JOHNS HOPKINS
SCHOOL *of* ADVANCED INTERNATIONAL STUDIES

Energy, Resources and Environment Program

Academic Prospectus

2018-2019

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With campuses in Washington, DC, Bologna, Italy, and Nanjing, China, SAIS is the only international relations school of its kind. Students have the unique advantage of experiencing our three strategically located centers.

For seven decades, SAIS has attracted the best and brightest applicants, eager to learn from our superb faculty and to prepare for a leadership role in solving complex global problems.

- Last updated May 30, 2018 -

Deborah L. Bleviss
Administrative Director, Energy, Resources and Environment Program

A Message from the Director on Educating Leaders and Problem-Solvers in Energy and Environment

The Energy, Resources and Environment (ERE) Program of the Johns Hopkins School of Advanced International Studies is an interdisciplinary graduate program focused on developing innovative solutions to urgent global energy and environmental challenges. The Program aspires to educate a new generation who will hold leadership roles in the diverse array of global, national and local institutions that will shape the world's future.

The primary vision for the Energy, Resources and Environment (ERE) Program is to prepare its students to respond to the critical future challenges in the ERE arena, some of which may not even be conceived of yet. Such an education necessarily addresses two of the greatest challenges facing the globe today: climate change and energy poverty, but it must also prepare students for understanding the geopolitical stresses with accessing energy and resources and dealing with the resulting pollution, particularly as those stresses are further aggravated by climate change and energy poverty.

To meet this vision, ERE embarks on three intertwined paths:

- substantive and comprehensive teaching in this area, addressing both specific topics and the mechanisms through which potential solutions can be implemented, and providing students with practical and hands-on learning environments to solve problems;
- academic enrichment programs outside of the classroom that enhance the learning experience for its students through guest speakers and seminars; field trips, both local and international; and interactions with ERE alumni;
- and the establishment of critical "thought centers" defined as focusing on subjects in such new and/or so rapidly changing fields that they are premature to teach about in the classic manner because so little experience has been garnered

To successfully follow along these paths, the ERE program embraces a vision that unprecedented and multi-faceted innovation will be required to undertake technology development, deliver the needed investment, create the appropriate policy environment, establish an appropriate governance framework and succeed in international diplomacy.

Looking Forward: ERE in 2018 - 2019

The ERE program plans to continue building on the department's accomplishments from the past year. Twenty seven ERE courses will be offered across all three campuses in the 2018-2019 academic year and in the upcoming years a lot of new and exciting changes are in store for the ERE program.

The International Energy and Environmental Practicum continues to flourish and features a total of five projects this year. Professor Nikos Tsafos will be taking the helm of the program and as always ERE looks forward to forging new partnerships and strengthening existing relationships through this innovative course.

The Initiative for Sustainable Energy Policy (ISEP) will host several events at the start of the fall semester including a seminar with the DC Sustainable Energy Utility and a book talk on *Escaping the Energy Poverty Trap* with Dr. Johannes Urpelainen. The Frontiers in Energy, Science and Technology field trip initiative recently completed trips to China, Vietnam and Seoul and is planning a collaborative trip with SAIS partners to explore energy in Pakistan. As always, ERE would like to thank our generous supporters and donors for helping to make these important co-curricular activities possible.

Professors Jonas Nahm and Carla Freeman with ERE and China Studies students on FEST trip in Vietnam

A critical component of the curriculum in the Energy, Resources and Environment program is requiring that students take both energy and environment courses. New to the program for all incoming first-year ERE students is the requirement that they must take either Global Energy Fundamentals or Global Environmental Fundamentals in their first year at SAIS. This is consistent with ERE's vision for the program, and means that no one can graduate as an ERE concentrator without being knowledgeable about the deep links between these two subject areas. An understanding of the interactive nexus of energy, water and food security, the threats posed by global climate change, the challenge of energy poverty and possible solutions to these daunting problems, is a critical component of the ERE graduate's tool kit.

The ERE program provides its students both an academic and academic enrichment focus. We also accept applications for M.I.P.P. candidates to affiliate with ERE. Individuals interested in pursuing a PhD in Energy, Resources and Environment can contact Professor Urpelainen at johannesu@jhu.edu. To view ERE's full AY 2018-2019 curriculum matrix, please visit http://bit.ly/2jZyTmw.

Academic Program Requirements

MA Concentration Requirements (as of AY16-17): MA students concentrating in Energy, Resources and Environment (ERE) must take at least 6 courses within this program. At minimum, 1 must be designated as an "Energy" course with the prefix SA.680.XXX and 1 must be designated as an "Environment" course with the prefix SA.680.XXX (see Matrix below). Only 2 of the 6 required ERE courses may be cross-listed starting with a prefix other than SA.680.XXX.

All ERE concentrators and MIPP Affiliates must complete the Online Basics of Energy (OBE) course in Blackboard before the start of classes of their first term with ERE. Follow these instructions to enroll in OBE.

Starting with the entering class of fall 2017, all ERE MA concentrators must complete at least 1 ERE Fundamentals course (SA.680.697 Global Energy Fundamentals or SA.680.698 Global Environment Fundamentals) by the end of their first year.

- **International Economics –** All candidates for the M.A. degree must complete a concentration in the field of International Economics by taking at least four economics courses: Macroeconomics, Microeconomics, International Trade Theory and International Monetary Theory. Eligible students who pass the waiver exams in these subjects or who pass Micro and/or Macro in Pre-Term must replace those classes with alternate economics classes. Starting with the class of Fall 2017, students who pass Microeconomics in Pre-Term will have the concentration reduced to 12 credits, but still must complete Macroeconomics, International Trade Theory, and International Monetary Theory (or a replacement course(s) if waiver exam(s) passed). The Pre-Term Microeconomics course is not for credit and is not factored into the GPA. Many students choose to specialize in one of four areas of economics and therefore use electives to meet these requirements. Students may also choose to specialize in Emerging Markets. Additionally, students must take one quantitative reasoning course.

- **Core Exams** – All SAIS students must pass 2 core exams and/or courses in addition to their concentration requirements. If the core courses/exams are not completed by the start of the final semester, a student must enroll for credit in the core course(s).
- **Language Proficiency** – MA candidates must pass exams to demonstrate proficiency in a second language. This language must be offered at SAIS. Students whose native language is not English may use English as their proficiency language. All non-native English speakers are required to pass an English placement exam upon entering SAIS, even if not using English for proficiency.
- **Capstone –** ERE concentrators must complete one of the two following Capstone exams in order to graduate: (1) Energy, Resources and Environment Oral Exam or (2) MA Oral Exam (to compete for honors - if eligible).

Minor in ERE: 3 ERE courses (12 credits) including: SA.680.697 Global Energy Fundamentals or SA.680.698 Global Environment Fundamentals and 2 additional ERE courses (8 credits), of which at least 1 must have the ERE prefix SA.680.XXX.

General Minor Requirements: MA students may pursue an optional minor in a policy or regional program. A student cannot pursue a minor in General IR or International Economics, but can pursue a Specialization in International Economics. A student can have only one minor and can declare a minor at any time prior to graduation. Students do not receive bidding priority for a minor. All minors require three courses. Some minors require a specific course(s) and/or language proficiency. A student may use a maximum of one applicable cross-listed course (4 credits) toward both a minor AND concentration requirements. In the IR or Asia concentrations, the cross-listed course must be from the primary concentration area and not from the 2 additional required courses in the other IR or Asia areas. General IR concentrators can minor in an IR area or policy area (Conflict Management, Global Theory and History, International Law and Organizations, International Political Economy, Energy, Resources, and Environment, or Strategic Studies) by completing 2 additional area/policy courses (8 credits) beyond the 1 used toward the concentration.

Concentration Transfers to Energy, Resources and Environment (ERE)

Students wishing to change their concentration into the Energy, Resources and Environment Program should be aware that six ERE courses are mandatory (only 2 of the 6 courses may be a cross-listed course offered by another department) and must include at a minimum one course designated as "energy" focused and one course designated as "environment" focused. All students are required to complete the Online Basics of Energy course and starting with the entering class of fall 2017, all ERE MA concentrators must complete at least 1 ERE Fundamentals course (SA.680.697 Global Energy Fundamentals or SA.680.698 Global Environment Fundamentals) by the end of their first year.. Students must submit a change of concentration request for approval by the SAIS Office of Academic Affairs, the program they are leaving, and program they wish to join.

M.A. Dual Concentrators

The ERE program accepts dual concentrators. In the event that a particular course is oversubscribed, second-year ERE Dual concentrators receive the same priority considerations as ERE concentrators during the bidding process.

Master of International Public Policy (M.I.P.P.)

M.I.P.P. is intended for mid-career professionals in international fields who have at least nine years of work experience. The program offers one-year of full-time study or two years of part-time study in international relations, international economics or some combination of the sub-fields of these disciplines. The ERE program allows M.I.P.P. students to affiliate, upon approval, and offers one priority course of choice. M.I.P.P. students are also required to take a minimum of one ERE course designated "Energy", and one ERE course designated "Environment" as outlined in the section above. Refer to the ERE curriculum matrix for course designations. Starting with the entering class of fall 2017, all ERE M.I.P.P. concentrators must complete at least 1 ERE Fundamentals course (SA.680.697 Global Energy Fundamentals or SA.680.698 Global Environment Fundamentals).

Academic Enrichment Programs

To supplement its rigorous academic curriculum, ERE has developed the following programs:

- **Frontiers in Energy, Science and Technology** (**FEST**) Field Trip Initiative - Provides students with first-hand experience visiting utilities, nuclear power and LNG plants, hydraulic fracturing and off-shore oil facilities, sewage treatment plants, and solar panel manufacturing facilities, among others. These experiences enhance student understanding of the SAIS ERE curriculum.
- **Global Agriculture Seminar Series** – The Global Issues in Agriculture Seminar Series brings professionals working in the fields of Food Security, Agricultural Economics and Resource Management to SAIS. The speaker series was founded by Dr. Robert L. Thompson, who recently retired from his position as a visiting professor in the Energy, Resources and Environment and International Development Programs.
- **Global Leaders Forum -** The GLF brings leaders to SAIS from government, finance, industry, research and civil society, to engage students and the larger SAIS community on crafting solutions to intractable domestic and international energy and environmental challenges.
- **The Initiative for Sustainable Energy Policy** - ISEP is an interdisciplinary research program that uses cutting-edge social and behavioral science to design, test, and implement better energy policies in emerging economies. Hosted at the Johns Hopkins School of Advanced International Studies (SAIS), ISEP identifies and pursues opportunities for policy reforms that allow emerging economies to achieve human development at minimal economic and environmental costs. The initiative pursues such opportunities both pro-actively, with continuous policy innovation and bold ideas, and by responding to policymakers' demands and needs in sustained engagement and dialogue.
- **The International Energy and Environment Practicum** - Helps students develop their practical problem solving skills. Teams of four ERE students work on a project for a business, NGO, or foundation during the course of the full academic year, allowing them to apply their academic training to real world problems. The teams also travel abroad to conduct hands-on research.

Career & Internship Placements

ERE encourages students to pursue internships and research opportunities during the summer or after their first year of study in Washington. Many of our graduates begin careers in prominent institutions upon graduation.

- **Placements**: White House Council on Environmental Quality, World Food Programme, Adaptation Fund, United Nations Environment Programme, Department of Energy, PFC Energy, Sidar Global Advisors, Overseas Private Investment Corporation, World Resources Institute, and the World Bank, among many others.

Course Descriptions (Washington, D.C.)

Agriculture – Global Issues SA.680.783

The course will examine important issues related to global agriculture, including: globalization and recent evolution of the world food system; agricultural market volatility and trends in agricultural commodity prices; the nexus among agriculture, poverty, and hunger; technological change and agriculture's role in economic development; the degrading global natural resource base and implications for food production and the rural poor; options for restoring a degree of sustainability while increasing production; agriculture and climate change--a two-way relationship that can no longer be ignored; public policy distortions in global agriculture affecting both domestic markets and trade; public vs. private roles in agricultural and rural development going forward; and by illustration exciting career opportunities in agriculture for the next generation of professionals.

Applied Policy Analysis with Cases in Sustainability SA.680.784

This course introduces a wide range of major policy issues pertaining to local, national and global environmental sustainability through case discussions and analyses in a variety of socio-economic and institutional contexts. Students then engage in self-proposed original research of a real-world policy problem through a structured and guided process, resulting in a substantial term paper that informs policy making. The goal is to improve students' understanding of multidisciplinary policy issues in sustainable development and problem-solving skills to identify, critically think, and communicate real-world policy problems.

Comparative Energy and Environmental Governance SA.680.796

Moving beyond the idea that differences in public opinion are primarily to blame for such variation, this course focuses instead on how the design of the state itself influences energy and environmental governance outcomes. Regime type, electoral systems, party rules, fiscal structures, and institutions that determine regional and municipal policy-making authority have enormous impact on policy-design and implementation. In addition, energy and environmental problems span regional and national borders, mapping poorly onto existing governance institutions and spawning a range of unintended consequences. To systematically examine the link between state institutions and energy and environmental governance, this course applies theories and concepts from literatures on comparative politics to topics in energy and environment, moving gradually from multilateral institutions, through institutions at the national, regional, and municipal levels. The course ends with a class on nonstate, market-based institutions for energy and environmental governance.

Energy Poverty SA.680.852

To this day, more than a billion people do not have electricity at home and almost three billion people rely on traditional biomass for their cooking. This course investigates this problem of energy poverty and how policymakers can overcome it. The course covers all regions of the world but focuses on South Asia and Sub-Saharan Africa, where energy poverty is concentrated. In the lectures, students learn about the socio-economic causes of energy poverty, the impact of the problem, and the political economy of energy access policy. All students conduct an original research project to identify, analyze, and solve an energy access problem in a country of their choosing.

Facing the Oil Problem: The United States, Canada, OPEC and the World SA.680.759

Every aspect of foreign and domestic policy feels the effect of the oil problem. Solutions will be difficult. The course assesses direct and indirect costs of oil addiction, including global warming. It considers scenarios of supply disruption; examines who controls oil and how; explains "peak oil" and the loss of "spare capacity" to cushion price shocks; looks at heavy oil production from Canada, America's largest oil supplier; weighs energy initiatives, alternative energy development and future energy RD&D. Unravels complexities of the oil problem and explores what is to be done about it.

Geopolitics of Energy SA.680.765

Energy and geopolitics are intrinsically linked. Profound shifts in the global energy landscape are having major impacts on international relations. This course will address the risks to global energy security, how countries and regions define their energy challenges, and how these perceptions impact their foreign policies and the international system. The course will look at global energy forecasts, the security considerations attached to different fuels and sources of energy, and the key issues impacting the geopolitics of energy in different regions of the world.

Global Energy Fundamentals SA.680.697

This class is geared to provide a good energy background to students who have previously not had much exposure to the wide array of issues that encompass the energy policy arena. Topics covered include: oil; gas; electricity (including traditional and new generation resources); alternative transportation fuels; energy efficiency options across the transportation, industrial, and buildings economic sectors; climate change, and energy in developing countries. . Students learn how to make "back-of-the-envelope" calculations regarding the scope of a given problem or a proposed solution. They also learn how to evaluate problems and suggest solutions within a two-page policy format that is used widely both in the public and private sectors. The class will be taught in an innovative format called the flipped class where students will be asked to view the online lectures outside the class. Class time will be devoted to more interactive group activities as well as professor-student interaction providing students a higher critical understanding of policy issues related to energy.

Global Environment Fundamentals SA.680.698

This course's approach and comprehensive vision is centered on sustainability. The Environment is not an "issue", it is the observable function of the earth's life support system. Initially, this course will examine the context of the environment in terms of this function, in a global context, giving the students a "framing" point of view of the interlocking bio-physical/ecosystem and human/cultural components. In the second part of the course we will examine key specific aspects of this system and their implications for our future, including climate disruption and the behavior of food and water systems. Finally, the third part of the course will examine the opportunities for policy action: what needs to be done, what can be done and what has or has not worked in the past. Students will gain an understanding of the scope and parameters of the environment (writ large) as well as a set of conceptual tools that will allow them to develop and implement effective policy in relation to the environment, as they encounter it professionally.

Global Electricity Markets SA.680.730

This course is designed to provide an introduction to the electric power industry. The focus is on the policy, technology, institutional, and regulatory factors affecting the industry, major current issues, and the prospects for the industry's future development and sustainability. Students are not required to have a background in engineering, economics, finance, etc., although these disciplines are woven into the discussion. The course is anchored in the US market experience, but e emerging and OECD markets will also be discussed. The overall objective of the course is to provide students with the knowledge to understand, analyze and formulate policy paths that address the questions of industry reform and meeting the challenges of demand and global climate change. This course is a good complement to the "Innovation in the Electric Power Sector" course, which addresses challenges facing the global industry as well as innovative approaches to rural electrification in the advanced developing nations.

International Energy and Environment Practicum SA.680.775

As both a course and a project, the practicum provides students the opportunity to apply the principles and methods they have learned in their academic courses in a real-world setting. Sponsoring organizations—including NGOs, government agencies, multilateral organizations and private companies—pose real and pressing problems, and students work to develop useful findings for their "client" company. All projects concentrate on international environmental issues, although some may intersect with the other focus areas of the Energy, Resources and Environment Program: energy, technology and health. Students work in teams to (1) agree to detailed terms of reference with the organization; (2) form a work plan for their project; (3) plan and conduct interviews, data collection, travel, etc.; and (4) prepare and present draft and final reports.

International Water: Issues and Policies SA.680.738

Is it true as recent headlines suggest that our fragile planet is on the loom of a grave water crisis, that our rivers are running dry and groundwater aquifers increasingly over-tapped and over-exploited, that wars will be fought between nations over this precious resource (more valuable than oil), and that this is likely to affect the development opportunities for a large share of the world population? Or is this looming crisis over-hyped, a matter of political will and proper pricing, and within the capacity of society to manage? Water is a classic renewable resource, essential to life on this planet. Water sustains the livelihoods of society and makes productive economic activity possible. For such an important resource, it is no wonder that issues surrounding its use (and abuse) can generate cause for so much passionate controversy and concern. This course is a broad survey of the international water issues facing the 21st century. Topics to be covered include, privatization of water service delivery, conflict and cooperation on trans-boundary rivers, the role of large multi-purpose reservoirs (for hydropower, water supply, irrigation), water as a human right, achieving the Millennium Development Goals on water supply and sanitation, the role of water in food security, and climate change.

International Wildlife Conservation SA.680.881

Wildlife populations around the globe are under serious threat, impacted by human activity, development, and encroaching industry, much of which is prompted by decisions made by governments and other institutions. Local-level land-use, local, national and international policies, and human trade and development activities heavily influence wildlife populations and the potential for their protection and management. This course provides an overview of the theory and practice of wildlife conservation

internationally, with a focus on African wildlife. The objectives of the course are to provide knowledge on policies and practices used to protect and manage wildlife populations, especially as they compete with other development goals. The course will examine: the major issues of concern in global wildlife conservation; the US-based and international agencies working toward wildlife conservation objectives and the way they interact with other "development" groups implementing projects in conservation areas; the impact of major international treaties; and, conservation practices across key regions of the globe.

Life Cycle Assessment SA.680.855

Life cycle assessment (LCA) is technique that is widely used by businesses, government, and civil society to quantify environmental impacts of products and processes from cradle-to-grave (or even cradle-to-cradle). Studies employing this technique have uncovered surprising environmental findings, including the trade-offs between plastic and glass bottles, the upstream impacts of gasoline produced from the Canadian Oil Sands, and the hidden impacts of zero emissions vehicles. This course will provide a comprehensive introduction to LCA, an internationally recognized tool that is promoted by organizations such as the United Nations Environmental Program (through the Life Cycle Initiative). Students will learn how to undertake a LCA, explain the relevance of LCA to stakeholders, and discuss the benefits and drawbacks of using LCA in regulation and policy. While other products will be discussed, there will be an emphasis on energy technologies.

Natural Gas Markets SA.680.793

This course offers students a well-rounded introduction into natural gas and teaches them the tools employed by energy companies, consulting firms, financial institutions and governments. The course covers four themes: (a) methods for forecasting gas supply and demand; (b) the regulation that governs natural gas markets and pricing; (c) the economics and politics of large-scale gas projects; and (d) the drivers and strategies of international oil companies (IOCs), national oil companies (NOCs), and utilities. There are no prerequisites for this course. However, students will find the course easier if they have a background in economics (micro, macro), if they understand basic concepts of corporate finance (e.g. discounted cash-flow), and if they can use data-processing software (e.g. Microsoft Excel).

Nuclear Non-Proliferation Challenges in the 21st Century SA.680.786

Nuclear energy can be used for peaceful purposes or for nuclear weapons. An international non-proliferation regime was established based on the 1968 Nuclear Non Proliferation Treaty (NPT). The Treaty assigned responsibility International Atomic Energy Agency of the United Nations for applying safeguards to nuclear and related materials, nuclear equipment and facilities to ensure that they remain in peaceful use. New challenges arise from resurgent interest by some nations in acquiring nuclear weapons to meet their perceived security needs, and the recent revival of interest in nuclear power as a carbon-free energy source, including from developing countries that have no experience in nuclear technology. In addition, with the end of the Cold War there is a new threat of nuclear terrorism from acts of malice, diversion, sale, and theft of nuclear material and technologies. This course will explore how nuclear weapons work, why some countries are tempted to seek them, and the implications of nuclear weapons for civilian nuclear power and geopolitical stability. Students will gain an understanding of the political and military dynamics of nuclear weapons, ways to slow or halt the spread of such weapons and how to reduce the dangers of nuclear terrorism. Group discussions, simulated exercises, and guest lecturers will introduce additional real-world dimensions into the classroom.

Policy to Drive Energy Innovation SA.680.774

With the rising challenges of mitigating both energy security and climate change vulnerabilities, the need for facilitating rapid introduction of new energy technologies that are cleaner and more efficient has never been higher. This course will examine the policy framework required to achieve this. It will begin with an overview of the elements needed to drive technology innovation in general, along with the types of policies to spur these elements. The course will then apply this analysis to the specifics of accelerating energy technology innovation, discussing a framework for energy technology policies. Strategies used to drive energy technology innovation in major countries around the world—including both OECD and the more advanced developing countries—will then be examined, beginning with the U.S. The assessment of the United States will include an examination of its innovation system institutions: their strengths and gaps in driving energy technology innovation, including recent programs to address those gaps, and an analysis of what remains to be done. The course will conclude with an examination of approaches being considered to spur energy technology innovation as part of the climate negotiations. Since this course focuses on policies to achieve energy innovation, it is a good complement to the "Energy Technology Futures" course, which focuses on future technologies and their risks and benefits.

The Politics of Water in Developing Economies SA.680.854

This course takes an explicitly comparative perspective to systematically examine how developing economies have managed the domestic politics of water as a resource. From big-state solutions during an era of large-scale infrastructure investment, market-based approaches during the Washington Consensus, to a recent resurgence of state intervention led by China, the role of the state in water management has changed fundamentally over time. Drawing on empirical cases from Asia, Africa, and Latin America, the course investigates how prevailing theories about the role of the state in economic development have influenced state approaches to governing water. Moving beyond technocratic solutions that see water management primarily as an engineering task, the course explores how strategies for water governance are politically contested and reflect the shifting distribution of power among different societal groups. In addition to providing a broad survey of contemporary international water issues, the course offers students practice in comparative policy analysis and develops an analytical toolkit for policy-making in a developing economy context. Students who have taken or take this course, cannot enroll in SA.680.738.01 International Water: Issues and Policies.

Quantitative Methods in ERE SA.680.856

This class introduces the fundamentals of applying quantitative methods in energy and environmental policy. It is ideal for any students interested in a career in energy or environmental research or analysis.
The class emphasizes both mathematical and statistical tools. The students will gain substantial exposure to statistical analysis using the R statistical package, an exible and powerful tool for data analysis.

Renewable and Distributed Energy Resources: Trends and Policies SA.680.797

Given the challenges presented by climate change, environmental degradation, and resource scarcity, virtually everybody agrees that "business as usual" in energy production and consumption is no longer tenable. However, for all the compelling reasons to increase the share of energy generated from renewable sources, the development of renewable energy sectors has varied widely across countries. In

some economies, more than 30 percent of electricity are now generated from renewable sources, while others have made few attempts to establish domestic renewable energy sectors. This course will examine what's driving the remarkable growth in some countries while others lag behind. To understand such variation, this course provides an in-depth look at the policies and economics of renewable energy – from large scale wind and solar to distributed generation (DG) resources such as rooftop solar, micro-grids, and storage in the U.S., Europe, and Asia. Weekly, discussion-intensive class meetings examine how specific national and state policies are driving growth in renewable energy sectors, how these policies impact renewable energy projects (large and small scale), how and why these policies have differed across nations and over time, and what factors have contributed to policy failure.

Science, Policy and Political Economy SA.680.799

The nexus of scientific and technological innovation and public policy impacts virtually every issue on the agenda of national and international governments: the economy, public health, education, energy, environment, defense, diplomacy, and more. This course will introduce the complex relationships between science, technology, and public policy in the international sphere. The tools and methods policy analysts and science advisors use to assess issues critical to science, technology, and international affairs will be discussed. Students will learn practical knowledge that they can implement; for example, how governments solicit expertise, determine funding, and regulate science research and technological industries. The classroom sessions will include case studies, role-playing, structured debates, and exercises.

Science, Technology & International Affairs SA.680.777

The nexus of scientific and technological innovation and public policy impacts virtually every issue on the agenda of national and international governments: the economy, public health, education, energy, environment, defense, diplomacy, and more. This course will introduce the complex relationships between science, technology, and public policy in the international sphere. The tools and methods policy analysts and science advisors use to assess issues critical to science, technology, and international affairs will be discussed. Students will learn practical knowledge that they can implement; for example, how governments solicit expertise, determine funding, and regulate science research and technological industries. The classroom sessions will include case studies, role-playing, structured debates, and exercises.

Course Descriptions (SAIS Europe and Hopkins-Nanjing Center)

Energy and Climate Change SA.680.722

This class provides an interdisciplinary introduction to the technology, economics, and politics of energy use. We investigate specific technologies and discuss their impact on geopolitics the environment and mitigating the effects of climate change. In doing so we seek to address these questions, among others: What is the role of energy in national security? What is the future of oil? What role can nuclear power serve for the next century? Do wind and solar power have the potential to supplant other energy sources? What will climate change mean for our energy mix? How do developing countries view energy differently? What is the proper balance of regulation and free market operation in energy markets?

What new technologies are on the horizon, and how promising are they? The class will be run primarily as a lecture and discussion format with some student presentations on particular energy technologies.

Global Energy Fundamentals SA.680.697

This class is geared to provide a good energy background to students who have previously not had much exposure to the wide array of issues that encompass the energy policy arena. Topics covered include: oil; gas; electricity (including traditional and new generation resources); alternative transportation fuels; energy efficiency options across the transportation, industrial, and buildings economic sectors; climate change, and energy in developing countries. . Students learn how to make "back-of-the-envelope" calculations regarding the scope of a given problem or a proposed solution. They also learn how to evaluate problems and suggest solutions within a two-page policy format that is used widely both in the public and private sectors. The class will be taught in an innovative format called the flipped class where students will be asked to view the online lectures outside the class. Class time will be devoted to more interactive group activities as well as professor-student interaction providing students a higher critical understanding of policy issues related to energy.

Global Environment Fundamentals SA.680.698

This course's approach and comprehensive vision is centered on sustainability. The Environment is not an "issue", it is the observable function of the earth's life support system. Initially, this course will examine the context of the environment in terms of this function, in a global context, giving the students a "framing" point of view of the interlocking bio-physical/ecosystem and human/cultural components. In the second part of the course we will examine key specific aspects of this system and their implications for our future, including climate disruption and the behavior of food and water systems. Finally, the third part of the course will examine the opportunities for policy action: what needs to be done, what can be done and what has or has not worked in the past. Students will gain an understanding of the scope and parameters of the environment (writ large) as well as a set of conceptual tools that will allow them to develop and implement effective policy in relation to the environment, as they encounter it professionally.

Politics and Economics of International Oil & Gas SA.680.756

Economic growth requires a constantly growing use of energy, and the availability of sufficient sources of energy on a global scale cannot be assumed. Energy (oil, gas and power) remains one of the biggest businesses and maintains a strategic characterization that sets it aside from other economic sectors. As such, it attracts the attention of industrial, financial and political actors internationally. The course aims to provide students with the critical knowledge and skills to avoid superficial generalizations and simplifications in addressing this issue.

Renewable Energy: Markets, Technologies, Projects SA.680.781

This course provides an overview of the renewable energy sector. Students will be exposed to all of the building blocks necessary to take a renewable energy project from concept to reality, spanning regulation/economics, technical, project development and financing aspects. By necessity the topic is multi-disciplinary and also international in its scope. The course will also place renewable energy in the wider energy debate. The professor has invited several guest speakers who are all experts in their field and will expose students to hundreds of years of renewable energy project development, technical and

financial experience. The topics to be covered by the speakers will be fully integrated into the syllabus. Each speaker will typically have a 30 minute slot to cover a specific topic (20 minute presentation & 10 minute Q&A). Subject to travel plans, speakers will make themselves available after the lecture to students wishing to engage in more detailed discussions.

Science, Technology & International Affairs SA.680.710

This course will examine how science and technology (S&T) affect the political and economic relations among nations in such matters as national security, relative economic strength, autonomy, environmental protection, cultural identity, global health, and international cooperation in research and development. These effects will be discussed conceptually and illustrated with examples from the current international scene. The course will also consider various approaches to S&T policy and to negotiating international agreements in areas affected by S&T considerations.

FACULTY AND STAFF, WASHINGTON, D.C. CAMPUS

Johannes Urpelainen, Prince Sultan bin Abdulaziz Director and Professor of Energy, Resources and Environment
Founding Director, Initiative for Sustainable Energy Policy (ISEP)

Johannes Urpelainen is the Prince Sultan bin Abdulaziz Professor of Energy, Resources and Environment and the Founding Director of the Initiative for Sustainable Energy Policy (ISEP). One of the world's top energy policy experts, Johannes frequently advises governments, international organizations, and the private sector on energy and environment. Johannes is the award-winning author of four books and over a hundred refereed articles on environmental politics, energy policy, and global governance. As the Founding Director of ISEP, he is responsible for the vision, strategy, and general management of the initiative. His work under ISEP offers pragmatic but effective approaches to providing the world's population with affordable and abundant energy at minimal environmental impact. He received his Ph.D. in Political Science from the University of Michigan in 2009 and spent the next eight years at Columbia University.

Deborah L. Bleviss, Administrative Director and Associate Practitioner in Residence

Deborah Lynn Bleviss is a Professor in, and the Administrative Director of the Energy, Resources and Environment Program and has served as a Professorial Lecturer at SAIS since 1993. She has worked in the energy and environmental field for more than 30 years. From 2002 through June 2009, she worked as an independent consultant in energy efficiency, renewable energy and sustainable urban transportation. Previously, Ms. Bleviss worked first as an advisor to and then as program director of the Inter-American Development Bank's Sustainable Markets for Sustainable Energy (SMSE) program. Her educational background includes graduate studies at Princeton University and she holds a B.S. in Physics from the University of California, Los Angeles.

John P. Banks, Visiting Scholar

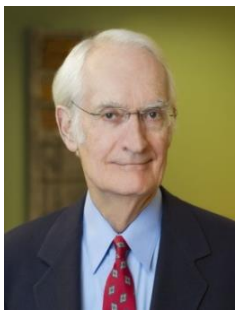
Mr. Banks is Nonresident Fellow in the Energy Security Initiative at the Brookings Institution, where he provides scholarly leadership and conducts research on domestic and international energy issues. He has been working recently on projects dealing with nuclear power, renewable energy, transportation electrification, and distributed power systems. Mr. Banks worked as a management consultant for over 20 years advising governments, companies, and regulators throughout the world on energy policy, security, and governance issues. He is a co-editor and author of a recently published book examining the role of the nuclear industry in proliferation prevention. He holds an MS in Foreign Service from Georgetown University.

Celeste Connors, Associate Practitioner in Residence

Professor Connors has over a decade of experience working at the intersection of economic, trade, environment, energy, and international development policy. Before joining SAIS, she was the Director for Environment and Climate Change at the National Security Council and National Economic Council in the White House, where she helped shape the Administration's economic priorities and initiatives. In this capacity, she developed U.S. climate change, environment, and clean energy policies for a myriad of international institutions, including APEC, the G8 and G20. Prior to joining the White House, Professor Connors served as a diplomat in Saudi Arabia, Greece, and Germany. Professor Connors holds an MSc in Development Studies from the University of London's School of Oriental and African Studies (SOAS) and a BA in International Relations from Tufts University.

Sarah Jordaan, Assistant Professor

Dr. Sarah Marie Jordaan is an Assistant Professor of Energy, Resources, and Environment at Johns Hopkins School of Advanced International Studies. She has over a decade of experience researching energy and the environment with award winning publications on climate policy and the water implications of energy technologies. Her foundations in government and public policy were strengthened at Harvard University with the Energy Technology Innovation Policy research group at the Kennedy School of Government and she gained greater insight into climate science at the Department of Earth and Planetary Sciences. She has held positions with the Electric Power Research Institute, the Laboratory on International Law and Regulation at the University of California, San Diego, and the Ocean Sciences Center at the Memorial University of Newfoundland. She earned her Ph.D. in 2010 at the University of Calgary in Environmental Design at the Institute for Sustainable Energy, Economy, and Environment. Her Bachelor's degree is in Physics with a minor in Computer Science from Memorial University.



Wilfrid L. Kohl, Senior Advisor

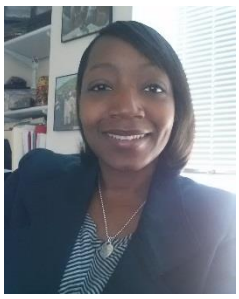
Dr. Wil Kohl is the founding director and Senior Advisor of the Energy, Resources and Environment Program. He's also the former director of the SAIS International Energy and Environment Program of the Foreign Policy Institute, and the former director of SAIS's Bologna Center. Dr. Kohl served as associate director of Columbia University's Institute in Western Europe; additionally, he's a past international affairs fellow at the Council on Foreign Relations and the Woodrow Wilson International Center for Scholars. Previously, he was a former staff member of the National Security Council and a program officer at the Ford Foundation. Dr. Kohl also taught at the University of Pennsylvania; and he's a member of the International Association of Energy Economics. He received his Ph.D. in Political Science, from Columbia University.

Jonas Nahm, Assistant Professor

Jonas Nahm is an Assistant Professor with the Energy, Resources and Environment program. His research focuses on the political economy of development and industrial upgrading in green industries, the politics of innovation, and the political economy of the energy sector. In addition to China – his primary focus for the exploration of these themes – his research draws on cases in Germany and the United States. His current book project "Varieties of Innovation: The Creation of Wind and Solar Industries in China, Germany, and the United States" examines the mechanisms through which distinct patterns of innovation have emerged in renewable energy sectors in each of these locations. Prior to SAIS, Dr. Nahm was a Postdoctoral Fellow for International and Public Affairs at the Watson Institute at Brown University. He completed a PhD in Political Science at MIT, holds an MA in Political Science and Asia-Pacific Studies from the University of Toronto, and graduated with a BA in Social and Political Sciences from the University of Cambridge.

Rui Wang, Associate Professor

Dr. Rui Wang specializes in the public policy analysis of environmental sustainability, transportation infrastructure and urban development. His research has been covered in the Atlantic, Harvard Business Review, Los Angeles Times and New York Times. Dr. Wang is on the Editorial Board of U.S. DOT's Journal of Transportation and Statistics and has served as a consultant for Beijing Municipal Institute of City Planning and Design, U.S. Department of Housing and Urban Development, and World Bank. He also gave invited talks at China Finance 40 Forum, Hong Kong Monetary Authority, Los Angeles World Affairs Council, RAND, World Bank, and numerous academic conferences and institutions. Rui obtained his PhD in Public Policy from the Harvard Kennedy School and taught at the UCLA Luskin School of Public Affairs.



Shonda Hurt, External Programs, Marketing and Outreach Manager

Shonda Hurt is the External Programs, Marketing and Outreach Manager of the Energy, Resources and Environment Program at the Johns Hopkins University School of Advanced International Studies. She manages the ERE program's speaker series, field trip initiatives, research programs and grants. She has a diverse background in consulting, project/event management and budget analysis and has acquired over 10 years of experience planning and executing hundreds of events for major corporations. She holds dual BA degrees in Business and Communications from the University of Pittsburgh.

ADJUNCT FACULTY, WASHINGTON, D.C. CAMPUS

Robert Alvarez, Adjunct Lecturer

Robert Alvarez is a Senior Scholar at IPS, where he is currently focused on nuclear disarmament, environmental, and energy policies. Previously, Mr. Alvarez served as a Senior Policy Advisor to the Secretary and Deputy Assistant Secretary for National Security and the Environment. While at DOE, he coordinated the effort to enact nuclear worker compensation legislation. He also served for five years as a Senior Investigator for the U. S. Senate Committee on Governmental Affairs, and as one of the Senate's primary staff experts on the U.S. nuclear weapons program. He worked to help establish the environmental cleanup program in the DOE, strengthened the Clean Air Act, uncovered several serious nuclear safety and health problems, improved medical radiation regulations, and created a transition program for communities and workers affected by the closure of nuclear weapons facilities.

William B. Bonvillian, Adjunct Lecturer

Dr. William B. Bonvillian is the Director of the Massachusetts Institute of Technology's Washington, D.C. Office. At MIT, he works to support the Institute's strong and historic relations with federal R&D agencies, and its role on national science policy. Prior to that position, he served for seventeen years as a senior policy advisor in the U.S. Senate. His legislative efforts included science and technology policies and innovation issues. He worked extensively on legislation creating the Department of Homeland Security, on Intelligence Reform, on defense and life science R&D, on energy and climate issues, and on national competitiveness and innovation legislation. He has written extensively on technology and energy issues, including the book (with Charles Weiss) "Structuring and Energy Technology Revolution" (MIT Press 2009). He received a B.A. from Columbia University with honors, an M.A.R. from Yale Divinity School in religion; and a J.D. from Columbia Law School, where he also served on the Board of Editors of the Columbia Law Review.

John Byrne, Adjunct Lecturer

John Byrne is the Chairman and President of the Foundation for Renewable Energy & Environment (FREE). The Foundation was created in 2011 with a mission of promoting a better future based on energy, water and materials conservation, renewable energy use, environmental resilience, and sustainable livelihoods. Dr. Byrne has contributed since 1992 to Working Group III of the Intergovernmental Panel on Climate Change (IPCC). His work is published in IPCC assessments which led to greater global awareness of the problem and the award of the 2007 Nobel Peace Prize to the Panel. He is the architect of the Sustainable Energy Utility (SEU) model and its innovative energy efficiency finance program, which received U.S. White House recognition as part of the nation's Better Buildings Challenge. He holds a Ph.D. and M.S. in Urban Affairs and Public Policy and a B.A. in Economics from the University of Delaware.

Richard Caperton, Adjunct Lecturer

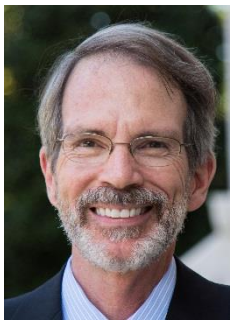
Richard W. Caperton is the Director of National Policy and Partnerships at Opower. He leads the company's engagement with all branches of the federal government, including Congress, the Environmental Protection Agency, Department of Energy, and Federal Energy Regulatory Commission, and guides the company's global regulatory strategy on demand response and electricity market design. Prior to joining Opower, he was the Managing Director for Energy at the Center for American Progress, where he worked on energy tax and finance and electric utility issues. He currently serves on the board of the Clean Energy Leadership Institute and has testified in front of the U.S. House of Representatives and is regularly quoted in the press on energy issues. He received his M.B.A. from Georgetown University's McDonough School of Business and a B.A. in politics from Pomona College.

Christopher Delgado, Adjunct Lecturer

Christopher Delgado splits his time as Senior Fellow at the World Resources Institute, working on whole landscape restoration in Africa and Latin America, and advising the new African Agricultural Policy Unit of the World Bank. Through 2015, he was full-time at WRI, working on land use for the multi-institute, multi-country New Climate Economy Project. He was previously Policy Advisor for Agriculture at the World Bank, led the Secretariat of the Bank's Global Food Crisis Response Program (GFRP) launched in 2008, and participated in the agricultural discussions of the G20 from 2010 to 2012. He also led the billion dollar plus Global Agricultural Food Security Program, supported by 9 countries and foundations, from start-up until late 2012. He holds a Ph.D. in Economics from Cornell University, is a former Peace Corps Volunteer (Chad), researcher (University of Michigan), and part-time teacher (Johns Hopkins SAIS and the University of Ouagadougou). He has published extensively in book and peer-reviewed article format in several languages.

Heather E. Eves, Adjunct Lecturer

Dr. Heather E. Eves is a wildlife biologist who has studied and worked in Africa since 1985 and is co-director of the Sangha River Network - a professional and academic research network based at Yale University. Dr. Eves has provided dozens of presentations and participated in conservation collaboration activities in the US, Europe and Africa including symposia of the Society for Conservation Biology, Convention on Biological Diversity (CBD) technical meetings, collaboration on bushmeat issues through the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Bushmeat Working Group, and contributions to hearings and briefings for the US House of Representatives. She holds a Doctorate of Forestry and Environmental Studies from Yale University's School of Forestry and Environmental Studies; a MS in Wildlife Science with a minor in Experimental Statistics from New Mexico State University and a BS in Animal Science from the University of New Hampshire.



Douglas C. Hengel, Adjunct Lecturer

Douglas C. Hengel is Deputy Assistant Secretary of State for Energy, Sanctions and Commodities, a position he assumed in October 2007. In that capacity his responsibilities include formulating and advancing U.S. international energy security policy, including relations with the International Energy Agency (IEA) in Paris. Mr. Hengel also chairs the Standing Committee on Long-Term Cooperation at the IEA. From 2006-2007 he was Executive Assistant to the Undersecretary for Economic, Energy and Agricultural Affairs. A career Foreign Service Officer, Mr. Hengel has served at U.S. Embassies in Prague, Lima, Rome and Caracas, and was Deputy Chief of Mission in Bratislava from 1999-2002 where he served as Charge d'Affaires for 21 months. Mr. Hengel has a BA from Colgate University and a Masters in Public Policy from the Woodrow Wilson School at Princeton.

Bruce W. MacDonald, Adjunct Lecturer

Bruce MacDonald is the former senior director of the Nonproliferation and Arms Control Program with the USIP Office of Special Initiatives. In this capacity, he developed and served as lead instructor of 21st Century Issues in Strategic Arms Control and Nonproliferation, a series of courses for the USIP Academy for International Conflict Management and Peacebuilding, as well as serving as an adviser on a variety of issues related to nuclear strategy and policy, missile defense, arms control, and nonproliferation. Prior to this post, he served as senior director of the Congressional Commission on the Strategic Posture of the United States, a bipartisan body headed by former Defense Secretaries William Perry and James Schlesinger. MacDonald is an honors graduate in aerospace engineering from Princeton University. He also received two Masters Degrees from Princeton, one in Aerospace Engineering with a specialty in rocket propulsion, and the second in Public and International Affairs.

Nikos Tsafos, Adjunct Lecturer and Practicum Advisor

Nikos Tsafos is President and Chief Analyst at enalytica, a company he co-founded in 2014 to transform how the energy industry finds and uses information. He was previously at PFC Energy, where his portfolio included managing the global gas consulting practice and leading the firm's research on global gas. Prior to PFC Energy, Nikos was at the Center for Strategic and International Studies (CSIS). He has written over 200 reports and articles on energy, economics and management, and his work has appeared in Foreign Affairs, The National Interest, Petroleum Economist, and The International Economy. Nikos holds a BA in international relations and economics from Boston University and an MA in international relations from the Johns Hopkins School of Advanced International Studies (SAIS).

Winston Yu, Adjunct Lecturer

Dr. Winston Yu is a Senior Water Resources Specialist at the World Bank. He has extensive experience working on technical and institutional problems in the water sector and has carried out a number of investment projects in a variety of developing countries. His research interests include the development of river basin management tools, flood forecasting and management, groundwater depletion, international rivers and transboundary issues, and adaptation to climate change. Prior to joining the Bank he was a senior researcher at the Stockholm Environment Institute (SEI) and also served as an American Association for the Advancement of Science (AAAS) Fellow at the US Department of State. He is currently associated with the multi-discipline Johns Hopkins Global Water Program and is serving as a technical member of the Water and Society Committee of the American Geophysical Union. He holds a Ph.D. and M.S. in environmental science and engineering from Harvard University. He received his B.S. from the University of Pennsylvania.

FACULTY AND PROFESSORIAL LECTURERS (SAIS EUROPE CAMPUS)

Michael G. Plummer, Director, SAIS Europe Campus, ENI Professor of International Economics

Held appointment as head of the Development Division in the Trade and Agriculture Directorate at the Organisation for Economic Co-operation and Development in Paris from 2010 to 2012; was tenured associate professor at Brandeis University; is president of the American Committee on Asian Economic Studies (ACAES); serves as editor in chief of the Journal of Asian Economics; is a nonresident senior fellow at the East-West Center; was Asian Development Bank distinguished lecturer and team leader at the Association of Southeast Asian Nations Secretariat for several projects; led studies on the ASEAN economic community and development of the ASEAN regional bond market; advised on ASEAN free-trade initiative; lecturer and adviser to the Asian Development Bank; team leader and adviser to the Association of Southeast Asian Nations Secretariat (2001-2003); member of the editorial Boards of World Development and the Asian Economic Journal; international advisory board member of the ASEAN Economic Bulletin; Ph.D., economics, Michigan State University.

Marco Dell'Aquila, Adjunct Professor of Energy, Resources and Environment; Chairman of Power Capital

Currently Chairman of Power Capital in London; a member of the Advisory Council of the SAIS Bologna Center; co-founder and editor-in-chief until 2007 of Infrastructure Journal; He was a Fellow of the Institute of Latin America Studies in the late 1980s. He has a BS in civil and structural engineering from the University of Manchester and a MA in international relations and economics from SAIS.

Manfred Hafner, Adjunct Professor of Energy, Resources and Environment

Sciences-Po Paris; BP Professor in the Executive MBA program, Skolkovo Moscow School of Management; President of International Energy Consultants; Research Director at IEFE (Centre for Research on Energy and Environment Economics and Policy), Bocconi University; Fellow, Fondazione Eni Enrico Mattei; Associate Senior Research Fellow, Centre for European Policy Studies; Senior Scientist, Euro-Mediterranean Center for Climate Change. He has a Ph.D. in Energy Sciences, Mines-Paris Tech and Master degrees in energy engineering, energy economics and energy policy from Technical University of Munich, IFP-School Paris, University of Pennsylvania. Previously and still occasionally teaches at Mines Paris-Tech, IFP-School, HEC-Paris, and the Florence School of Regulation; has served as Scientific Director of the Observatoire Méditerranéen de l'Energie.

Kenneth H. Keller, Adjunct Professor, SAIS Bologna; Professor of Science and Technology Policy

President emeritus of the University of Minnesota; was professor of chemical engineering and materials science, department chair, academic vice president and president of the University of Minnesota for more than three decades; was senior fellow for science and technology and senior vice president of programs at the Council on Foreign Relations in New York; member of the National Academy of Engineering; fellow of the American Association for the Advancement of Science; founding fellow of the American Institute of Medical and Biological Engineering; member of the Council on Foreign Relations; former member and chairman of the National Research Council's Board on Assessment of National Institute of Standards and Technology Programs and NASA Astrophysics Performance Committee; former member of the Board of Life Sciences, the Commission on Physical Sciences, Mathematics and Applications, and the Science and Technology Advisory Panel to the Director of Central Intelligence; past chair of the Medical Technology Leadership Forum; Ph.D., chemical engineering, The Johns Hopkins University.

Simone Tagliapietra, Adjunct Professor of Energy, Resources and Environment

Professor Tagliapietra is Adjunct Professor of Energy, Resources and Environment, SAIS Europe; Senior Researcher, Fondazione Eni Enrico Mattei, Milan, Italy; Research Fellow, Bruegel, Brussels, Belgium; and Lecturer, Catholic University, Milan, Italy. He also holds the position of Senior Associate Research Fellow at the Istituto per gli Studi di Politica Internazionale, Milan, and Non-resident Fellow at the Payne Institute of the Colorado School of Mines, Golden, Colorado. He is currently a Member of the Editorial Board, European Energy Journal (EEJ), Deventer, The Netherlands, as well as Senior Expert Member of the Euro-Med Economists Association (EMEA), Barcelona, Spain. He is an expert in international energy and climate issues, with a record of numerous publications covering the international energy markets, the European energy and climate policy, and the Euro-Mediterranean energy relations. PhD, Catholic University of Milan.

Bob van der Zwaan, Adjunct Professor of Energy, Resources and Environment

Serves as a senior scientist at the Energy Research Centre of the Netherlands and at the Lenfest Center for Sustainable Energy; was formerly a research associate at the John F. Kennedy School of Government, research scientist at the Institute for Environmental Studies of VU University, science fellow at the Center for International Security and Cooperation and research scientist at the Institut Français des Relations Internationales; co-director of the International Energy Workshop; a member of the Council of the Pugwash Conferences on Science and World Affairs; Lead Author for Working Group III of the Intergovernmental Panel on Climate Change; a member of several scientific advisory boards and academic review committees; Ph.D., physics, CERN and University of Nijmegen.

Cleo Verkuijl, Adjunct Professor of Energy, Resources and Environment

Serves as a senior scientist at the Energy Research Centre of the Netherlands and at the Lenfest Center for Sustainable Energy; was formerly a research associate at the John F. Kennedy School of Government, research scientist at the Institute for Environmental Studies of VU University, science fellow at the Center for International Security and Cooperation and research scientist at the Institut Français des Relations Internationales; co-director of the International Energy Workshop; a member of the Council of the Pugwash Conferences on Science and World Affairs; Lead Author for Working Group III of the Intergovernmental Panel on Climate Change; a member of several scientific advisory boards and academic review committees; Ph.D., physics, CERN and University of Nijmegen.

FACULTY AND PROFESSORIAL LECTURERS (HOPKINS-NANJING CAMPUS)

Roger Raufer, Resident Professor of Energy, Resources and Environment, Hopkins-Nanjing Center

Joining the HNC faculty in 2014, Roger Raufer is a consulting engineer with more than forty years of experience in the environment/energy field. In addition to private-sector experience, he also served as Technical Advisor for the UN's Division for Sustainable Development in New York for four years (2001-2005). He has worked as a consultant for the UN addressing energy/environmental issues in China since 1990, and for the World Bank and US AID in numerous countries around the world. Roger holds a PhD in Energy Management and Policy from the University of Pennsylvania, with one of the very first doctoral dissertations addressing emissions trading (1984). He also holds degrees in chemical engineering, environmental engineering, and political science.

Faculty Publications and Research Initiatives (Washington, DC)

Dr. Johannes Urpelainen, Prince Sultan bin Abdulaziz Director and Professor of Energy, Resources and Environment
Areas of Expertise: South Asia • North-South relations • sustainable energy • political economy of energy and environment • energy access • emerging economies • global environmental politics • domestic-international linkages • international organizations.

Dr. Urpelainen teaches action-oriented classes on energy and environmental policy to equip the next generation of global leaders with deep knowledge, advanced analytical skills — and a passion for transformational social change. His research offers pragmatic but effective approaches to providing the world's population with affordable and abundant energy at minimal environmental impact. In his spare time, Johannes reads biographies and tries to improve his Hindi. His Ph.D. in political science is from the University of Michigan.

Recent publications include (partial list):

- *Renewables: The Politics of a Global Energy Transition*. (Forthcoming.) MIT Press. [With Michaël Aklin]
- *Targeting Big Polluters: Understanding Activism against the Fossil Fuel Industry*. (Forthcoming.) Greenleaf Publishing. [With Andrew Cheon]
- *The International Politics of Democratic Transitions: How International Organizations Assist New Democracies*. (Forthcoming.) Chicago University Press. [With Paul Poast]
- *Cutting the Gordian Knot of Economic Reform: When and How International Institutions Help*. 2014. Oxford University Press. [With Leonardo Baccini]
- "The Broad Impact of a Narrow Conflict: How Natural Resource Windfalls Shape Policy and Politics". (Forthcoming.) Journal of Politics. [With Jasper Cooper and Sung Eun Kim]
- "Does Basic Energy Access Generate Socio-Economic Benefits? A Field Experiment with Off-Grid Solar" Power in India. 2017. Science Advances 3: e1602153. [With Michaël Aklin, Patrick Bayer, and S.P. Harish]
- "Factors Affecting Household Satisfaction with Electricity Supply in Rural India". 2016. Nature Energy 1: 16048. [With Michaël Aklin, Chao-yo Cheng, Karthik Ganesan, and Abhishek Jain]
- "It's All About Political Incentives: Democracy and the Renewable Feed-In Tariff". 2016. Journal of Politics 78 (2): 603-619. [With Patrick Bayer]

Deborah Bleviss, Administrative Director and Associate Practitioner in Residence.
Areas of Expertise: Asia • Latin America • climate change • developing nations • energy technologies • sustainable development • U.S. energy policy.

Professor Bleviss has worked in the energy and environmental field for more than 30 years including periods of service at the US Department of Energy, the Inter-American Development Bank, and as an independent consultant in energy efficiency, renewable energy, and sustainable urban transportation. She was also a founder and the first director of the International Institute for Energy Conservation. She has a B.S. in physics from UCLA and did graduate work at Princeton University.

Professor Bleviss' current ongoing research is directed at the challenge of joint technology cooperation for advanced energy-related technologies between OECD countries, where most research of this type has been centered, and emerging countries, where growth in energy demand is expected to be much more robust in the future. She is working jointly with Professor Dipankar Chakavarti of the JHU Carey Business School on this research. They are focused on identifying and overcoming barriers to this type of cooperation.

Recent publications include:

- "A New Role for UNFCCC: The Matchmaker of Global Climate Governance" (published in Committee of Review, National Academy of Sciences, Research Program of the FreedomCAR and Fuel Partnership, Third Report (2010)
- Lead author for the transportation mitigation chapter of the Second Assessment Report of the Intergovernmental Panel on Climate Change (published in 1995)
- Author of the book*, The New Oil Crisis and Fuel Economy Technologies: Preparing the Light Transportation Industry for the 1990s* (published in 1988)

John Banks, Visiting Scholar

Areas of Expertise: US and global electricity: restructuring and privatization • regulatory reform • policy and institutional analysis • geopolitics of energy • organizational and human resources development.

A nonresident senior fellow in the Energy Security and Climate Initiative at the Brookings Institution, Professor Banks has worked as a management consultant for over 25 years, advising governments, companies, and regulators throughout the world on energy policy, security, and governance issues. His focus has been on establishing policies, institutions, and regulatory frameworks that promote sustainable energy sectors in emerging markets. He has worked in over 20 countries and has a M.S. in Foreign Service from Georgetown University.

Recent publications, all from the Brookings Institution, include:

- "Does decarbonization mean de-coalification? Discussing carbon reduction policies, Coal in the 21st Century Series" (2015)
- "Fostering low carbon energy: Next generation policy to commercialize CCS in the United States, Coal in the 21st Century Series" (2015)
- "Transforming the Electricity Portfolio: Lessons from Germany and Japan in Deploying Renewable Energy" (2014)
- Co-author, " Business and Nonproliferation: Industry's Role in Safeguarding a Nuclear Renaissance" (2011)

Sarah Jordaan, Assistant Professor

Areas of Expertise: Climate policy • comparative regional analysis • energy technology innovation • land use and water consumption of energy developments • life cycle assessment • special analysis of energy and environmental policies.

Dr. Sarah Jordaan's research is aimed at uncovering the environmental and economic trade-offs related to energy decisions and more typically those trade-offs related to the life cycle of energy technologies. Her research is at the intersection of science, technology, and policy, so her publications focus on not only life cycle assessment but also more broadly on technology assessment, energy policy, and innovation. Professor Jordaan has over a decade of experience researching energy and the environment

with award winning publications on climate policy and the water implications of energy technologies. Recent publications include:

- Umeozor, E. C., S. M. Jordaan, and I. D. Gates. (2018) On Methane Emissions from Shale Gas Development. Energy, 152: 594-600.
- Jordaan, S. M., L. A. Patterson, and L. Diaz Anadon. (2018) A spatially-resolved inventory analysis of the water consumed by the coal-to-gas transition of Pennsylvania. Journal of Cleaner Production, 184: 366–374.
- Jordaan, S. M. (2018) Resilience for power systems amid a changing climate. Bulletin of the Atomic Scientists, 74:2, 95–101.
- Konschnik, K. and S. M. Jordaan. (2018) Reducing fugitive methane emissions from the North American oil and gas sector: a proposed science-policy framework. Climate Policy.
- Kasumu, A., V. Li, J. W. Coleman, J. Liendo, S. M. Jordaan. (2018) Country-level Life Cycle Assessment of Liquefied Natural Gas Trade for Electricity Generation. Environmental Science & Technology, 52(4): 1735–1746.
- Coleman, J. W., A. Kasumu, J. Liendo, V. Li, S. M. Jordaan. (2015) Calibrating Liquefied Natural Gas Export Life Cycle Assessment: Accounting for Legal Boundaries & Post-Export Markets, CIRL Occasional Paper #49. Canadian Institute of Resources Law.
- Sarah Marie Jordaan Jordaan, S. M., C. Stevens, D. B. Brooks. (2009) Chapter 12, Removing institutional barriers: challenges and opportunities in Making the Most of the Water We Have: The Soft Path Approach to Water Management. Editors D. B. Brooks, O. M. Brandes, S. Gurman. EarthScan Publications.

Dr. Wilfrid Kohl, Senior Adviser

Areas of Expertise: Energy issues • energy technologies • environmental issues • nuclear power • oil politics • OPEC • U.S. energy policy.

Dr. Kohl is the founder of the ERE Program at SAIS. He has taught a variety of courses over the years on energy markets and policies, energy geopolitics, energy technologies, nuclear power and proliferation. He is also a former Director of the SAIS Europe Center in Bologna, Italy, and a former Associate Director of Columbia University's Institute on Western Europe. He has degrees from Stanford University, the Fletcher School of Law and Diplomacy, and Columbia University. Dr. Kohl's current research is focused on issues of global energy governance and the future of nuclear power.

Recent publications include:

- "The Outlook for Nuclear Power Revival After Fukushima," USAEE Dialogue, Vol. 20, No. 1 (2012)
- "Consumer Country Energy Cooperation: The IEA and the Global Energy Order" in A. Goldthau and J.M. Witte, Global Energy Governance: The New Rules of the Game (Brookings, 2010).

Dr. Jonas Nahm, Assistant Professor

Areas of Expertise: China • Germany • economic development • globalization • energy issues • environmental issues • disruptive innovation • newly industrialized countries • political economy & development • privatization and private sector development.

Dr. Nahm recently joined the ERE faculty and is teaching courses on Comparative Energy and Environmental Governance and on Renewable Energy Resources. His current research focuses on the political economy of development and industrial upgrading in green industries, the politics of innovation, and the political economy of the energy sector. In addition to China – his primary focus for the exploration of these themes – his research draws on cases in Germany and the United States. His

current book project "Varieties of Innovation: The Creation of Wind and Solar Industries in China, Germany, and the United States" examines the mechanisms through which distinct patterns of innovation have emerged in renewable energy sectors in each of these countries. Dr. Nahm received his Ph.D. from MIT, and he has taught at Brown University.

Recent publications include:

- Jonas Nahm. 2017 (Forthcoming). "*Renewable Futures and Industrial Legacies: Wind and Solar Sectors in China, Germany, and the United States*." Business and Politics.
- Jonas Nahm. 2017 (Forthcoming). "Exploiting the Implementation Gap: Policy Divergence and Industrial Upgrading in China's Wind and Solar Sectors." The China Quarterly.
- Genia Kostka and Jonas Nahm. 2017 (Forthcoming). "Central–Local Relations: Recentralization and Environmental Governance in China." The China Quarterly.
- Jonas Nahm and Edward S. Steinfeld. 2014. "Scale-Up Nation: China's Specialization in Innovative Manufacturing." World Development 54: 288-300.
- Jonas Nahm and Edward S. Steinfeld. 2014. "The Role of Innovative Manufacturing in High-Tech Product Development: Evidence from China's Renewable Energy Sector" in Production in the Innovation Economy, edited by Richard Locke and Rachel Wellhausen. MIT Press.
- Jonas Nahm. 2011. "Energy Efficiency in Buildings: The Case of Germany." MIT Industrial Performance Center Working *Paper* 11-0005.

Dr. Roger Raufer, Resident Professor, Hopkins-Nanjing Center (HNC)
Areas of Expertise: China • energy issues • environmental issues.

Joining the Hopkins-Nanjing Center faculty in 2014, Roger Raufer is a consulting engineer with more than forty years of experience in the environment/energy field. He has extensive experience in obtaining environmental permits for conventional boilers, combustion turbines, district heating, digester gas cogeneration, waste combustion, and other energy-related projects. In addition to private-sector experience, he also served as Technical Advisor for the United Nations' Division for Sustainable Development in New York for four years (2001-2005). At SAIS he teaches Global Energy Fundamentals, Air Pollution and its Control, Challenges in the Global Environment and Economic Instruments for Pollution Control.

Dr. Raufer holds a PhD in Energy Management and Policy from the University of Pennsylvania, with one of the very first doctoral dissertations addressing emissions trading (1984). He also holds degrees in chemical engineering, environmental engineering, and political science. He formerly taught at Penn, has lectured every summer for more than twenty-five years at the IFP School in Paris, and also regularly lectures at GE's 'Oil and Gas University' in Florence, Italy.
Recent publications include:

- R. Raufer, P. Coussy, C. Freeman, and S. Iyer, "Emissions Trading," Handbook of Climate Change Mitigation and Adaptation, Chen, W.Y. et al., Eds., Springer, (2016).
- R. Raufer, "Carbon Taxes vs. Emissions Trading in China," Energy Intelligence: New Energy (14 June 2012).
- R. Raufer and S. Iyer, "Emissions Trading," Handbook of Climate Change Mitigation, Chen, W.Y. et al., Eds., Springer, (2012).
- R. Raufer, "Emissions Trading in China," L'Hydrocarbure, 249:15-17, (Janvier, 2011)

Dr. Rui Wang, Associate Professor
Areas of Expertise: China • United States • economic development • climate change • natural resources • sustainable development • infrastructure • urbanization.

Dr. Wang recently joined the ERE faculty where he is teaching Environmental Policy and Case Studies in Sustainable Cities. He taught previously at UCLA. His Ph.D. in public policy is from Harvard University. He seeks to design policies promoting green and creative cities through resilient infrastructure, inclusive public service, and great quality of life. Much of his work compares China with the United States. His research appears in the areas of public policy, economics, and natural science and has been covered in the Atlantic, Harvard Business Review, Los Angeles Times and New York Times

Recent publications include:

- The Capitalization of Subway Access in Home Value: A Repeat-Rentals Model with Supply Constraints in Beijing." Transportation Research Part A: Policy and Practice, 80: 104-115, 2015 (with W. Sun and S. Zheng) [Award] Royal Institution of Chartered Surveyors Best Valuation Paper, Asian Real Estate Society, 2014
- "Urban Spatial Structure and Motorization in China." Journal of Regional Science, forthcoming (with B. Sun, T. Zhang, and Z. He)
- "The Housing Market Effects of Local Home Purchase Restrictions: Evidence from Beijing." Journal of Real Estate Finance and Economics, forthcoming (with W. Sun, S. Zheng, and D.M. Geltner)
- "Urban Spatial Structure and Commute Duration: An Empirical Study of China." International Journal of Sustainable Transportation, forthcoming (with B. Sun, Z. He, and T. Zhang)

Faculty Publications and Areas of Expertise (SAIS Europe)

Dr. Kenneth H. Keller, Senior Adjunct Professor of Science and Technology Policy
Areas of Expertise: American foreign policy • biotechnology and information technology policy • education policy • environmental issues • global health policy.

Recent publications include:

- "From Here to There in Information Technology," in American Behavioral Scientist (2008).
- "Nanotechnology and Society" in Journal of Nanoparticle Research (2007).
- "Improving the Understanding of Science and Technology," in Technology in Society (2006).
- He's also published numerous articles in academic journals related to science, technology and international relations; and is widely published in medical and scientific journals on subjects including, fluid mechanics, blood flow and mass transfer.

Marco Dell'Aquila, Senior Adjunct Professor of Energy, Resources and Environment
Areas of Expertise: Latin America • corporate finance • energy issues • international political economy.

Recent publication(s) include:
Co-author, in Regulatory Policy in Latin America: Post-Privatization Realities (2000); "Economic Stabilisation in Argentina: the Austral Plan," co-author, in Journal of Latin American Studies (1988)

Dr. Manfred Hafner, Adjunct Professor of Energy, Resources and Environment
Areas of Expertise: Europe • Middle East and North Africa • Russia and former Soviet Union • environmental issues • energy technologies • energy issues • energy and security.

Latest books (co-authored) and recent publications include:

- A New Euro-Mediterranean Energy Roadmap (2012).
- A New Architecture of EU Gas Security of Supply (2011).
- EU Energy Innovation Policy Towards 2050 (2011).
- "From Here to There in Information Technology," in American Behavioral Scientist (2008).
- He's also the author and co-author of numerous papers, studies and books on energy policy and economics.

Dr. Bob van der Zwaan, Adjunct Professor of Energy, Resources and Environment
Areas of Expertise: Energy issues • climate change.

Recent publications include:

- "US Tactical Nuclear Weapons in Europe after NATO's Lisbon Summit: Why Their Withdrawal is Desirable and Feasible," co-author, in International Relations (2012).
- "Learning Curves for Solid Oxide Fuel Cells," co-author, in Energy Conversion and Management (2012).
- "Cost Reductions for Offshore Wind Power: Exploring the Balance between Scaling, Learning and R&D," co-author, in Renewable Energy (2012).
- "Modeling Uncertainty and the Economics of Climate Change: Recommendations for Robust Energy Policy," co-author, Environmental Modeling and Assessment (2012).
- "Evaluating Uncertain CO2 Abatement over the Very Long Term," co-author, in Environmental Modeling and Assessment (2012).
- "The Impact of Uncertainty in Climate Targets and CO2 Storage Availability on Long-Term Emissions Abatement," co-author, in Environmental Modeling and Assessment (2012).
- Co-author of around 100 peer-reviewed scientific articles in journals such as Climate Policy, Climatic Change, Ecological Economics, Energy Economics, The Energy Journal, Energy Policy, Environmental Science and Technology, Journal of Environmental Economics and Management, Nuclear Technology, Physics Letters B, Resource and Energy Economics, Science, Solar Energy, Survival and Zeitschrift für Physik C.
- Has published two refereed monographs, contributed chapters to several books, and is co-editor of two peer-reviewed volumes in the field of energy and sustainable development.

International Energy and Environment Practicum Overview

What is the Practicum?

The Practicum is an innovative course at SAIS whereby teams of SAIS students consult for client organizations on projects aimed at addressing international environmental and energy policy issues. The Practicum is designed to provide quality research and analysis on an important issue to the client, while providing students with the opportunity to apply concepts learned in the classroom to real world problems.

2016 Swiss Re Practicum Team Research Trip to Ghana

What are the Deliverables to the Client Organization?

Each Practicum team of four students begins by developing specific, practical terms of reference for the project, designed collaboratively with both the client and their academic supervisor. Over the course of the academic year, the team then conducts its research, often accompanied by site visits, and prepares a detailed report on its findings for presentation to the client. Oversight of the student teams is provided by SAIS faculty as well as the client, and students are held to the highest standards in the work they conduct.

How Long does the Project Last?

The Practicum is a "for credit" course at SAIS and runs an entire academic year – from September through May. Students typically conduct literature reviews and other research during the fall months, undertake any necessary field research in January, and complete their report and client presentation by May.

Types of Projects:

All client projects have an international environmental and/or energy policy dimension and are often involved with issues of economic development, resource management, climate change, and technology policy. Practicum projects have been conducted in Africa, Asia, and Latin America. Examples of projects completed in the past include:

- Assessment of how to expand the role of the International Energy Forum in promoting consumer-producer country dialogue in the world oil market.
- Assessment of demand-side management options to respond to an electricity crisis in Zanzibar;
- Investigation of the possible growth of small and medium enterprises in energy conservation and clean energy in Senegal; and
- Recommendation of methods to achieve large scale greenhouse gas emissions reductions from the brick industry in India.

What are the Responsibilities of the Client Organization?

Organizations interested in participating in the International Policy Practicum are asked to submit a brief project description, of two pages or less, describing the project they would be interested in having a SAIS student team address. The description should include any particular concerns or challenges with the project, any travel required, and any particular skills on the part of the team members that would be useful in completing the project.

ERE faculty will then choose the teams for each project and will try to match team skills to any requirements required by the client. The client organization then works with the student Practicum team to design workable terms of reference for the project, with input from the SAIS advisor and provides guidance and assistance to the team throughout the school year, as needed, including initial contacts for any necessary student field work.

What Value do SAIS Students Bring to the Client and Practicum?

SAIS is one of the world's premiere institutions for graduate study in international relations and policy. Its students are drawn from over 70 countries and are trained in economics, international relations, regional studies and languages. Many also have a strong business and finance background for project analysis.

How is the Practicum Funded?

The Practicum is supported in part by the substantial faculty and administrative resources allocated to it by the SAIS Energy, Resources and Environment. Clients are asked to support the Program's field component with respect to travel and related expenses, a cost that typically ranges from $10 - $15 thousand dollars (USD).

Global Leaders Forum

The Global Leaders Forum is a speaker series that brings together leaders from the public sector, research, finance and industry throughout the academic year to explore solutions to key domestic and international energy and environmental challenges. The ERE Global Leaders Forum serves as a platform for policymakers and executives to share their expertise and insight with SAIS faculty and students and the broader academic, business and media communities.

Our invitations are sent to professionals from the energy and environment sectors in the Washington D.C. area as well as the SAIS student and faculty body and SAIS alumni.

Recent GLF events:

-2018-

Dr. Linda Capuano, Administrator, US Energy Information Administration on EIA's "Annual Energy Outlook 2018" https://www.youtube.com/watch?v=s3-5l_KUI0E

Michael Oko, Communications Director, World Resources Institute (WRI) and SAIS alumnus '05 on WRI's "Stories to Watch 2018" https://www.youtube.com/watch?v=h1VWkakY6PA&feature=youtu.be

Dr. Johannes Urpelainen, Professor of Energy, Resources and Environment; Founding Director, Initiative for Sustainable Energy Policy (ISEP) on "Renewables: The Politics of a Global Transition" https://www.youtube.com/watch?v=UBQsKITRd0w&feature=youtu.be

Daniel Raimi, Senior Research Associate, Resources for the Future and Lecturer, University of Michigan on "The Fracking Debate: The Risks, Benefits, and Uncertainties of the Shale Revolution"

Dr. Varun Sivaram, Philip D. Reed Fellow for Science and Technology, Council on Foreign Relations; Lecturer, Georgetown University, Fellow, Columbia University's Center for Global Energy Policy on "Taming the Sun: Innovations to Harness Solar Energy and Power the Planet" https://www.youtube.com/watch?v=ZqD-qWhOtns&feature=youtu.be

Bob Taylor, President, Energy Pathways, LLC on "Energy in China" https://www.youtube.com/watch?v=tRCSxgXLrok&feature=youtu.be

For more information, please contact: **saisereglobal@jhu.edu**

Global Leaders Forum [GLF]

Frontiers in Energy, Science and Technology (FEST)

To supplement its rigorous academic curriculum, the Energy, Resources and Environment Program also developed the Frontiers in Energy, Science and Technology (FEST) Field Visits initiative to provide its students with first-hand experience visiting utilities, nuclear power and LNG plants, hydraulic fracturing and off-shore oil facilities, sewage treatment plants, and solar panel manufacturing facilities, among others. FEST offers student enrichment activities designed to provide first-hand exposure to innovations in the energy and environment sectors.

2017-2018 Program Activities

Goddard Space Center | October 11, 2017 (20 students)
Students toured the Goddard Space Center to learn about their interactive climate change mapping system and the technology and science they use to measure changes in global land, vegetation, ice, ocean surfaces, and temperatures to manage sustainable resources.

Research Trip to China and Vietnam | January 13-25, 2018 (20 students)
Students met with central and state government officials, private companies, research institutions, NGOs, and community organizations during a 10-day research trip to investigate climate change and the water-energy nexus along the Mekong River. The goal of the research trip was to study the water governance along the Mekong River as well as the river's vulnerability to climate change.

Federal Energy Regulatory Commission (FERC) |March 1, 2018 (20 students)
Students visited FERC's MMC, an energy market information resource center that provides staff with access to several powerful, commercially available information services that provide a broad range of real time data pertaining to the electric and natural gas markets. During the visit, staff from the Division of Energy Market Oversight provided students with an overview of FERC and discussed pathways to careers with the organization.

Study Trip to Seoul, Korea | March 18-24, 2018 (8 students)
A key emphasis in Seoul's sustainability approach, spearheaded by the Mayor, is providing individuals with greater choice and control over energy use. As such, community solar is one of the key components the city is examining, and indeed there are several such organizations already active in Seoul (Eco Villages). The objective of this research project was to better understand the community solar model within the context of the city's Sustainable Energy Action Plan and solar targets. Specific areas examined included legal and regulatory issues, institutional considerations, and financial and technology aspects. During the trip, the team met with stakeholders to learn a variety of perspectives on the community solar approach.

NRG's Morgantown Coal Generating Station | March 28, 2018 (20 students)
Students toured NRG's facilities and discussed factors relevant to plant operations including the impact of new EPA regulations with facility staff. Students learned about NRG's range of power generating facilities that boast a capacity of 53,000 megawatts and also provide retail electricity services through Reliant and Energy Plus. The Morgantown Generating Station is a coal generating station on the Potomac River with a generating capacity of 1,453 megawatts.

Energy, Resources and Environment Program Support

The Energy, Resources and Environment Program (ERE) has become one of the largest programs at SAIS and the program is delighted with the progress and continuing popularity we've garnered over the past few years. Our growth is a reflection of the continuing hard work of the program's faculty, students, and staff as well as a number of key supporters. We are grateful for the generosity of the following organizations and individuals who have helped to successfully build our program:

Edison Electric Institute: The Edison Electric Institute generously supports the ERE program's Global Leaders Forum (GLF) speaker series.

Enzo Viscusi: Provided funding for a new course on the Geopolitics of Energy within ERE. Additionally, Mr. Viscusi generously supports the Global Leaders Forum (GLF) speaker series.

ExxonMobil: Provided funding to allow a group of energy students to travel to China to learn about the energy sector and the cultural, political and economic factors that influence it. Additionally, ExxonMobil generously supports the Frontiers in Energy, Science and Technology (FEST) program.

Henry Luce Foundation: Provided a three-year grant to develop and test the International Energy and Environment Practicum to provide students with practical experience analyzing real-world problems within an institutional setting.

John Metzler: Provided funding to help support an ERE course on Global Climate Change.

Nuclear Energy Institute: The Nuclear Energy Institute generously supports ERE's academic enrichment programs.

Robert Carr: Provided funding for a new course on Electricity Markets offered within ERE.

The Rockefeller Foundation: Provided funding for two major research projects - Accelerating Resilient Infrastructure Investment for Sustainable Economies (ARISE) and Smart Power for Environmentally-sound Economic Development (SPEED).

Saudi Aramco: Generously supports the Global Leaders Forum (GLF) and the Frontiers in Energy, Science and Technology (FEST) programs.

The Starr Foundation: Provided funding to allow a group of energy students to travel to China and India to learn about the energy sector and the cultural, political and economic factors that influence those areas.

Donate

Make a gift or pledge payment to the SAIS ERE Program by mailing a check to:
Office of Development and Alumni Relations
Johns Hopkins University SAIS
1717 Massachusetts Avenue, N.W., Washington, D.C. 20036

Make checks payable to "SAIS" and include "ERE" on the memo line. If you would like to support one or more specific program areas (i.e. Practicum, Online Education, etc.), please note it on the memo section of your check or online. If you would prefer to make a contribution by phone, please call 202.663.5641.