August 2019 Gulf Coast Carbon Center Open House

Benefit & Risk Communication Research In The Golden Triangle Area

Rachel Lim[1],Lucy Atkinson[1], LeeAnn Kahlor[1],
Hilary Clement Olson[2], Emily Moskal[2]
[1]Stan Richards School of Advertising and PR, Moody College of Communication, The University of Texas at Austin [2]Gulf Coast Carbon Center, Bureau of Economic Geology, The University of Texas at Austin

Problem

Low CCS awareness. Around 10% among people in the U.S (Boyd et al., 2017); 67% knew very little about CCS (Kahlor et al. 2017)

Climate change. Perceive as an environmental risk, seriousness → higher support (Selma et al. 2014)

Trust. Trust varied by different information source (e.g., lower trust government and oil & gas industry, higher trust university scientists) (Kahlor et al. 2017)

Benefits and risks perception. Impacts CCS support/opposition (Huijteset al. 2007; Tokushige et al. 2007; Wallquist et al. 2012)

Misconception. Based on past experiences (e.g., similar industries, capture processes, etc.), and inaccurate info (Ashworth et al., 2015)

Research Goal

How to create messages that resonate with stakeholders in the Golden Triangle Area:

- Understanding the sociopsychological and psychological factors that shape public perception of benefit & risk of CCS
- Offer insights to formulate effective CCS messages

Research Status

Traveled to Beaumont TX (7/29-8/2)

- Focus Group Interviews/In-depth Interviews
- Visited with 30-40 stakeholders in Winnie, Beaumont, and Port Arthur, TX

Stakeholders:

- U.S Fish and Wildlife
- Lamar University
- Big Thicket Association
- Texas Point Nat'l Wildlife Refuge
- McFadden Nat'l Wildlife Refuge
- Coastal Fisheries (TPWD)
- Sea Rim State Park
- Community In-Power and Development Ass. Inc.
- International Seafarers Ass./ Center Downtown Port Arthur
- Realtors, lawyers

Key findings

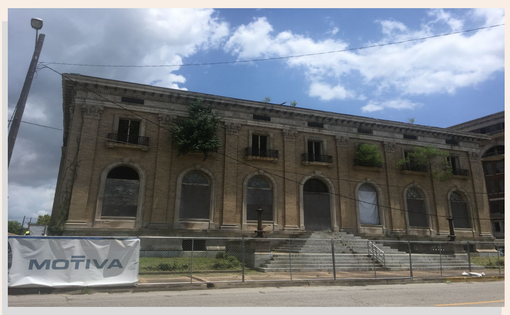
Community issue to solve over the next 10 years. Hurricane/flooding (e.g., "we are still recovering from Harvey"), health-related problems (e.g., "the air-quality issues link to cancer, respiratory and skin problems"), life quality (e.g., "entertainment, sustaining lifestyles"), community retention (e.g., "the industry is rapidly expanding, and we don't have much manpower to facilitate the change")

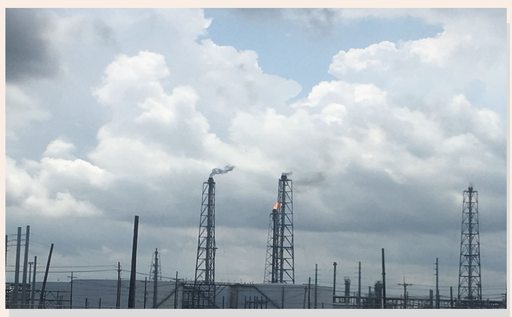
Capture and Storage. "capture" as more positive (e.g., "hopeful about capturing CO2", "I believe in capturing processes"), **"**storage" as more negative (e.g., "its only temporary …", "I am not sure if …")

Benefits. Removing CO2 from the air (e.g., "Carbon capture can improve air quality"), mitigating climate change (e.g., "less greenhouse gas"), job opportunities (e.g., "economic impact is crucial")

Concerns. Leakages (e.g., "keeping storage to a level that it cannot be a harm to the next generation"), impact on marine life (e.g., "the leakage may acidify the ocean"), earthquake (e.g., "injecting CO2"), catastrophic release (e.g., "while fishing they can be succumbed to gases") cost-benefit analysis (e.g., "we need a cost-benefit analysis", "life-cycle analysis"), uncertainties (e.g., "we just don't know much about it")

Emotions. Optimism (e.g., "I am very optimistic!"), elated (e.g., "I am elated to hear this!"), hopeful (e.g., "hopeful in making positive changes to the climate"), frustrated (e.g., "don't know about how CCS would look different from other technologies?"), anxiety (e.g., "makes me anxious"), uncertainty (e.g., "not sure if CO2 will leak"), fear (e.g., "there is always a threat in this geographical area")





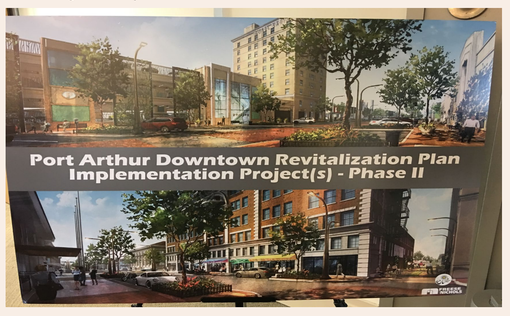
Climate change.

- Humanity is not a contributor (e.g., "climate change has been happening ever since the Earth formed," "scientists don't have consensus that it's due to anthropogenic causes")
- Low-rank among community issues (e.g., "a long-term goal," "not an immediate task")
- We are not the only one responsible (e.g., we are often referred to as the cancer belt, we produce a large proportion of energy for our nation, it is hard to agree when we are attributed as the major contributor to climate change)

Vivid experiences. Hurricanes & flooding (e.g., "we had to flee when Ike hit our town; two major hurricanes came to the same geographical areas"), Industry accidents (e.g., "silicon dust released… sandy silicon rained in the community")

Similarity. Perceptions are shaped by similar technologies (e.g., fracking, nuclear plants), industries, and processes (e.g., storing crude oil, natural gas, pipeline going underneath the property)

Tangible evidence. Desire to see measurable impact (e.g., "hope to see more measurable impact", "scientific facts and numbers", "cost-benefit analysis")



Corporate social responsibility. Motiva plans to invest $140 million dollars in Port Arthur area, revitalizing the city, and creating jobs (e.g., "I want to see industry investing to support our community", "I am excited about Motiva's investment")

Next Steps

Analyzing focus group, in-depth interviews data

- Transcribe interviews
- Analyze interviews and design messages

Planning to conduct an online experiment (Fall, 2019)

- 900 + general population (Golden Triangle Area)
- Testing different messages of carbon capture and storage (CCS)

Acknowledgments

Funded by U.S. DOE/NETL, under award number DE-FE0031558 (GoMCarb)

References

Boyd, Amanda D., Jay D. Hmielowski, and Prabu David. "Public perceptions of carbon capture and storage in Canada: Results of a national survey." International Journal of Greenhouse Gas Control 67 (2017): 1-9.
Selma, L., Orange Seigo, Simone Dohle, and Michael Siegrist. "Public perception of carbon capture and storage (CCS): A review." Renewable and Sustainable Energy Reviews 38 (2014): 848-863.
Tokushige, Kohko, Keigo Akimoto, and Toshimasa Tomoda. "Public perceptions on the acceptance of geological storage of carbon dioxide and information influencing the acceptance." International Journal of Greenhouse gas control 1, no. 1 (2007): 101-112.
Wallquist, Lasse, Selma L'Orange Seigo, Vivianne HM Visschers, and Michael Siegrist. "Public acceptance of CCS system elements: a conjoint measurement." International Journal of Greenhouse Gas Control 6 (2012): 77-83.