**Qualifications:**

Coursework:

* Energy and Society – PubPol C184, Prof. Callaway
* Energy Regulation and Public Policy – PubPol 190-19, Prof. Weissman
* Applied Econometrics and Public Policy – Econ C142, Prof. Graham

Research:

* Helped complete the UN Data for Climate Action project
* Worked under Max Wei and Patricia Hidalgo-Gonzalez on California vehicle electrification analysis project for the California Energy Commission

**Goal of project (cover travel expenses):**

I was invited to attend a portion of the UN COP23 conference in Bonn, Germany, and am requesting funds for travel expenses. The benefit of the trip is for me to understand how climate change policy is being researched, proposed, and enacted by delegates and scientists from all around the world. The view I have about climate change in a California city is incredibly myopic compared to the issues faced by those in other countries; there are unique effects on food and water supply, gender and class inequality, culture, health, and so much more that vary from place to place. This conference would give me the opportunity to hear directly from researchers in the field, from so many different countries, about how they are solving these problems.

Additionally, one important component in the process of science is communicating results. I have little practical experience doing that, but this conference will give me the chance to potentially help present our work and learn how to effectively communicate research methods.

This is a once in a lifetime opportunity that I may not get again, as the event is invite only, and based on the quality of our team’s submission.

The itinerary is – November 11th, fly to Bonn, Germany. November 12th-13th – participate in Data for Climate Action events, as well as COP23 exhibitions. November 14th – return to the US.

**Background**: (note – the project has been completed already, and the application is to attend the COP23 conference. This segment is just taken from the paper that was submitted to the conference.)

Electrifying the transportation sector has gained recent attention given its potential to significantly reduce GHG emissions (6–9). The Paris Declaration on Electro-Mobility and Climate Change and Call to Action is an example; backed by several agencies of the UN, the International Energy Agency and several car manufactures, the document calls for at least a 20% electrification of all transport by 2030 (10). Implementing policies to electrify vehicle fleets, however, requires tailored solutions to effectively address issues within a given city. Electrifying transportation is perhaps one of the most fascinating policies to analyze. From an engineering perspective, it calls for the integrated planning of two of the most complex systems ever created: the electric grid and the transport system. The co- optimization of these systems requires new computing approaches. Moreover, implementing electro- mobility solutions spans beyond technical challenges, as social behavior and economic sciences will play a critical role in low-carbon technology adoption.

It is within this context that the we aim to find policy solutions that will provide quantifiable benefit for both Mexico and other countries around the world. These benefits include CO2 and SLCP reduction as well as environmental and traffic improvements. While we work using Mexico City’s case, our intent is broader than advising one city government. We want to showcase the power of big data in advancing policy options, and in creating and visualizing solutions for experts and for the public. We aim to link the conversations of climate, air quality, and new transport technology deployment through big data driven policy evaluation. It is our hope that we can help Mexico implement its NDC, through improved policy design, and that other countries can learn from the Mexican experience. Through this contribution, we aim to facilitate and support decision-making processes for urban developers and policymakers to optimize their technologies deployments, as well as policy evaluations.

**Project plans**: The project has already been done. I will attach a copy of our completed submission for the committee’s reference. I did the pollution health impact analysis in Section 2.2 (Materials and Methods – Impact of public policies on emissions), Figures 4 and 6 and accompanying text in section III (Results), and other text scattered through the rest of the paper. In those sections are my methodology as well as my results.

**Significance**: The project significance is explained in the paper’s conclusion (section V). For committee’s reference, I will copy a portion of the conclusion here.

Our results show that electro-mobility polices can bring substantial benefits in terms of pollution reduction and climate change mitigation. The three evaluated policies show reduced CO2 as follows: (a) a 3.4% with the electrification of the taxi cab fleet, (b) a 22% with the electrification of the public transportation buses and, (c) a 49% reduction of electrification of the entire fleet of private passenger vehicles. In terms of PM2.5, the reductions were 3.1, 24, and 44%, respectively. To our knowledge, this is the first analysis in the country to combine big data analytics with climate change policy evaluation and that integrates other important environmental benefits such as air pollution into the analysis. We believe that as a first step, the study provides valuable insights to further develop and fine-tune our data analytics for targeted interventions.

As a first approximation to this problem using these types of techniques, our study has several limitations, and should be consider only as a screening process towards more elaborated future work to finalize our policy recommendations. In particular, the combination of different fleet interventions, the modeling of mixes of current and new transport policies, and a rigorous cost-benefit analysis should follow to this first exercise. Nevertheless, our contribution is clear in signaling the future of urban planning using the power of data science.