APSC 498T
Final Project Description and Rubric

Decarbonization System Mapping
*This project is based on the global Oxford 'Map the System' challenge
Due Date: Tuesday, April 2nd, 2019.
Groups: 2-4 people

50 word proposal due March 14th. This is worth 2 points of the report.

Guiding Question:
What is a decarbonization challenge we, as the next generation of engineers and professionals, may work on in our careers? *What is the system in which it is embedded?*

Project:
Focus in on one decarbonization challenge of interest to your group, and analyze it by creating a high level systems map of the various factors (technological, political, social, market, etc.) that create it. The goal of the project is to synthesize your understanding of the layers of society - policy, economy, technology - into a succinct problem description, and provide potential solutions. We have spent the bulk of the course discussing these layers in an isolated setting, this is your opportunity to blend them together and explore their interactions throughout the system.

Deliverables:
- Visual map (Poster - 11x17 inches)
- Presentation (5 - 10 minutes)
- Research Report (2000 words, 10% margin)
    - This will be marked by our faculty advisor Dr. Amanda Giang

Visual map:
- Visualize your challenge in a creative way (example: http://eu.opmodel.guide)
    - This map should be a standalone object that presents a summary of your system
- Showcase major parts of the system - economic , political, cultural, etc.
    - Show how the combination of parts gives rise to the decarbonization challenge by highlighting relationships, interactions, and feedback loops in the system
- Present existing solutions, and if possible, gaps and levers of changes
- Include a 2 sentence explanation for why you chose your visual strategy
- Citation

- If using graphics sourced from elsewhere please provide a separate resources sheet. The expectation is that the final product, your poster, will be mostly your own creation - through reorganization, new emphasis, and a combination of graphics - rather than an existing mind map on the internet.

Research report:
- The report should supplement and provide a narrative to your systems map.
- Include the following, broken into sections as you see fit.
    - Explanation of why you chose your topic
    - Understanding of the challenge and the system, including key parts.
    - Existing and proposed solutions.
    - Gaps and potential levers of change
    - Possibilities for contribution in your career(s)
    - Bibliography with at least 5 academic or other high-quality sources
- Pdf format

Note on Topic Selection:
- Choose something you are passionate about, and preferably have some background of knowledge in.
- Most topics should be narrowed down to a specific economic sector and grounded in a definite geography for analysis in adequate detail.The narrower the topic the better.
    - Remember, you should address the complexity of the system as a whole. Having too many moving parts can hinder you.
- Geographical constraints should be well defined.

Example Topics:
- Decarbonizing transportation in British Columbia.
- Decarbonizing electricity in the US.
- Rural electrification in India.
- Energy politics in Alberta.
- A global market/fund for carbon removal.
(Note - you can choose these topics if you want and multiple groups can choose the same topic.)

Resources:
http://mapthesystem.sbs.ox.ac.uk/resources/

Final Project Rubric:

Visual Map: _____/20

20 Exceeds Expectations	16 Meets Expectations	10 Partially Meets Expectations	1 Does Not Meet Expectations
Creative and effective mapping of the system that includes the *key pieces/parties* (technological, political, social, market, etc.) and their *relationships* that create the decarbonization problem. The map is easy to follow and provides insight into the challenge. Complexity is addressed, but the map is not overwhelming in detail.	Visual map effectively summarizes the challenge in a clear way. *Key pieces/parties* (technological, political, etc.) and their *relationships* are highlighted and the reader can easily grasp the main elements of the challenge.	Visual map identifies pieces of the system but relationships are incompletely described. The map adds minimal value or insight into understanding the decarbonization challenge. There may be missing pieces or too much detail.	Visual map is chaotic and confusing to understand. The challenge is only considered from one perspective and relations between parts of the system are not noted. The complexity of the problem is not conveyed to the reader.

Presentation Delivery : _____/10

10 Exceeds Expectations	8 Meets Expectations	5 Partially Meets Expectations	1 Does Not Meet Expectations
Excellent presentation voice, eye contact, and visuals. Presenter conveys a superior understanding of the system and the ways their map showcases relationships between	Great presentation voice and eye contact. Presenter clearly explains their chosen challenge and the different parts of the system included in their visual map. Existing	Presenter(s) seem unconfident/not practiced. Presenter did not identify the different aspects of their system or how the map represents the challenge.	Presentation was chaotic and did not adequately describe the decarbonization challenge and the systems map.

parties to each other and the decarbonization challenge. Existing solutions and potential gaps and levers of change are presented.	solutions are presented.		

The written report will be evaluated by our faculty advisor Dr. Amanda Giang. The following five sections are for the written report but the content principles apply for the presentation and poster itself.

50 Word Proposal **_____/2**

Understanding the Challenge: **_____/20**

20 Exceeds Expectations	16 Meets Expectations	10 Partially Meets Expectations	1 Does Not Meet Expectations
Succinct mapping of the complex system that includes the key parties/pieces involved (corporations, consumers, governments, NGOs, technologies, etc.), relationships in the system, and the causes and persistence of the decarbonization problem. Provides the reader with additional context for why this is a key challenge in decarbonization and its potential impact.	Description of the system including the causes and persistence of the decarbonization problem. Gives the reader a clear understanding of different parties/pieces involved (corporations, consumers, governments, NGOs, technologies, etc.).	The parts of the system giving rise to the decarbonization problem are described, but complexity or clarity is lacking.	Explanation is not in depth. Lacks justification for the persistence of the problem and the connections between parts of the system.

Describing Existing Solution: _____/15

15 Exceeds Expectations	12 Meets Expectations	8 Partially Meets Expectations	1 Does Not Meet Expectations
Exceptional description of the existing solution landscape, including different groups and their interrelated efforts at solutions.	Describes efforts of organizations, governments, and/or companies working on solutions to the decarbonization challenge.	Considers the efforts of only a few parties and fails to draw connections throughout the system.	Missing a description of existing solutions and/or connections to the system.

Identifying Gaps and Levers of Change: _____/13

13 Exceeds Expectations	11 Meets Expectations	7 Partially Meets Expectations	1 Does Not Meet Expectations
Gaps to existing solution efforts are analyzed from a multidisciplinary view that highlights the missing levers from different parts of the system (policies, technologies, market design, etc). Potential methods for improvement and implementation are suggested and thoroughly analyzed.	Gaps in existing solution efforts are highlighted (policies, technologies, market design, etc). Explores potential methods of closing these gaps or improving solution implementation.	Existing gaps are discussed but their relations to the system seem vague and lacks analysis from different lenses.	Report does not mention the gaps or levers of change, or gives an unrealistic/incomplete improvement to the problem.

Written Style and Grammar: _____/10

10 Exceeds Expectations	8 Meets Expectations	5 Partially Meets Expectations	1 Does Not Meet Expectations
Masterful communication of thoughts, connections, and purpose to the reader. The paper reads well and the writer is fluent in understanding the problem and different perspectives. No grammar or spelling mistakes.	Smooth transition between ideas that gives the reader a holistic understanding of the content without confusion. Minor grammar and spelling mistakes.	Ideas jump from one topic to the next with minimal context or connections. Overall the report lacks clarity and/or has repetitive grammar and spelling mistakes.	Meaning is lost because of the lack of flow, and/or grammar and spelling mistakes.

Argumentation and Strength of Evidence: _____/10

10 Exceeds Expectations	8 Meets Expectations	5 Partially Meets Expectations	1 Does Not Meet Expectations
All claims are evidenced and well qualified. Report does not overstate any evidence. More than 5 credible or academic sources are provided with citations for images and graphs.	Claims are evidenced, but may not all be justified. At least 4 credible or academic sources are provided.	Some evidence is provided but few claims are qualified by the sources. Less than 3 credible or academic sources are provided.	Little to no justifiable evidence for claims.