ENERGY AND CLIMATE POLICY

UNDERGRADUATE AND GRADUATE STUDENT-DEVELOPED CONCENTRATION

CENTER FOR ENERGY SCIENCE & POLICY
As students in Schar School of Policy and Government, you have the opportunity to develop your own concentration or emphasis area. If you are interested in government and international politics, international security, global commerce, law, political science, public administration, or public policy AND you are also interested in climate change, environment, sustainability, and energy issues, then you have an opportunity to build an exciting and innovative educational program that combines components of all these areas.

The courses offered are taught by senior-level practitioners in their fields with decades of experience that are available in few universities. Each student can design their own concentration to fit their goals.

Discuss individualized concentrations with your academic advisor.
WHY DEVELOP YOUR OWN ENERGY AND CLIMATE POLICY CONCENTRATION?

Today, climate change affects every part of our lives, and in the future it will likely dominate international relations, economics, security, commerce, social and public policy, and human health—not to mention the health and safety of our environment and natural resources. An important pathway to address climate change is in our energy system.

Energy systems also influence virtually every human activity. In fact, every major public policy area is directly affected by its relationship with energy. From a national and international perspective, it touches upon security, economics, politics, infrastructure, and technology. Since energy resources are a global commodity, energy has a nexus with finance, trade, investment, and development. Further, energy requires engagement with international laws and agreements, technology development and transfer, and intellectual property. Finally, the hidden costs of energy impact climate change, natural disasters, technological threats, and threats to human security.

The Schar School’s Center for Energy Science and Policy has developed a series of courses that address energy and climate change. Combined, these courses offer students a unique opportunity to learn and engage in an exciting and innovative academic program that will prepare students for professional careers in federal, state and local government, private sector, consulting firms and think tanks, non-profit organizations, and multi-national organizations.
According to the 2022 U.S Energy and Employment report, the traditional energy (electric power generation, transmission, distribution, storage and fuels) and energy efficiency sector employed 7.8 million people at the end of 2021. By the end of 2021, total energy employment rose by 4.0% from 2020. In fact, energy jobs exceeded the overall growth of U.S workforce which rose 2.8% in 2021. The type and number of potential jobs related to this concentration is vast, and include some of the following:

- International relations specialist
- National security consultant
- Financial analyst
- Investment or trade policy analyst
- Corporate sustainability manager
- Environmental or energy engineer
- Energy industry analyst
- Environmental or energy policy consultant
- State and local planner
- Energy intelligence officer
- Environmental advocacy director
- International energy specialist
- Environmental project manager
- Environmental stewardship manager
- Foreign Service Officer
- Energy Regulator
- Environmental or energy attorney
HOW WILL SCHAR’S ENERGY AND CLIMATE POLICY COURSES HELP ME?

We surveyed potential employers in energy and climate change policy and identified two core classes and two tracks, each track with three additional courses. These courses are designed to equip students with the necessary and practical skills that employers are looking for when hiring prospective employees. Your instructors have extensive practical experience working in these areas. This curriculum is intended to place you in the most advantageous position to secure the job of your choice. The courses are designed to have you interact with prospective employers through research projects, internships, and prominent guest speakers.

**Required:**
- U.S Energy Policy
- Introduction to Energy & Climate Law

**Tract 1:**
Global Security, Geopolitics, and Sustainable Project Financing & Development
- Geopolitics of Energy Security
- Climate & National Security
- Clean Energy Policies for Developing Countries

**Tract 2:**
Community Adaptation & Sustainability
- Greenhouse Gas (GHG) Inventory-Based Climate Action Planning
- Energy Equity in Low-Income & Underserved Communities
- Local Community Infrastructure Resiliency & Policy

**CAPSTONE/INTERNSHIP**

Students in Track 2, Community Adaptation & Sustainability, are eligible for a capstone or internship with a local government office working in energy and climate policy.
ENERGY & CLIMATE POLICY CONCENTRATION

COURSE DESCRIPTION: REQUIRED COURSES

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<th>U.S Energy Policy</th>
<th>Intro to Energy &amp; Climate Law</th>
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<td>Spring &amp; Fall: GOVT 464/POGO 550</td>
<td>Spring: POGO 750/EVPP 505</td>
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There is no addressing the root causes of climate change without a global energy transition. There is no debate about this. But how might this transition take place in the U.S., the largest historic contributor to global anthropogenic greenhouse gases (GHGs)? Why do so many U.S. states have different and diverging energy policies? What is the current role of our federal legislative and executive branches in setting energy policy today? What should it be? The federalization of energy policy has its roots in a long history of cartel action, environmental exploitation, divergent natural resource endowments, and, increasingly, politicization. So far, this has led to marginal reductions in U.S. carbon intensity since 2005.....not nearly sufficient to meet the Intergovernmental Panel on Climate Change’s (IPCCs) recommendations for keeping global temperatures below 1.5°C above pre-industrial levels. As Led Zeppelin sang, “If it keeps on rainin’, levee's goin' to break”. Join the discussion and we’ll dissect where governance structures are in need of a tune-up and what role the public sector can most efficiently contribute to the energy transition.

Let’s face the facts: energy and climate policy are stuck in legislative limbo. Congress is in paralysis, and it has been this way since the mid-1990s. On the other hand, the executive branch swings back and forth like a pendulum as partisan politics rocks us towards progress or backwards in retrenchment. In between paralysis and pendulum sits the judicial branch where Lady Justice wears a blindfold while holding the “scales of justice.” In times of progress or retrenchment, the courts serve as the final bastion on policy. Today, we have a conservative controlled Supreme Court which has resulted in long-held legal traditions flipped on its head. By taking this course, you enter the realm of legal funky town where you try to figure out which way the courts will go. We’ll analyze the legal challenges in the intersection between energy sources and air, water, natural resources, and human health. This course is designed for non-law students, and with a focus on students studying environmental science and policy. You will learn foundational legal concepts and explore each of the following major energy sources: coal, oil, natural gas, nuclear, hydropower, and renewables. You will also study topics in the electric power sector, transportation, climate change, and international energy. We'll debate law, policy, politics, economics, technology, and infrastructure. Of greatest interest to your education, we will adopt an actual client (e.g., environmental group) to assist with a research project, either individually or in in teams.
This course concerns the complex global setting where energy security, national security, and geopolitics intersect with climate change. Climate change is a critical issue for geopolitics. Still, policymakers' ability to focus on climate change is stretched by dealing with COVID-19-related health issues and near-term economic challenges related to stimulating economic and job growth while addressing the geopolitical crisis provoked by Putin's enduring invasion of Ukraine.

Nation-states have a geopolitical identity and geopolitical aspirations for influence. Energy security is an essential factor in those aspirations. Indeed, geopolitics is about nation-states -- individual states or groupings (formal or informal) of nation-states like the E.U. or OPEC. Nation-states can influence developments beyond their borders regarding access to, processing, and transportation of natural resources (carbon-based energy and minerals essential for renewable energy development). Some call this geo-economics. Technology, directly and indirectly, impacts the production and consumption of energy and climate change. This is geo-technology. But nation-states are not the only actors. Others include sub-national and regional political entities, global energy companies, activist groups, terrorists, and organized criminal organizations.

Energy security concerns the security of supply, demand, infrastructure, environment, and the global climate. People everywhere want abundant, reliable (accessible on request), clean, and affordable energy from diverse sources. Energy security may have political, economic, commercial, and military aspects. Perceptions of energy security are more important than reality – a reality changing more rapidly and unpredictably than ever in the past 100 years.
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<tr>
<th>Climate Change &amp; Security</th>
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This course provides an in-depth examination of how the effects of climate change may shape national security, geopolitics, and global stability in years to come. The course is organized thematically—beginning with an overview of academic literature linking climate change and security, and moving on to specific topics such as food, water, and health security, migration, intrastate politics, and gender security. Students will practice using cross-disciplinary resources and tools to assess potential relationships between climate change effects and security outcomes. This class will explore how US and other countries' views on climate security are evolving, and opportunities for policy action to manage and adapt to climate effects and resulting security dynamics.

The class will examine various types of projections and data; what tools and assumptions are behind them; where to find them; and how to analyze what they could mean for national security and international relations.

While much of the industrialized world remains focused on the major greenhouse gas emitters, namely China, the US, India and Russia, the developing countries also deserve equal attention for the part they play towards the goal of net zero greenhouse gas emissions by 2050. They now account for more than two-thirds of global CO2 emissions, while emissions in advanced economies are in decline. The countries account for two-thirds of the world’s population, but only one-fifth of global investment in clean energy, and one-tenth of global financial wealth. The developing countries all have multiple energy priorities: energy access and poverty, development, energy security, etc. At the same time, they face a range of challenges in attracting investments in clean energy, including political will for change, institutional capacity, perceived risks for investors, locked in carbon emissions, need for policy and regulatory reforms, financing, and more.

The question then is: How will developing countries achieve a transition to clean energy, reduce energy poverty, support economic development, ensure energy security, while, at the same time, and reduce carbon emissions towards a net zero goal by 2050? Come join us and deepen your understanding of the core issues and solutions to this question. You are guaranteed to come away with the tools to provide sustainable solutions that can be used throughout the developing world; solutions are so desperately needed today.
Greenhouse Gas (GHG) Inventory-Based Climate Action Planning

Fall: **** ***

Yogi Berra once said, “If you don’t know where you are going, you might wind up someplace else.” This aphorism holds sway in a world that must rapidly decarbonize. Every level of government has a critical role to play in establishing smart, effective policies that efficiently transition our energy sector away from burning fossil fuels into the atmosphere. These actions will make us more secure as a nation and as a planet.

However, every nation, state, and municipality is unique across a long list of factors. What works best in one locale may be ineffective in another. Global standards for greenhouse gas (GHG) inventories allow governments at all levels to measure where they are and where they can most efficiently mitigate toward achieving their sustainability targets. This class will introduce students to the most widely implemented GHG inventory tools. Next, we will use this information to develop climate mitigation strategies, via a climate action plan, that examine all levers of public and private enterprise to achieve desired outcomes most effectively. All the while, we’ll learn a lot about energy policy, local governance, and the power of planning.
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| Energy equity and environmental justice fundamental to facilitating a successful net-zero transition. But how exactly can practitioners use institutions and activism to – in the words of Dr. Martin Luther King, Jr. – bend the arc of the moral universe towards justice? This pioneering course connects students with practitioners to learn how governments and stakeholders can push for more equitable energy policy and action. Students will hear from prominent industry experts through guest lectures and gain direct hands-on experience working with a Northern Virginia jurisdiction to provide lower cost, more reliable, and healthier energy choice. Students will examine utility pay structures and new financial tools for localities that can drive a more equitable renewable energy transition. Additionally, students will understand how community solar models, efficiency buyer cooperatives, and power-purchase agreements intersect with these tools to empower underserved communities. At the end of this course, students will not only gain an analytical understanding of energy inequities, but also sharpen transferable professional skills working with local communities to build a more equitable and sustainable society. |

| It’s no secret – infrastructure in the U.S. is in need of expansion and upgrades to connect clean energy into the grid, but for low-income and marginalized communities the infrastructure needs are more drastic. The United States has one of the oldest and most complex energy infrastructure systems in the world, with over 7,300 power plants and millions of miles of high- and low-voltage power lines. But to support local communities, especially those seeking to transition to cleaner and more resilient infrastructure, there are basic needs that must be met first, such as food, water, broadband, and transportation. Climate change and extreme weather events, pose the single greatest stress to these communities’ critical and fundamental systems. The question is: what can local governments, private companies, and innovators do to address the challenges in low-income and marginalized communities? What tools are required to make the transition in underserved communities more economic, healthier, and resilient? And with these changes, what other benefits are derived to strengthen quality of life, job creation, and local autonomy? This course is one of the first in the country to provide a detailed layout of critical infrastructure and its direct impact on low-income and under-served communities. Students will learn and focus on local community vulnerabilities and impacts on education, healthcare, economic development, and quality of life for marginalized communities, and how we can improve conditions in these communities. |

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Energy & Climate Policy Concentration

The Schar School’s Center for Energy Science and Policy is a multidisciplinary and vibrant research and policy hub at George Mason University. The Center, through its renowned faculty and outstanding students, focuses on developing innovative and integrated solutions for the emerging energy security, sustainability, and resilience challenges throughout Virginia and beyond.

Faculty & Contact Info

Paul Bubbosh
Adjunct Professor, Schar School of Policy and Government
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Paul Bubbosh has 25 years of experience working in the environmental sector as the former Director of the Energy Security Division in the U.S. Department of Energy, as well as Offices under the U.S. Environmental Protection Agency. Paul currently teaches Introduction to Energy and Climate Law and Introduction to Environmental Law.

Dr. Joel Hicks, CDR, USN (Ret)
Adjunct Professor, Schar School of Policy and Government
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Dr. Joel Hick is a former U.S. Naval nuclear submarine officer and an expert in energy systems and public policy analysis. Joel currently teaches U.S. Energy Policy and Greenhouse Gas Inventory-Based Climate Action Planning. He also serves as Carlisle (PA) Borough Councilman, where he Chairs the Climate Action Committee.

Richard D. Kauzlarich, Ambassador (Ret)
Co-Director, Center of Energy Science and Policy
rkauzlar@gmu.edu
Ambassador Richard Kauzlarich is an American diplomat, writer, and intelligence analyst serving 32 years in the Foreign Service. He was US Ambassador to Azerbaijan and Bosnia and Herzegovina, and twice Deputy Assistant Secretary of State. He most recently served as the National Intelligence Officer for Europe at the National Intelligence Council. Richard currently teaches the course Geopolitics of Energy Security.

Erin Sikorsky
Adjunct Professor, Schar School of Policy and Government
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Erin Sikorsky is the Director of the Center for Climate and Security and the Director of the International Military Council on Climate and Security, following a decades-long career in national intelligence. She is also the founding chair of the Climate Security Advisory Council. Erin currently teaches the course Geopolitics of Energy Security.

Michael Curtis, Ph.D.
Adjunct Professor, Schar School of Policy and Government
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Dr. Michael Curtis is an energy and development expert, and has led energy and environmental programs in several U.S. Agency for International Development (USAID) missions. He is a scholar of energy for developing countries technological innovation and transfer. He currently teaches the course Clean Energy Policies in Developing Countries.

Catyana Falsetti
Graduate Lecturer, College of Humanities and Social Sciences
cfalsett@gmu.edu
Catyana Falsetti has worked in local government for over a decade. She is a doctoral candidate at GMU in the department of Sociology. Catyana’s research focuses on how diversity in leadership is an important factor in creating safe, sustainable, and equitable communities. She teaches Sustainable World, and Environmental Justice.

Scott Sklar
Guest Lecturer, George Mason University
solarsklar@aol.com
Scott Sklar heads a 22-year-old global renewable energy technology optimization owner’s rep firm, The Stella Group, Ltd. Scott has been a trailblazer in renewable energy policy since the 1970s. For 15 years, Scott ran the solar and biomass trade groups, following a 15-year stint in the U.S. Senate. Scott currently teaches the courses Energy Access, Equity, and Environmental Justice in an Age of Challenges and Local Community Infrastructure Resiliency and Policy.
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