

The Environmental Challenge International (ECi)

A 2025 FEDERAL RENEWABLE PORTOFOLIO

Orlando, June 2011

THE PURPOSE

The Environmental Challenge gives college student teams the opportunity to develop solutions to a mock environmental problem and have the experience of presenting their solution to a panel of environmental professionals. We do not expect numeric precision. We are more interested to hear about the issues involved, how you interpreted the problem, how you reached your conclusions, and how well you can communicate your thoughts. We want you to have fun! This exercise gives us all a chance to participate and gets the professionals of tomorrow to interact with the professionals of today.

THE PROBLEM

New legislation being developed by Congress would require that by the year 2025, and continuing thereafter, at least 25 percent of the energy consumed annually in the United States must be produced or generated from renewable sources of energy. For purposes of this legislation, “renewable energy” includes waste-to-energy and all forms of biomass-to-energy, wind, solar (thermal and photovoltaic), hydropower, geothermal, ethanol, biodiesel, and other green biofuels for transportation. “Renewable energy” does not, for purposes of this legislation, include energy from fossil fuels, nuclear power or energy efficiency. According to the Energy Information Agency, the United States consumed 94.6 quadrillion Btu (“quads” of energy) in 2009, and the projection for 2025 is 108.26 quads. 7.7 quads of energy consumed in the US were produced from renewable sources in 2009, so the increase in renewable sources will be significant to reach a goal of 25 percent, or 27 quadrillion Btu, beginning in 2025.

Your team works for a major, national consulting firm, and the staff of the House and Senate sponsors of the legislation that is being developed has contacted you to assist them and the Congressional members who plan to sponsor the bills. They need your help in determining the best mix of renewable energy for the US so they can prepare the appropriate legislative language. They also need your help in preparing for the committee meetings that will follow. There the proposed legislation will be vigorously debated.

While there are myriad of ways to reach a goal of 25 percent renewable energy, the staff have asked your firm to develop a single, plausible scenario that could unfold in the US to meet the 25 percent goal. The staff, however, is concerned about where the debate might be headed during the committee meetings that will follow introduction of the legislation. They need your help in justifying this particular mix of renewable energy. Also, because of the debate that is sure to follow, they have asked that you confirm that the scenario your team developed is capable of being achieved on an environmentally sustainable basis.

YOUR ASSIGNMENT

The project teams are each to present a conceptual plan to use various technologies along with resources within the US to produce 25 percent of the energy we consume each year beginning in the year 2025 while ensuring that the goal is achievable on an economically viable, socially acceptable, and environmentally sustainable basis. To ensure consistency among the groups, please be prepared to present the following information:

1. Identify viable, potential resources and technologies capable of producing renewable energy in the US;
2. Consider the lead time needed for these potential sources of energy to be scaled, licensed, permitted, and constructed;
3. Consider impacts on natural resources, ecological resources (e.g., flora and fauna), air quality, water quality, consumptive water use, waste use, waste generation and disposal, and other relevant environmental impacts and benefits (recognizing that this consideration will be more qualitative than purely quantitative in nature);
4. Consider the environmental sustainability of the resources and technologies being offered as the appropriate mix of renewable energy;
5. Consider the relative capacity factors of the sources of energy proposed (e.g., depending on its location, solar PV could have a capacity factor of no greater than 25 percent, meaning that for a unit that is 10 MWs in size, capable of producing 87,600 MWs in a year, it would typically produce no more than 21,900 MWs in a year);
6. Consider the transportation infrastructure and costs needed between the generation or production of the renewable energy and the consumers for which it would be intended (e.g., trucks, rail, transmission lines, pipelines, etc.);
7. Consider the feasibility of the technology based on geographical location and existing resources;
8. Consider the costs of the technology because even though the legislation is silent on economic impacts and costs, you can expect questions from legislators and their staff about costs to consumers; and
9. Determine a single realistic, plausible mix of renewable energy resources and technologies that could best be used to meet the goals of the legislation (keeping in mind that this proposal must be demonstrated to be environmentally sustainable), including the number, size, and location of production sites within the United States or elsewhere, and the factors your team applied to determine this optimum selection.

THE EXPECTATION

Your team will be presenting its findings to the legislative sponsors and their congressional staff. While this is an internal meeting, the legislators and staff will be simulating a scenario where members of the press, legislative opponents, general critics of the legislation, and potential supporters examine and question your findings and proposal. Clarity of vision and logic of presentation are critical. Remember you can come up with assumptions, but they need to be able to pass the straight face test. You will need to think on your feet and defend your scenario as plausible and realistic. This is like the real world!

Refer to the Protocol for specifics of the information your team must provide for the Challenge. We have expectations with regard to the Proposal (see below) and the Presentation (see below).

THE PROPOSAL

Expectations for the **Proposal** include identifying team members by name and their roles (e.g., “Rusty Steele” is going to be engineer and will address waste issues; “Noah Lott” is going to be your air expert; “Seymour Greene” is going to be your ‘planner’; and “Laura Order” is going to be your attorney, etc.; Include the disciplines you think will be needed). Include an outline of the approach you are going to take to present the Proposal and the issues that will be discussed.

The Proposal **submittal deadline is May 28, 2011**, and shall be submitted by email to Max Lee (mlee@kooglerassociates.com). The proposal shall include key elements such as areas of expertise, issues to be addressed, and the general approach to the project. The proposal should be in summary form and limited to ~~two~~ five pages. Proposal quality will factor into competition judging.

THE PRESENTATION

Your team will need to demonstrate its understanding of the issues that were addressed in the proposal. While faculty guidance and advice may be sought, the team **must** present an approach to solving this problem based on your own research and work. Sustainable approaches for the proposal and other policy issues are of great interest to the legislation sponsors. Winning will hinge on approach, clarity and creativity.

Refer to the “Protocol” on the www.awma.org website for the date and time of presentations and further information for further parameters for the Challenge Proposal and Presentation. A final schedule will be prepared once the total number of teams competing is known. Plan on being able to present at least 15 minutes prior to the scheduled start time. A projector and laptop (with Microsoft Power Point) will be provided. Please bring a flash drive (memory stick) so your presentation can be loaded onto the laptop. You will be allowed a **maximum of 15 minutes** to present.

THE TWEAK

No matter how much you do and know, in real life things that are unexpected can and do occur. There might be some late breaking information that might alter your approach and/or require your plan to evolve. Refer to the Protocol for more details on the Tweak. The problem and the tweak will require that you find and talk to “experts” and attend the AWMA sessions for answers and important information.

An **example** tweak (NOTE-this is NOT the real tweak!!):

One of the key sponsors of the legislation has decided that energy efficiency should be included as “renewable energy” under the pending legislation. You will need to adjust your scenario to include energy efficiency.

You can email your questions regarding the Assignment and tweak to:

Max Lee (mlee@kooglerassociates.com)

Significant questions and answers will be posted at www.awma.org

The Environmental Challenge (EC) is hosted by the Air & Waste Management Association.

For more information see www.awma.org.