be valuable when a particular technology scope is being

¹ For additional information on the directed studies, please refer to Appendix A.
EPICenter RFP

examined, for instance, from the perspective of S&T policy, impacts of technology transitions, or the development of new business models.

While these examples are illustrative, a key concept here is to ensure two-way exchanges among the colleges in GT and with regional partners, including support to fund economic and policy considerations for science and engineering research projects, and vice versa.

2. *Scholarly Exchanges, to include Faculty and Students*

Proposals are solicited to support visiting scholars/fellows from the states identified above in pursuit of collaborative research engagement. These could be faculty or students, and the exchange could take place at Georgia Tech or in special cases, in Washington, DC. It is anticipated that such requests would be on the order of \$1 – 10K.

3. *Hosted Events*

Proposals are solicited for faculty interested in hosting individual seminars or seminar series that address center goals. It is anticipated that such requests would range from a few hundred to a few thousand dollars.

4. *Educational Development and Workforce Development*

Proposals are sought for the development of education and outreach tools, such as Massive Online Open Courses (MOOCs), online tools, apps, videos. These could be addressed to the general public, students, specialists, the media, or other stakeholders. This category also includes formal content in module format that could support a formal undergraduate energy-oriented course. It is anticipated that such requests would be on the order of \$2 – 10K.

5. *General Fund Support to facilitate related center research, engagement, impact*

Potential proposals could be in a variety of areas that would further facilitate center goals, including software, data sets, Materials & Supplies (M&S), or travel. It is anticipated that such requests would be on the order of hundreds of dollars to \$10K.

Proposal Criteria:

Please refer to proposal guidelines, required content and review criteria on the following pages.

Funding and Timeframe:

Proposal awards could span activities ranging from a few hundred dollars up to a maximum of about \$40k/year, and can span time ranges from one day up to one year. Please refer to Table 1. in the proposal guidelines for more details. Please note, these will be Georgia Tech Foundation (GTF) funds which means no overhead will be charged against your proposed budgets. Fringe and tuition will apply. Specific details are included in the proposal preparation guide section of this document. We encourage proposal submissions to include cost share, joint funding, or waived overhead from external collaborating parties, although this is not a requirement.

Proposal Preparation Guidelines

It is the intent of the program to accept proposals of \$2,500 or less at any time throughout the year. Proposal submissions with budgets greater than \$5,000 will be accepted twice per year. During the FY2017-2018 cycle, the RFP solicitation period will take place in the May and November timeframes. The maximum funding available from EPICenter for any given proposal is given by the following table, and is subject to revision or change on an annual basis.

Table 1. Funding Categories, Typical Award Ranges, and Notional Center Award Pool

Proposal Category	Typical Estimated Award Range	Annual Center-wide Total Funding Pool (est.)
1. Study Support	\$10,000 - \$20,000	\$125,000
2. Scholarly Exchanges	\$100 - \$10,000	
3. Hosted Events	\$100 - \$3,000	\$10,000
4. Education Development/ Workforce Development	\$100 - \$10,000	\$10,000
5. General Fund Support	\$100 - \$10,000	\$20,000

NOTE:

Estimated Ranges and Funding Limits are Approximate and Subject to Availability of Funds

Individual proposals seeking funding in more than one category should prioritize based upon greatest need, and indicate how the award is expected to be allocated among the categories.

All proposals must support the EPICenter mission and objectives described on page 1 of the RFP document.

All proposals must also include the following:

- EPICenter Open RFP Application Cover Sheet (include summary/abstract)
- Project Description (two page maximum, 12-point font) must include:
 - Project purpose and need in keeping with the program goals
 - Evidence of a collaborative approach
 - Deliverables: Tangible outcomes from the project and explanation of how these deliverables will advance the objectives of this RFP. Examples of deliverables could include written documents including: summaries of workshops, project report, whitepaper, written testimony presented, transcript, policy brief, and social media.
 - Strategy for accomplishing proposed work, including proposed personnel activities.
 - Proposed schedule
 - If applicable, other opportunities for how these funds will enable leveraging of other resources, and/or how these funds help facilitate regional innovation or ecosystem objectives and meet a need that is currently unmet.
- Project Budget Sheet and budget justification

Projects will be selected based upon their compliance with the guidelines and based upon their fulfillment of key criteria as generally outlined in the following table.

Table 2. Review criteria for award selection, in priority order.

Review Criteria
Purpose aligned with EPICenter goals
Evidence effective partnering (within GT and regional partners)
Leveraging of existing programs; potential to foster new programs
Perceived impact of the deliverables and/or outcomes
Reasonableness of approach, schedule and budget

Along with the above criteria, selection of a proposal for awards may also depend upon a range of program factors including availability of funds, strategic goals, competing proposals, regional diversity, previously funded proposals, and others.

The RFP process will take place twice a year according the following tentative schedules:

Table 3. Summer RFP Cycle.

Milestone	Approximate Date
RFP Issued	April 24, 2017
Proposals Due	May 25, 2017
Award Decisions Expected	June 30, 2017

Table 4. Winter RFP Cycle.

Milestone	Approximate Date
RFP Issued	October 23, 2017
Proposals Due	November 30, 2017
Award Decisions Expected	December 31, 2017

Completed proposals (Application Cover Sheet, Project Description and Project Budget information) should be sent via email to: proposals@energy.gatech.edu

Please address questions to Rich Simmons, EPICenter Director at richard.simmons@me.gatech.edu

Appendix A

Background information on Directed EPICenter studies

As noted, the center is currently focusing on two primary means to achieve its objectives:

- (1) Directed funding of studies, on topics identified from an advisory council and center leadership;
- (2) Open calls for proposals (this RFP).

This Appendix provides a brief description of current, on-going activities in category 1. Please note that these projects are evolving and may be subject to change; they are provided here for reference only.

1. Industrial Data:

Investigating Availability and Potential Uses in the Southeast, Phase I

Background and Motivation: This study is focused on exploring industrial big data – opportunities, challenges and threats. The increased analysis and utilization of data promises to unlock opportunities over the next decade such as reductions in environmental impact, reduction in costs, and increases in the reliability and security of energy infrastructure. Moreover, business models within industrial sectors are undergoing dramatic change as the profit and growth expectations among physical assets, operations, and services will continue to evolve. Data driven approaches are increasingly valuable, but the promise of big data, machine learning, and data analytics –is predicated on access to data. Issues over data ownership, privacy, and cybersecurity are major threats to realizing these benefits. There is a critical need to better understand the opportunities in view of the key threats and risks.

This issue is of particular interest for EPICenter because the Southeast has one of the largest global concentration of corporate facilities that are aggregating, analyzing, and remotely monitoring/controlling major energy infrastructure. These global centers of data aggregation and analysis suggest that the Southeast may be unique and differentiating in this emerging area.

Further understanding and discourse of these issues with companies, regional policy makers and economic development leaders holds possibilities for regional economic development. It will also characterize the national and global distinctiveness of the region, and contribute to the build out of a knowledge economy ecosystem.

Scope, objectives and key elements:

1. Framing: Industrial Data operating definitions and phase 1 scope
2. Industrial data assessment
3. Concerns/challenges
4. Business Models and Uses of industrial data
5. Policy Implications and Recommendations
6. Southeastern economic development recommendations

Appendix A (cont.)

2. Energy Storage:

General Assessment and Use Case Review of Options in the Southeast, Phase I

Background and Motivation: The electricity matrix in the southeastern U.S. is diverse, affordable, and increasingly low carbon. A significant regional differentiator is the presence of large, vertically integrated and regulated utilities. These realities are to a great extent the result of sufficient scale as well as methodical, strategic and longer term energy planning. Nonetheless, risks to the status quo include energy commodity price volatility, cyber and physical security of the energy infrastructure and the electric power grid, supply interruptions due to unforeseen manmade or natural events, environmental impacts of energy production and consumption including the combustion of fossil fuels, and geopolitical uncertainty. The increasing awareness and severity of these major risks have spawned substantial technological innovation in energy storage technologies. Thus, key benefits and motivating factors for augmenting electricity generation at the grid-scale with energy storage assets include:

- Increased reliability
- Increased resilience
- Improved integration of lower carbon energy sources such as intermittent renewables
- Reduced costs (fixed, variable, arbitrage, etc.)

Unfortunately, several barriers to widespread implementation of energy storage assets also exist. These include unproven technologies at scale, suboptimal alignment of technologies with specific applications (such as optimum time to dispatch, duration and frequency of dispatch, and reserve capacity), excessive capital or operating costs, under-utilization of other fixed assets, or mismatch of technologies within a given regional economic/regulatory context. More focused data is needed to inform future actions in view of the particular opportunities and challenges associated with energy storage in the SE region.

Scope, objectives and key elements. This “pilot-study” will perform a review and help frame the benefits and options for energy storage in the Southeastern United States. Objectives and steps include:

1. Review of motivation, primary use cases and benefits, including techno-economic and policy tools
2. Identification and Characterization of Energy Storage Assets in the SE region
3. Development of an initial database of potential energy storage technologies for the region
4. Benchmarking of other assets, controls, or techniques that can deliver similar functionality to overall system performance in conjunction (or competition) with energy storage technologies.
5. Policy Implications and Recommendations
6. Southeastern economic development recommendations
7. Possible future objectives (phase II), including the foundation for future policy and innovation research.

Appendix A (cont.)

3. Energy 101 Educational Modules:

A Regional Energy Literacy and Outreach Tool

Background and Motivation: This project will provide targeted new content for the existing Energy 101 Massive Online Open Course (MOOC), developed by SEI. Initially launched in 2012, the course provides a big picture perspective on energy systems, resources, economics, policy, and technology fundamentals to a general audience. To date, more than 14,000 learners have accessed its content, with more than 1,000 completing the entire 40 lesson curriculum.

New material will be produced with a specific focus on the Southeast Region in terms of the current and future energy resource mix with a particular focus on the region's resource diversity, as well as regional CO₂ and emissions trends. Demand characteristics of the region's energy sector will also be included, and touch on major demand sectors (including electricity consumption and transportation). Additional content will introduce the socio-environmental impacts of using various forms of energy and estimated social costs of energy externalities, a review of benefits/costs/risks associated with the region's energy options, efficiency considerations, and the region's outlook for long term energy planning.

Scope, objectives and key elements. The deliverables include a series of web-based video seminars, supporting resources and regional energy awareness outreach campaigns. Course content and modules include:

1. Overview module: Aims and scope of this mini-MOOC
2. Module on electricity generation in the SE
3. Module on energy demand in the SE
4. Technology showcase (notable research, and demonstration projects in the region)
5. Socio-environmental impacts
6. Energy economics (electricity prices, costs to add new supply)
7. State and local energy regulations and policies
8. Energy planning and outlook
9. Key regional resources