

EMSc 470W – CAUSE 2013 – United States, New Zealand and Australia Energy, Environment and Society: The “Energy” New Deal – Down Under



What: The “Energy” New Deal refers to actions needed to confront the perfect storm resulting from the confluence between the current financial crisis, the projected effects of climate change and the looming prospects of peak oil. This euphemism is analogous to Roosevelt’s *New Deal*, widely credited in lifting the United States out of the depression and spurring the post-war prosperity enjoyed by the developed world.

Students will investigate the political, economic, scientific and technological factors driving the recovery and utilization of energy in contemporary society by contrasting past- and planned-development in three contrasting locales: the largest and most energy-intensive economy in the world (the United States), a premier energy- and mineral-rich resource-based economy (Australia) and an economy largely-fueled by tourism and agriculture (New Zealand). In particular, we will chart the catalysts of enabling energy technologies, the necessity of abundant sources of inexpensive energy, and the evolution from pristine through agrarian to industrial economies in each of these countries. Current status and future developments will be viewed from constraints on natural resources, contemporary views of environmental and natural hazards, new trends in green engineering, industrial ecology of energy and materials flows and relationships with indigenous populations. Findings will be compiled as an illustrated virtual travel guide and authoritative compendium, to be used on-line by future Penn State students.

When: Spring (2 cr.), Summer (May 6-20 1 cr. to New Zealand only) and Fall (3 cr.) 2013 involving (3 credits) with grades awarded following the completion of a course report, due in December 2013, documenting material gathered during the field-trip. Students will register for EM SC 470W.

Why: “Progress” to an industrial economy has relied heavily on the availability of energy to spur the development of industry. Students will examine the controls on this metamorphosis from an agrarian to an industrialized economy and witnessing the current transformation to the information economy. Local, or global economic welfare and quality of life depend on energy choices: *fossil fuels, bridging energy technologies and the transformation to sustainable energy resources*. We will examine the past as the key to constraining well-informed energy choices for the future.

Where: Principally at University Park, but including a ~14 day research expedition to New Zealand, May ~6-20 immediately following finals week. Details of prior courses and expeditions are at: <http://www.ems.psu.edu/~elsworth/courses/cause2003/>

Ground transportation and basic accommodation in New Zealand will be covered. Each student will be responsible for his/her return travel to Auckland (~\$1800), personal meals and miscellaneous personal expenses.

Who: The course is open to all Juniors and Seniors who will be enrolled through December 2013, including those in the social sciences, in the natural sciences and in engineering.

Students may use this course to fulfill the general education writing intensive requirement (W requirement). Depending on the student’s project, it may also be appropriate for use as design credits for engineering majors.

Instructors: Derek Elsworth, Semih Eser and Jonathan Mathews

How: This course will use occasional guest lectures, instructor-guided discussions, student presentations, and research to address the important contemporary issues of energy supply and use, and the environmental consequences of energy choices.

Students must apply to join the course. There are no formal prerequisites.

Applications are available at: <http://www.ems.psu.edu/CAUSE>
This page: <http://www.ems.psu.edu/~elsworth/courses/cause2013/>

Applications will be accepted, and periodically reviewed until the date of registration for the course. The course will be closed when full. Invitations to join the course are merit-based and made on a first-come, first-served basis.

