From the Director - A very exciting year so far...

What a year it has been already! As you will see in this newsletter, the Concentration has seen a dramatic surge in activity and contribution from students, faculty, and external partners this year. Our programs including the Energy Symposium, Global Collaboratory Treks, student club activity, and many other events and initiatives have expanded dramatically over the last few years. This year they have all really hit their stride - showing why SIPA EE is the premier graduate academic program of its kind anywhere, now serving over 140 full-time energy and environment (EE) degree students and acting as a hub for hundreds more from around the University and beyond.

Looking back at all that has been accomplished, we felt it was time to commemorate the work, impacts, and solutions our students and faculty have dedicated themselves to this academic year. We have launched the EE Quarterly to do just that. We hope this newsletter will inspire you to think of ways to engage with us in our mission, training the top professionals to contribute to practical solutions in all facets of the global energy and environment sectors.

Travis Bradford
Director, Energy and Environment Concentration at SIPA

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Global Collabratory Launches 3rd Round of Projects for Spring 2016

The Global Collaboration (GC), now in its second full year, has sent students to China, Indonesia, and France in the last 12 months. Projects have included examination of off-grid electrification, a database of renewable incentives, and participation in the IPCC Paris Climate talks that led to a landmark global climate agreement in December 2015, among many others.

After a rigorous application process, three project teams were selected this year to travel to India, Rwanda, and Lebanon. A fourth team is partnering with the Center on Global Energy Policy to dive into clean energy financing mechanisms. In total, 20 students and three faculty will be participating in projects this spring, so congratulations to all of them for their success in this year’s selection!
Some recent projects include:

- **Bridging the Global Data Gap: Gender and Environment in Indonesia.** Using International Union for Conservation of Nature’s (IUCN) Environment and Gender Index as a framework to identify gender-disaggregated data gaps, three EE students traveled to Indonesia to study data availability in the forestry sector. A documentary is underway.

- **UNFCCC’s 21st Conference of Parties: SIPA Delegation, Paris, France.** In December 2015, four student leaders from SIPA and CBS attended the pivotal global climate talks. The delegation partnered with Student Energy and Imaginea to host the first “Transform Energy Innovation Jam,” and with Coalition for Rainforest Nations to support the Cameroon delegation in the negotiations.

Our four exciting new projects this spring include:

- **Project Joule.** This project is partnering with the Layan Refugee Camp Network and Chatham House to study the intersection of home economics, energy needs, and energy access in the context of three Syrian refugee camps. The team will travel to Lebanon to conduct interviews with families living in the camps. The team will present an exposition of photos and family stories.

- **Rwanda GIS Mapping.** Using GIS technology, this team will build an open-source map that plots energy access for three to five off-grid villages in rural Rwanda. The map will be used to help energy providers target areas for new development more effectively.

- **India Greenbook.** In order to promote new solar investments in Rajasthan, India, this team is partnering with the International Finance Corporation and Rajasthan Solar Association to develop a regulatory and technical roadmap for solar developers.

- **Capital Markets: Can Clean Energy Learn from O&G?** This New York-based research project will explore the history of capital markets for oil and gas and consider lessons that could be applied to increasing investments in low-carbon technologies. It is being implemented in partnership with the Center on Global Energy Policy and Aligned Intermediary.
11th Annual Columbia Energy Symposium Sets New Bar

In its 11th year, the November 2015 Columbia Energy Symposium convened nearly 500 professionals, students, and faculty for a two day event aimed at tackling the most challenging EE issues.

Anne Hoskins (Commissioner, Maryland Public Services Commission), Jan Stuart (Global Energy Economist, Credit Suisse), and Erika Karp (CEO, Cornerstone Capital) delivered keynote remarks.

Thanks to the dedicated leadership of EE students, this Symposium also featured:

- A 16 company career fair with one-on-one recruiter coffee chats for over 40 students.
- A start-up showcase and competition featuring 20 venture groups.
- A case competition, sponsored and facilitated by Booz Allen Hamilton, with 12 student teams from Columbia, Cornell, UPenn, Dartmouth, and Yale.

Many thanks to the generous support of our sponsors! We hope you will be able to join us again next November!

Student Spotlight:

Tianying Lan is a 2nd year EE student specializing in Management.

Prior to SIPA, Tianying worked in energy and economic research in her home city of Beijing, China. She decided to enroll at SIPA to gain a systematic knowledge of energy management and policy.

At SIPA, Tianying has particularly enjoyed Decision Modeling and Renewable Energy Project Finance Modeling. She mentions that her most important experiences at SIPA have included working on her Capstone and Global Collaboratory projects.

After graduation, Tianying plans to continue working at London Economics International, a global energy consulting firm. She loves her work there and believes her position will help her gain a more robust understanding of energy markets. In the long term, Tianying wants to contribute to the development of Chinese energy markets by leveraging her experiences in the U.S.
SEA on Campus

This year, the SIPA Energy Association (SEA) is focused on expanding its outreach to EE alumni. In order to highlight its members’ expertise to energy professionals, SEA is launching an energy digest newsletter and expanding its online presence. SEA is also developing a formal mentorship program between 1st and 2nd year students and planning a spring retreat.

Make sure to explore SEA’s new website and follow the @SEAColumbia Twitter.

ECO on Campus

The SIPA Environmental Coalition (ECO) had an incredible line-up of events in the fall that included a presentation from activist Bill McKibben, founder of 350.org, on the university fossil fuel divestment movement. The group also hosted a series of ECO Skypes with environment professionals Dr. Arunabha Ghosh, CEO of the Indian Council on Energy, Environment, and Water and Susan Minnemeyer, GIS manager at the World Resources Institute. ECO Week (Sept 19 through Sept 26) was a resounding success, and included a screening of the film, “Sun Come Up,” and a waste workshop with Maria Ortiz, program manager at the NYC Bureau of Recycling and Sustainability.

ECO also received a grant from the Columbia University Office of Environmental Sustainability Green Fund to improve recycling in the SIPA building and move towards implementing a composting pilot. The team has launched an awareness-raising campaign based on the results.

This semester, ECO will host two GIS workshops, a spring hike, and a series of post-COP Paris Agreement discussions. All events are open to students and alumni. The highlight of the semester will be Earth Week, April 18th through 22nd, which will feature composting and conservation initiatives.

Make sure to explore ECO’s website and follow the @SIPAeco Twitter.

Internship Spotlight:

Through a partnership developed through EE, 2nd year EE students Sarah Bouhassoun and Angela LaSalle are interning for a philanthropist working to install a solar PV and battery system for an off-grid hospital in rural Haiti to replace its current diesel generators.

Over the last few months the team has been researching storage options and comparable off-grid hospitals, working with an engineer to finalize the size of the project, and seeking additional funding. The installation is expected to be completed May 2016. This installation is intended to serve as a model for similar ones in the future.

Congratulations to them on this important contribution, and best wishes on their continued success.
SEA in San Francisco and Houston

Many thanks to the generous alumni who assisted with the San Francisco Trek!

Last November, 30 members of SEA traveled to California on the annual San Francisco Energy Trek to meet with high-profile Columbia alumni working in the clean energy space. Over two days of meetings, SEA met with the California Public Utilities Commission, Pacific Gas and Electric, Navigant, Bloomberg New Energy Finance, Sunrun, SolarCity, and SunEdison. SEA also attended an executive dinner organized by Young Professionals in Energy and hosted a happy hour for Columbia alumni. For the first time, SEA was pleased to offer Trek scholarships to four exceptional students.

3rd Annual joint SEA/ CBS Houston Trek - Coming in April

SEA and CBS Energy Club have already begun planning the annual Houston Energy Trek, tentatively scheduled for April 13th to 15th. If you are interested in hosting students at your company or providing personal contacts to assist with planning, please contact Co-Director of External Outreach Matus Muron (mm4722@columbia.edu).

Last year, SEA was pleased to visit: GE, Cameron, Wood Mackenzie, IHS-CERA, Platts, SCF Partners, Cheniere, EDP, Shell, ConocoPhillips, McKinsey, and Forum Energy Technologies.
SIPA EE Course Spotlight

Adjunct Professor Daniel Gross discusses his widely-acclaimed course, Renewable Energy Project Finance Modeling:

I teach a course called Renewable Energy Project Finance Modeling, which is offered at SIPA in the spring semester. The class is designed to be a skills-based practicum, helping students to develop proficiency with real-world tools of the trade. As an investment professional and practitioner, I favor this approach over reliance on academic theory.

Instead of a text book, students are provided with over 500 pages of confidential legal and technical documents from a wind energy project that was built relatively recently. Students learn to navigate the structure of key project finance contracts, including loan agreements, power purchase agreements, engineering and construction agreements, and operations and maintenance agreements. Guided readings and rigorous homework assignments enable students to develop an understanding of core legal concepts such as representations & warranties, covenants, force majeure, events of default and remedies.

Students are also introduced to best practices in building financial models for project finance, including hands-on exercises focusing on essential Excel functions and techniques. The final assignment entails building a full-blown model of the wind project, ensuring that the key drivers and sensitivity analysis are consistent with the documents reviewed in class.

At the end of the course, students work in small groups to consolidate all of the prior assignments into an investment committee memo, resembling what would be produced within a bank, infrastructure fund, independent power producer, or utility.

My goal is for students to be able to demonstrate to potential employers that they are better qualified than candidates coming directly from other graduate programs because they have been exposed to materials from a real project and simulated a typical investment process. Many students have reported success in interviews thanks to the practicality of the skills and knowledge they developed in the course. Some have even shared copies of their final assignments with potential employers in order to demonstrate that they understand the job and are capable of adding immediate value to the firm.

It’s a rare privilege for graduate students to be given access to these materials, and I am honored to be able to offer such a unique experience at SIPA.

Daniel Gross is a Managing Director at Pegasus Capital Advisors focused on both private equity and infrastructure investments, including activities in Latin America and Sub-Saharan Africa.
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Looking to Engage with SIPA EE?

If you’re looking for ways to engage with EE, here are a few opportunities. We would love to hear from you!

• Sponsor or speak at the annual Energy Symposium  
• Participate in the EE career fair  
• Challenge EE students to a case competition  
• Circulate internship or job opportunities directly to our students  
• Host a brownbag seminar on a cutting edge topic in your industry  
• Partner with EE to develop a Global Collaboratory project or Capstone workshop  
• Assist with planning the SEA San Francisco or Houston Energy Treks  
• Support student scholarship opportunities  
• Or any other ideas you may have!

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