



Clean Energy Program

Educating the Leaders for our Clean, Efficient and Renewable Energy Future

Western Washington University is developing an innovative new program designed to meet the needs of a rapidly expanding green energy economy.

The program will integrate research and outreach with a unique interdisciplinary curriculum. The curriculum will include a Bachelor of Arts degree, a Bachelor of Science degree and the option to minor in science and technology; or policy, economics and business. Graduate degrees will also be offered. Research will cover a wide range of investigation related to clean and renewable energy and energy efficiency. Program participants will gain core competencies in energy related science, policy, technology, economics and business and have opportunities to participate in energy research with nationally recognized faculty-mentors.

Graduates of the program will be uniquely prepared to enter the workforce as leaders, equipped with the knowledge, skills and applied expertise demanded by this dynamic and evolving sector of the global economy.

Why Western Washington University?

Western is already involved in clean and renewable energy research and education. Several departments offer courses related to energy and numerous faculty members are engaged in energy related research. For example, the Advanced Materials Science and Engineering Center (AMSEC) is currently conducting research that could significantly improve the effectiveness of solar panels by developing technology for ultra-high efficiency collection and concentration of sunlight. Other research includes projects focused on upgrading biomass to renewable bio-fuels for transportation applications.

Western is geographically located in a region where energy entrepreneurship is prevalent and potential sources of renewable energy abound. Western has a long tradition of innovation and leadership and is well positioned to lead a timely expansion of educational opportunities for the region and, indeed, the nation.

The Clean Energy Program will continue Western's tradition of research innovation, environmental leadership and commitment to undergraduate education. Three colleges within the University have collaborated to produce a unique program that harnesses expertise from throughout the campus. All three colleges are nationally recognized for their outstanding educational programs and demonstrated educational excellence. This multi-college program will support interdisciplinary learning while fostering an approach to problem solving that encourages cross-discipline thinking.

Why create a new program?

Across the nation universities and colleges are expanding programs to respond to the demand for education and training related to clean and renewable energy. There has been a particularly strong surge in academic offerings connected with engineering and research. Some institutions have developed programs focused on policy.

What is missing, according to industry leaders, policy makers, business owners, researchers and academics, is a program that combines the fields of science, technology, economics, business management and public policy. Industry experts tell us there is a growing demand for an energy-related undergraduate program that produces both depth and breadth of knowledge. Scientists, researchers and business people need to understand policy. Policy makers and entrepreneurs need to understand the science and technology upon which the industry is based. And everyone needs to understand the principles of economics and business management.

The Clean Energy Program at Western will address this critical, unmet need—right here, in Washington State. This new program will position the state to lead the nation in the next wave of economic expansion and innovation.

What will the Clean Energy Program look like?

Energy Experts

Individuals from outside the university, who understand the complexities of building and growing a clean, efficient and renewable energy sector, will have an ongoing role in helping guide the development and expansion of the program. Their participation will insure the continuing relevance of the program within a rapidly changing external environment.

Applied Research

Western is already involved in energy research including projects to increase the efficiency of photovoltaic cells; upgrading of biomass to renewable bio-fuels for transportation applications; and the development of highly fuel-efficient vehicles with low emissions. Students enrolled in the program will have opportunities to be directly involved in faculty-mentored research and applied technology projects. Research conducted in the program will have a direct impact on the regional economy and the ability of the state to lead development of clean, renewable and efficient energy.

Faculty Commitment

Faculty members from each of the three colleges have led the development of the program. Their commitment to education and research; recognition of student and societal demand; and renewable energy expertise has helped shape a program that is uniquely suited to fill an educational gap identified by industry leaders and students.

A Core Curriculum

The Bachelor of Arts and Bachelor of Sciences degree will share a core curriculum focused on topics such as human use of energy; the business of delivering energy; the economic and environmental impacts of energy use, and a capstone course. The capstone course will provide an “applied learning” experience in which interdisciplinary teams of students collaborate to solve real-world energy related problems.

Shared Fundamentals

Students pursuing either degree will be required to take a group of courses that provide a solid foundation. The fundamentals of a wide range of science, economics, policy and business will be covered through courses taken by all students. Students who pursue a BS degree will take extra courses in the science and technology of energy. Those who pursue a BA degree will take additional energy related courses in policy, economics and business.

In Depth Learning

After completion of the core and fundamentals series, students will deepen their knowledge and experience within their degree through additional credits required by the major. During this phase of the program, opportunities for “hands on” learning will continue, with internships and applied research experiences conducted in partnership with government, NGO’s and industry.

An Option to “Minor” or “Master”

Industry leaders have indicated that a “minor” in renewable energy would have substantial value for students wishing to major in policy, economics, business or a specific science. The minor will be particularly valuable for individuals who seek leadership roles in business, government or research institutions. Western’s program will include a minor in science and technology and a minor in policy, economics and business. The program will also develop graduate degrees in both the sciences and arts.

Which Colleges are involved?

Three colleges are collaborating to provide an integrated program of learning, research and regional involvement.



The College of Business and Economics was established in 1976 and is a selective admission college with undergraduate and graduate programs fully accredited by AACSB International - The Association to Advance Collegiate Schools of Business. The College is known

for its quality undergraduate programs in business administration, economics, accounting, and manufacturing and supply chain management; its MBA program is listed among the top 100 in the world for coverage of ethical, social, and environmental issues by the Aspen Institute, and its Department of Economics has nationally recognized faculty specializing in environmental and resource economics.

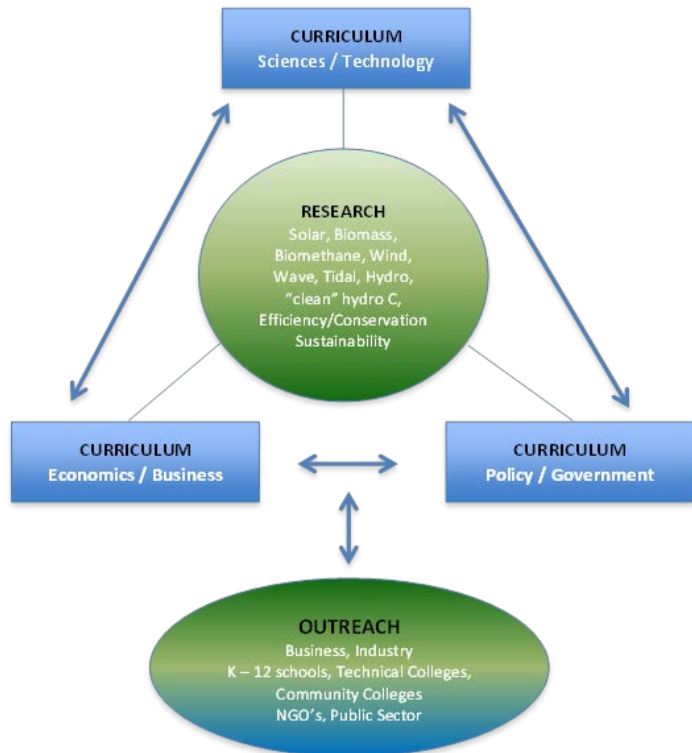


Huxley College of the Environment was established in 1969, leading the way in the academic study of the environment with an interdisciplinary approach that combines social science and policy analysis with the rigors of scientific investigation. Huxley College programs have long set the standard for education in the fields of environmental science, toxicology, planning, and policy. It is a selective admission college with undergraduate and graduate degrees in the arts and sciences.



The College of Sciences and Technology

was established in 2003 when seven science and technology departments were brought under the leadership of a new dean. The College is nationally known for its outstanding programs in Biology, Chemistry, Computer Science, Engineering Technology, Geology, Mathematics, Physics/Astronomy and Science Math and Technical Education (SMATE). It is a recognized leader in the area of advanced materials science engineering (AMSEC) and home to the award winning Vehicle Research Institute, whose Viking 45 car recently placed in the top ten in the 2010 Progressive Automotive X-Prize Challenge competition.



When will the program be available?

The research component of the program is already in place with funding for several projects. Private funds are being raised to support the new curriculum and the goal is to launch the minor in the fall of 2011 and enroll students in the major within the next few years.

How will the program be funded?

The WWU Foundation is currently seeking donors who are interested in funding named endowments to support the program. The University is also working with state and federal legislators to secure some permanent public funding. The vision is a publicly supported and privately enhanced program that provides the highest possible return on the public's investment. (See last page for details)

What are people saying about the program?

"Alaska Airlines has made great strides in minimizing the impact of our flying on the communities we serve, and we are committed to doing more. We believe finding an environmentally sustainable and commercially viable alternative to petroleum-based jet fuel is very important. The university's innovative new program, unique in the country, will provide students a strong foundation to solve the complex challenges associated with finding energy solutions for aviation and other sectors of the economy. This program will prepare students to compete in the green economy and help position the state as a leader nationally in the next wave of economic expansion and innovation."

*Bill Ayer, Chairman and CEO
Alaska Airlines and Alaska Air Group*

"This exciting new program combines the four essential components needed to address our critical national and global energy security and climate-disruption challenges: Science, Technology, Policy and Business. *Science* helps us define the urgency and importance of these challenges; *Technology* provides the physical basis for addressing the changes we need to make; *Policy* helps create incentives to encourage use of those technologies; and *Business*, perhaps the most underappreciated component, is critical if we are to achieve the scale needed to reach our energy and environmental goals. Western Washington University is to be congratulated for positioning itself in the heart of this most important emerging area of education."

*Gil Masters Ph.D., Professor (emeritus) & Author
Civil and Environmental Engineering, Stanford University
Renewable and Efficient Electric Power Systems (2004)
Energy for Sustainability: Technology, Policy and Planning (2008)*

"Western is ideally situated to provide exceptional education in the area of clean and renewable energy and energy efficiency. It is located in a dynamic, entrepreneurial environment with industry partners at all scales and in all corners of sustainable energy activity. It has forged a strong foundation of collaboration among faculty and colleges within the university. And it has crafted a robust and innovative curriculum that displays both a clear priority on learning by doing and commitment to the integration of science, technology, and key social sciences. Each of these building blocks is critical for providing an educational experience that will prepare tomorrow's workforce in every dimension of clean and sustainable energy systems. Graduates who pursue this carefully designed program at Western Washington University will hit the ground running, ready to lead - and not a moment too soon."

*Amanda Graham, Director of Education
Massachusetts Institute of Technology Energy Initiative*