Citizen Perceptions of Fossil Fuel Infrastructure

By Joshua Cairns

Dr. Jonn Axsen produced a new study, titled “Citizen acceptance of new fossil fuel infrastructure: Value theory and Canada’s Northern Gateway Pipeline”, that was published in the Energy Policy journal in November 2014. The study surveyed 2,628 Canadian citizens with a wide distribution of socio-demographic variables and values, and included questions relating to acceptance and perceptions of the Northern Gateway Pipeline (NGP), as well as respondent values, attitudes, lifestyle and socio-demographic variables. Cluster analysis was used to construct six citizen segments based on values, environmental concern, and engagement in a pro-environmental lifestyle as elicited through the survey. Perceptions and support of the NGP were then analyzed against these clusters. The study finds that there are statistically significant differences in perceptions of the NGP by citizen cluster. Clusters with high levels of biospheric and altruistic values and environmental concern exhibited the highest opposition to the NGP and were less likely to perceive economic benefits and more likely to perceive environmental risk. Conversely, clusters with higher levels of egoistic or traditional values were more likely to support the NGP and fossil fuel development, and were more likely to perceive economic benefits and unlikely to perceive environmental risks. Regional differences were also identified, with the Alberta subsample having the highest support for the NGP, while the BC subsample had the lowest support.

The findings support previous studies of citizen support for fossil fuel development, which have found that biospheric-altruistic values are generally associated with opposition, and egoistic and traditional values are generally associated with support. The results also support the notion that citizen values shape beliefs about an energy project; respondents’ stated beliefs tend to correspond with their values. This gives further support to value theory, which explains the process of perception formation: citizens tend to receive, filter and process information that frames issues to align with their values.

The policy implications for these findings are substantial. As Jonn Axsen explains, “Governments seeking to navigate public opinion will need to understand the complexities of citizen acceptance, and carefully frame political decisions to propose, accept or reject such large-scale energy projects—anticipating how these frames will connect or clash with different core values”. A coordinating national vision, such as a national energy plan, might reduce uncertainty regarding project benefits and risks; furthermore, consultation processes can assure the values of different citizen groups are integrated into energy goals, which may reduce later opposition.
**Broad but Passive Support for LCFS**

By Ekaterina Rhodes

Ekaterina Rhodes, Ph.D. candidate, Jonn Axsen, and Mark Jaccard produced a new study "Gauging citizen support for a low carbon fuel standard (LCFS)" that was accepted for publication in the Energy Policy journal. The study is the first to elicit public support for an existing LCFS in British Columbia and a hypothetical (proposed) LCFS for the rest of Canada using survey data collected from a representative sample of Canadian citizens (n = 1,306). Specifically, the authors assessed: (1) citizen awareness of British Columbia's LCFS, (2) stated citizen support for the LCFS, and (3) how individual characteristics relate to levels of citizen support. The study finds that British Columbia's LCFS is almost unknown among British Columbia respondents, but once explained, 90% of respondents support it. The authors refer to this combination of low knowledge and high support as "passive support." They find similarly broad support in all other Canadian provinces, implying that citizen opposition is unlikely in jurisdictions considering an LCFS. Statistical analysis identifies some individual characteristics associated with LCFS support. Older, wealthier, and female citizens, as well as those with altruistic values and beliefs in human causes of climate change are more likely support an LCFS. LCFS opposition may be stronger in rural areas, and among citizens that are more dependent on driving passenger vehicles. While little can be done about attitudinal characteristics such as citizen values, contextual factors associated with opposition can perhaps be addressed, e.g. by offering complimentary policies that stimulate improvements in vehicle fuel economy, adoption of low carbon transportation alternatives, and reduction in vehicle use, minimizing the impact of an LCFS on fossil-fuel dependent households.

**Op-ed: Let’s keep BC’s LCFS Clean, Clear Cut and Strong**

By Justin Lepitzki

On September 24, 2014, Dr. Jonn Axsen and Michael Wolinetz, a former EMRG student who is now a partner with Navius Research, had an op-ed published on the Vancouver Sun website titled *B.C. clean fuel regulation works*. The op-ed discusses BC's Renewable Low Carbon Fuel Requirements Regulation (RLCFRR), a policy aimed at reducing the life cycle greenhouse gas intensity of transportation fuels used in BC. Meaning, fuel providers must reduce the greenhouse gases emitted during fuel production, refining, transportation, and consumption. The result is cleaner transportation fuels every year in BC. Currently, the target is to reduce the greenhouse gas intensity of BC transportation fuels by 10% by 2020. In fact, the policy is working to achieve its intended goals of cleaner BC fuels. As explained in their recent summary of the policy, BC’s clean fuel regulation has reduced greenhouse gas emissions by 900,000 tonnes in 2012, one quarter of the net reduction in BC’s annual emissions since 2007. Even with the initial success of the policy, it has come under threat by some fuel providers who want the BC government to weaken it. In the op-ed, Jonn and Michael make several recommendations to the BC government. First, they stress the need for the BC government to stick to its 2020 requirements. As the op-ed states, “Some fuel providers claim that the policy is too challenging. That’s not uncommon. There is industry resistance to almost every climate policy. Change can be difficult, but a policy that stimulates change and innovation is a policy that is working.” Second, the BC government should commit to stronger clean-fuel requirements for 2025 and 2030. Doing so will provide strong and consistent signals to fuel providers about what is expected long-term, and allow them to confidently make investments into cleaner fuels. The clean-fuel
regulation is working. They believe now is the time for the BC government to maintain and strengthen the policy to ensure a cleaner, safer future for ourselves and our children.

The op-ed can be found on the Vancouver Sun website (www.vancouversun.com/technology/Opinion+clean+fuel+regulation+works/10231994/story.html) and the full summary of the policy can be found on Navius Research’s website (www.naviusresearch.com/data/pages/cleanfuel.php).

EMRG at the TRB 94th Annual Meeting

By Joshua Cairns

The TRB 94th Annual Meeting was held in Washington, D.C. from January 11 to 15, 2015. The TRB Annual Meeting program covers all modes of transportation, and features over 5,000 presentations in nearly 750 sessions and workshops. The presentations address a variety of topics that are of interest to a variety of attendees, including policy makers, researchers, and representatives of government and industry. EMRG was well represented at the Annual Meeting, with Noel Melton, Joe Bailey, Jonn Axsen, Amy Miele, and Suzanne Goldberg attending and presenting the following research:

◊ Is Awareness Of Public Charging Associated With Consumer Interest In Plug-in Electric Vehicles?
  Authors:
  Amy Lynne Miele, Simon Fraser University
  Harry Joseph Bailey, Simon Fraser University
  Jonn Axsen, Simon Fraser University

  Authors:
  Noel Kenneth Melton, Navius Research
  Jonn Axsen, Simon Fraser University

◊ Anticipating Plug-in Electric Vehicle Buyers’ Acceptance of Utility-Controlled Charging
  Authors:
  Harry Joseph Bailey, Simon Fraser University
  Jonn Axsen, Simon Fraser University

◊ Consumer Heterogeneity in Potential Early Mainstream Market for Plug-in Electric Vehicles
  Authors:
  Jonn Axsen, Simon Fraser University
  Harry Joseph Bailey, Simon Fraser University
  Marisol Andrea Castro, University of Texas, Austin

◊ Gauging Citizen Support for Low Carbon Fuel Standard
  Authors:
  Ekaterina Rhodes, Simon Fraser University
  Jonn Axsen, Simon Fraser University
  Mark Jaccard, Simon Fraser University
The failure of CCS to commercialize is not due to characteristics of the technology alone.

That is one of the conclusions of a new article authored by Dr. Mark Jaccard, Dr. Chris Bataille, and Noel Melton titled “Policy uncertainty and diffusion of carbon capture and storage in an optimal region.” The article was published in the Climate Policy journal in November 2014.

The study explores the relationship between firms’ expectations of government policy and investment in CCS. Despite CCS’ potential to dramatically reduce greenhouse gas emissions in energy supply and industry, the technology remains underinvested and has failed to make it past the pilot project phase to wide-scale deployment in Canada. Using the energy-economy model CIMS, the research team modeled several scenarios of varying policy stringency and firm confidence in government policy to illustrate its effect on CCS investment and deployment. The study focused on Alberta due to its fossil resources and high CO2 storage potential.

The authors found that higher policy stringency and certainty lead to greater investment in CCS. Specifically, the study found that significant investment in CCS is unlikely to occur unless firms have a reasonable expectation that the price of carbon will exceed $100/t CO2e during the lifetime of a project. They conclude that such a level of stringency could only occur in Canada before 2020 if the government were to try to meet its greenhouse gas reduction targets through domestic reductions alone. If instead Canada participated in global emissions trading to stabilize developing country emissions and reduce developed-country emissions by 50%, substantial investment in CCS is unlikely to occur in Canada before the 2030s.

The authors conclude that the failure of CCS to commercialize points to a disconnect between government targets and the stringency of existing and anticipated policies. As the study explains, “Investment in CCS, or by extension other costly abatement actions necessary to achieve climate mitigation targets, will not occur unless governments create a significantly more stringent and durable policy environment than currently exists. In other words, the prospects for CCS will remain uncertain as long as climate policy sufficiently stringent to hit announced targets remains uncertain.”

The past few months have been busy for some EMRG members. Three EMRG graduate students recently defended their theses:

**Danette Moulé:** “Exploring pro-environmental lifestyles and values in Canada”

**Maximilian Kniewasser:** “Achieving Canada's climate targets and the impacts on Alberta's oil sands industry”

**Karen Mascarenhas:** “Public perceptions of Carbon Capture and Storage technology in Alberta: Applying an integrative framework”