

Green Civil War in the California Desert: The Ocotillo Express Wind Energy Controversy

As we moved across the landscape a biologist pointed out a plant over 20 feet tall. Its deep crimson flowers touched by specks of orange glowed like flaming candles. “That plant is an ocotillo, the namesake for this site,” she said. “It has sharp rose- like thorns. But the yellow cactus over there, the erroneously named Teddy Bear cholla, they have spines that hurt.” Between the ocotillo and cholla stood a thin wooden stake with an orange plastic flag waving in the wind. “They will build wind turbine #99 right there.” She understood that the flora and fauna here in California’s Colorado Desert would be affected by climate change more than any place outside of the Arctic in North America and at same time recognized the urgent need for renewable energy. But renewable energy posed a threat to 12,500 acres of desert wildlands. 244 wind turbines and 55 miles of roads were planned and she feared it would change the ecology and landscape forever.



Figure 1. Ocotillo (left) and cholla (right) near the turbine #99 site.

In this assignment we develop an understanding of real world controversies over siting renewable energy projects. The case we explore is about a contentious wind farm in California’s Colorado Desert, near the US- Mexico border. It would deliver electricity to metropolitan San Diego. Some stakeholders involved in the controversy see this as an ideal site to help decarbonize electricity. Others have come to understand the wind farm as a severe ecological impact on a site rich in biodiversity, wildlife, and cultural resources. We will learn of a paradox called the “social gap” in renewable energy deployment—that there is strong, consistent support for renewable energy, but widespread local opposition to siting particular projects. We will recreate this wind farm controversy to understand the multiple stakeholder perspectives, and propose solutions.

Learning Goals

- Understand the structure and behavior of socio-environmental systems.
- Consider the importance of scale and context in addressing socio-environmental problems.
- Understand the value of different knowledge sources and ways of knowing.
- Find, analyze, and synthesize existing data, ideas (e.g. frameworks or models), or methods.



Figures 2 & 3 show the divided view on the Ocotillo Express Wind Energy Facility in the town of Ocotillo, California.

Learning Objectives

- Advance energy literacy by improving student understanding where energy comes from.
- Develop skills to communicate about energy issues in meaningful ways.
- Describe and evaluate stakeholder views offer critiques are various positions in an environmental debate.
- Improve understandings of socio-environmental consequences of wind power.
- Assess the credibility of information about wind farms and their impact on socio-environmental systems atand across multiple temporal and spatial scales.
- Draw concept maps to understand the interaction between the different actors and ideas presented in thiscase study.
- Learn about the public comment process during the environmental impact statements required under theNational Environmental Protection Act/California Environmental Quality Act.
- Read and analyze public comments as existing data to understand how stakeholders value and constructplace and how subjectivity informs public acceptance of wind projects.
- Reflect on opportunities to improve public participation.
- Evaluate mitigation options to lessen the impact of the wind farm on wildlife and biodiversity.

PREPARATION for class meeting 1

Leave yourself two to three hours to read and take notes on the following articles. The first short online book chapters introduce key principles of wind power. The three academic research articles describe the socio- environmental impacts of wind power and some of the explanations for social acceptance or resistance towardwind power. While reading the article below, make note of the following: (a) negative and positive impacts from wind power, (b) explanations for the “social gap” in wind energy, (c) whether NIMBY is a good explanation for social acceptance of renewable energy.

MacKay, D. 2009. Sustainable Energy without the hot air. Cambridge University Press. Read: Wind p 32–34;Wind II 263–267. <http://www.withouthotair.com/>

Tabassum-Abbasi, Premalatha, M., Abbasi, T., Abbasi, S., 2014. Wind energy: Increasing deployment, risingenvironmental concerns. Renewable and Sustainable Energy Reviews 31, 270-288. <http://dx.doi.org/10.1016/j.rser.2013.11.019>

Bell, D., Gray, T., Haggett, C., 2005. The "social gap" in wind farm siting decisions: explanations and policyresponses. Environmental Politics 14 (4), 460–477. <http://dx.doi.org/10.1080/09644010500175833>

Van der Horst, D., 2007. NIMBY or not? Exploring the relevance of location and the politics of voiced opinionsin renewable energy siting controversies. Energy Policy 35 (5), 2705–2714. <http://dx.doi.org/10.1016/j.enpol.2006.12.012>

CLASS MEETING 1: Lecture and discussion

In class we will have a lecture of approximately 45 minutes where you will be introduced to fundamental concepts for understanding issues related to wind power. Lecture topics included in this lecture include: sources of the energy in wind power, power potential from wind, Betz' law, current extent of global wind power installations, geographies of wind, technical challenges for more widespread wind power integration, and socio-environmental dimensions of siting wind power.

The final 30 minutes of course time focuses the discussion on the course readings, which focus on the lattertwo topics in the list above. Make sure you have your notebook with your notes from the readings for discussion.

PREPARATION for class meeting 2 (2 hours homework)

Now that you have a deeper understanding of the challenges related to siting wind farms, we will review a case study of the Ocotillo Express Wind Energy Facility (OWEF). There are three parts to your preparation, which should take about two hours. For class you will bring a printed copy of the work for Part 2 and Part 3.

Part 1. Read an overview of the issues related to constructing the wind farm (OWEF). The Final Environmental Impact Statement can be found at this link <http://www.icpds.com/?pid=2843>
Read these sections: Dear Reader, Abstract, & Introduction. <ftp://ftp.co.imperial.ca.us/icpds/eir/ocotillo-express/final/05introduction.pdf>

Part 2. Draw a concept map that shows the issues and stakeholders involved in the OWEF controversy. Go to <http://www.mentalmodeler.org/online/> and click “add component.” Write “Ocotillo Express Wind Energy Facility (OWEF)” in the box, and drag it to the center of the screen. List each of the following stakeholders as additional components and place them around the OWEF box: climate-focused environmental groups, wildlife-focused environmental groups, Native American tribes, chamber of commerce, opposed local citizens, local citizens in favor, the wind farm developer, the BLM, and any other actors you come across in your preparation. Click the OWEF box and hold down the arrow below the box to draw arrows from the OWEF box to each of the stakeholders you’ve listed. Once the arrows are drawn, click on the box in the center of each arrow and click whether each arrow represents a negative or positive view of the wind farm. You can distinguish whether these views are more or less strongly held by selecting multiple plus or negative signs, which will result in thicker or thinner lines.

Next, based on your understandings of perceptions of wind farms, list some impacts that each stakeholder might be concerned about. For example, the local chamber of commerce would be interested in jobs, tax revenue, and increased local business, while the Native Americans would be concerned about cultural resources. This example is mapped out below, but your concept map should contain all the stakeholders and the issues that may be raised by each.

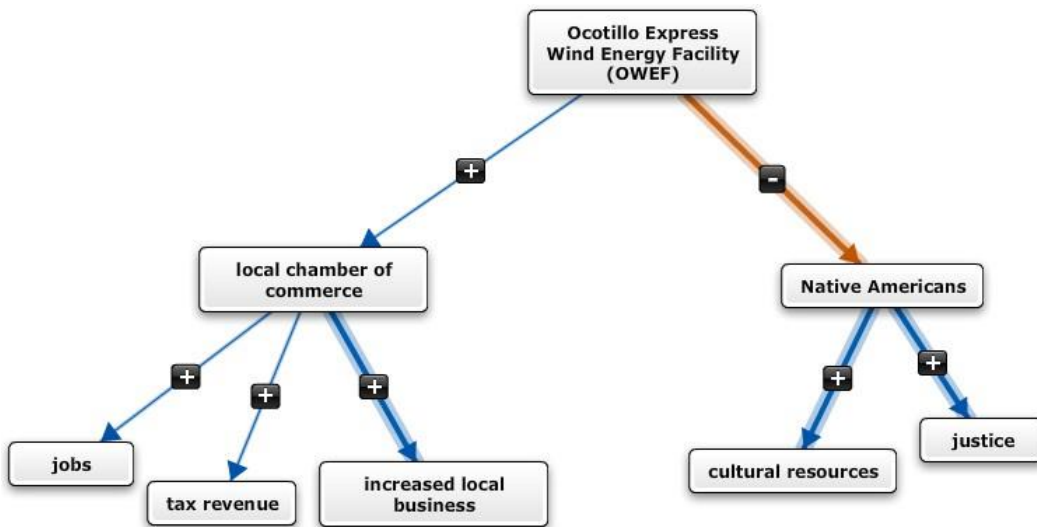


Figure 4 is a partial concept map. Your concept map should connect more stakeholders and the issues that concern them.

When you have completed this concept map click save or screenshot to keep a copy of your work.

PRINT out this draft concept map for class meeting two. You will turn this in with your final work product, but feel free to mark it up with notes from class. You will revisit this diagram in the last steps of this assignment.

Part 3. Each student is assigned one of the groups listed in bold below. To prepare for class meeting #2, write a 200–300 word summary that explains the position of the groups and institutions that you are assigned to represent. The wind farm developers should prepare a summary focused on overview of the project (developer and BLM district office) and agency’s role (BLM). The other stakeholder summaries will be read as two-minute public comments. You will share this summary with your peers in small groups during class time. Stakeholder public comments can be found the Imperial County EIS website: <http://www.icpds.com/?pid=2843> Three pdfs labeled Comment Letters 1, 2, & 3 are at the bottom lower right of the webpage in Appendix O. See below for instructions for where to find information and background material.

Wind farm developers (2 to 3 students) – Prepare a project overview and project benefits.

Pattern Energy <http://www.ocotilowind.com> Also see: Ocotillo Wind Energy Facility (OWEF). 2012. Eagle Conservation Plan. Final EIS/EIR. Read: Figure 1, Figure 2, Figure 3, Section 1.3, Table 2, Figure 6, Figure 8, Figure 9, Section 5.1, <ftp://ftp.co.imperial.ca.us/icpds/eir/ocotillo-express/final/appendices/20app19-eagle-conservation.pdf>

Bureau of Land Management (BLM), El Centro District Office (2 students) – Focus on BLM role in project.

http://www.blm.gov/ca/st/en/fo/elcentro/nepa/ocotillo_express_wind.html read: the fact sheet, abstract, and webpage.

Bureau of Land Management (BLM), Wind PEIS Office (2 students)

<http://windeis.anl.gov/> read: What is an EIS? What is a Programmatic EIS? <http://windeis.anl.gov/faq/index.cfm>

Fish & Wildlife Service (2 students)

Read pages 1-12 & 51-53 Biological Opinion on: http://www.blm.gov/ca/st/en/fo/elcentro/nepa/ocotillo_express_wind.html

Imperial County Board of Chamber of Commerce (2 students)

See “comment letter 1” file on Imperial site above, starting at page 322

Kumeyaay Tribe (1 student) + **Cocopah Tribe** (1 student) + **Quechen Tribe** (1 student)

See “comment letter 1” file on Imperial site above, first few dozen pages are relevant. Also see statements on the internet such as <http://www.kumeyaay.com/all-news/2908-eight-tribal-nations-mourn-losses-at-ocotillo-wind-site.html>

<http://www.kpbs.org/news/2012/mar/19/tribes-fight-green-energy-wind-project-desert/>

<http://eastcountymagazine.org/node/9104>

<http://www.kcet.org/news/rewire/wind/imperial-county-protest-halts-work-on-wind-project.html>

Defenders of Wildlife (1 student) + **Natural Resources Defense Council** (1 student) + **Wilderness Society** (1 student)

<http://wilderness.org/sites/default/files/legacy/Ocotillo-Express-Scoping-Comments.pdf>

Sierra Club (1 student)

See “comment letter 1” file on Imperial site above, starting at page 309. Also see;

<http://www.eastcountymagazine.org/suit-filed-halt-ocotillo-wind-coalition-holds-protests-san-diego-and-el-centro>

Save the Eagles International (2 students)

Ocotillo Wind Energy Facility (OWEF). 2012. Eagle Conservation Plan. Final EIS/EIR.

Read: Figure 1, Figure 2, Figure 3, Section 1.3, Table 2, Figure 6, Figure 8, Figure 9, Section 5.1,

<ftp://ftp.co.imperial.ca.us/icpds/eir/ocotillo-express/final/appendices/20app19-eagle-conservation.pdf>

California State Parks Foundation (1 student)

See “comment letter 1” file on Imperial site above, starting at page 323

Desert Protective Council (student)

See “comment letter 1” file on Imperial site above, starting at page 326, Also see;

<http://www.eastcountymagazine.org/suit-filed-halt-ocotillo-wind-coalition-holds-protests-san-diego-and-el-centro>

Center for Biological Diversity (1 student)

See “comment letter 1” file on Imperial site above, starting at page 360)

Basin and Range Watch (2 students)

<http://www.basinandrangewatch.org/OcotilloWind.html>

Concerned local citizens (2 students)

See “comment letter 1” file on Imperial site above, starting at page 429 there are comments from public citizens, comment letter 2 has many more). One student should read several perspectives to get a range of local views.

CLASS MEETING 2: In-class group activity

You will work in small groups to summarize the details of particular views and perspectives on the proposed wind farm project. First, we will gather in small groups to go over the highlights of issues raised by their particular stakeholders. Groups that are most appropriate to put together are in a list below. We will have 20 minutes to discuss in groups. Each student should take turns describing their stakeholders' reasons for involvement based on the summary they prepared. Where more than one student is assigned to a stakeholder, students should decide who will present the perspective to rest of the class in the public comment activity and who will volunteer to write the notes on the white/smart/chalk board.

- Group A: **Wind farm developers + Bureau of Land Management (BLM), El Centro District Office**
- Group B: **Bureau of Land Management (BLM), Wind PEIS Office + Fish & Wildlife Service Group**
- C: **Kumeyaay Tribe + Cocopah Tribe + Quechen Tribe**
- Group D: **Defenders of Wildlife + Natural Resources Defense Council + Wilderness Society + Sierra Club**
- Group E: **Imperial County Board of Chamber of Commerce**
- Group F: **California State Parks Foundation + Desert Protective Council + Center for Biological Diversity**
- Group G: **Basin and Range Watch + Save the Eagles International**
- Group H: **Concerned local citizens**

Once your group has discussed the views of stakeholders represented, we will reconvene the entire class. For the next 40 minutes, the groups will present stakeholder perspectives. To mimic a public meeting, we will begin with the BLM El Centro District Office who should provide an overview of the need for the meeting and some of the key issues BLM will evaluate. Next the wind farm developers should present the wind farm proposal and the benefits of the project. After the introduction to the BLM and project, the public comment period should include each stakeholder perspective. One student per stakeholder group will sign-up for a two minute speaking slot. Several volunteer note-takers will summarize on a white/chalk/smart board. These notes will be useful for your final work product.

Opening statements

1. **Bureau of Land Management (BLM), El Centro District Office - 5 minutes**
2. **Wind farm developers - 5 minutes**

Public Comments

3. **Bureau of Land Management (BLM), Wind PEIS Office – 2 minutes**
4. **Fish & Wildlife Service – 2 minutes**
5. **Kumeyaay Tribe – 2 minutes**
6. **Cocopah Tribe – 2 minutes**
7. **Quechen Tribe – 2 minutes**
8. **Defenders of Wildlife + Natural Resources Defense Council + Wilderness Society + Sierra Club – 2 minutes**
9. **Imperial County Board of Chamber of Commerce – 2 minutes**
10. **California State Parks Foundation + Desert Protective Council + Center for Biological Diversity – 2 minutes**
11. **Basin and Range Watch – 2 minutes**
12. **Save the Eagles International – 2 minutes**
13. **Concerned local citizens – 2 minutes**
14. **Close of the public comment period**

Class discussion

Once the public comment period has closed, we will reflect on what we can conclude about the controversy. How well do some of the explanations for the social gap in renewable energy help us understand the roots of this particular controversy? Which explanations seem to be less relevant? Did any issues arise that were not anticipated by other researchers who have investigated similar cases? What might be done to bridge the social gap in renewable energy? You will write about these issues in a final reflective paper.

FINAL WORK PRODUCT: (a) Final concept map + (b) Take-home essay + (c) Copy of part 2+3The final work product for this assignment is an updated version of the concept map and a 1,000-word essay.

Final concept map

Revisit the concept map you prepared for class #2. Update any of the boxes to better represent and explain the actors and the issues they've raised. Print it out and turn it in with your essay.

Take-home essay

The essay should focus on explanations for the controversy and propose solutions to that could resolve either this controversy or future wind power developments. Some questions to guide your essay include the following. What could have been done to bridge the social gap in renewable energy at the Ocotillo Express wind farm site? How are conflicting environmental values present in this controversy? How did the scale of the environmental issue (global, national, local) affect the perceptions of this wind farm? Was the process fair? Was public participation useful? What would you do to resolve the challenges? How do you feel about the project and process? Use the research papers you read in preparation for class one and the notes we collectively developed in class. Look for examples from the research. 1,000 words, 1.5 spaced, printed copy in class.

Copy of part 2+3

This is the work completed earlier. Please turn in the stakeholder view essay and original concept use completed in parts 2 & 3 in preparation for class meeting 2. It is fine it is marked up with your notes.

The Ocotillo Express Wind Energy Facility



Figure 5 show the Ocotillo Express Wind Energy Facility in February 2013 while part of the farm was still under construction. Note the coils of copper wire to the right in the foreground. The controversies have not gone away, but some studies suggest that local views toward wind power are more positive over time.