

Economics and Environmental Policy Research Network

Research Symposium

February 27th – 28th, 2020

Session Notes for Parallel Session #1: Designing Agile Regulations for Clean Innovation

1. State of Existing Research and Discussion Context

This session sought to explore the role of regulations in fostering clean innovation.

Key themes discussed in the session include:

- **Regulations in Canada:**
 - **Context:**
 - Though clean tech regulations are becoming more appealing in Canada, we remain in the bottom half of countries ranked by the OECD in terms of competitiveness and environmental performance.
 - To drive innovation, regulations should be stringent, flexible, and predictable (which can be challenging due to our four-year election cycles).
 - Flexible regulations are a performance standard which obligates all firms in a sector to either meet the requirement, pay others to do so, or pay significant fines.
 - **Challenges:**
 - *Regulatory Vacuums:* In Alberta, the regulatory framework governing geothermal energy developments is not yet codified, creating both challenges and opportunities. If a framework had been explicitly defined before projects arrived, developers would likely have cried foul that the existing framework was too restrictive, inflexible, and did not consider their specific project. Since there isn't one in place, developers complain that they don't know what the rules are that they need to meet because the rules are not yet codified. This is certainly a challenge when trying to get a project off the ground.
 - *Regulations blocking clean energy:* In Quebec, cement cannot be reused for bridges, making it difficult to reuse these kinds of materials.
 - Regulations can create uncertainty, can limit investment, and are seen as inflexible.
 - **Opportunities:**
 - The lack of a codified regulatory framework governing geothermal energy developments provides rich opportunities for the agile developer that can collaborate with regulators to solve public goals. One example is the Eavor-Loop project in Alberta.
 - The federal government can play a key role in de-risking innovation by using policy levers such as research funding, codes and standards, and tax incentives.
- **Clean Technology:**
 - **Context:** Clean tech faces difficulties on both the supply and demand side. We need to ensure that public benefits are being delivered despite challenges brought forth by regulatory systems.

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- **Challenges:**
 - A core issue arises from the mismatch of political timelines with the timelines involved in the evolution of technologies.
 - Clean tech companies currently face challenges in securing funding.
- **Green Economy:** The subject of green economy can be tricky in Canada as we are resource and manufacturing intensive.
 - **Challenge:** Green economy is sometimes thought of as a threat in Canada, especially to the mining, oil, and forestry sectors.
 - **Opportunity:** Green economy can also be an opportunity for these sectors, as electric vehicles will require minerals. Aluminum mining in Quebec, for example, will be needed by companies such as Apple.
- **Innovation:**
 - **Challenge:** Innovation is complex; it is non-linear and non-directional. It moves through various stages with multiple failures and restarts.
 - **Opportunities:**
 - Innovation is driving costs down.
 - Governments can get involved in innovation; it is not only for the private sector.
 - Governments can support market demand for clean technology and can help to provide a market price for clean technology which would otherwise not be the case.
- **Digitization:**
 - **Challenges:**
 - Digitization and the digital economy do not respect boundaries of countries or governments.
 - Big data, artificial intelligence, and blockchain do not have regulatory bodies in place.
 - **Opportunities:**
 - Canada can work with other nations to develop rules of conduct, regulatory symbioses, and regulations.
 - Artificial intelligence can help to identify problems within the development of new technologies, which can provide new opportunities for governments to regulate.
 - Governments can use the opportunities provided by new technologies to implement improved regulations.

Two specific examples were examined in more detail, namely:

- **Vancouver's Zero-Emission Building Plan:**
 - **Context:** The Vancouver Zero-Emission Building Plan is seen as a flexible regulation. The plan regulates the performance of both energy efficiency and carbon. The city has seen a 70% reduction in emissions from buildings and hopes to see a 90% reduction next year (compared to 2007 levels).
 - **Opportunities:** The Vancouver Zero-Emission Building Plan has given buildings the flexibility to take different pathways to develop efficient buildings.

- **Electric power production in Alberta:**
 - **Context:** Unlike other jurisdictions, Alberta does not regulate the need for electricity generation, only how the facilities are built and operated. This means Alberta leverages market mechanisms to allow project developers to determine whether to build an electricity generation facility in Alberta, including when to build it, where to build it, and what fuel source(s) to use and types of technologies. This is flexible regulation.
 - **Opportunity:** The Alberta Utilities Commission is moving to implement a “foreseeable impact assessment,” which requires developers of commercial generation facilities to predict and describe a project’s social, economic, and environmental impacts based on certain criteria. This will provide them with some flexibility as to the exact technology they end up installing even after they receive their approval.
 - **Challenge:** Regulations for small distributed generation (e.g. residential rooftop solar) and industrial system designations (e.g. industrial cogeneration units) were previously seen as flexible. As a result of cost declines, these regulations may no longer be sufficiently flexible to accommodate large commercial and industrial distributed generation (e.g. solar PV greater than 5 MW for self-supply and export; energy storage resources).

2. Research Questions Identified

- **How do we accelerate the reduction of costs to innovate?**
- **When is the right time to regulate new green/clean technologies?**
- **How do we regulate an ecosystem of digital technologies that is so diverse?**
- **Does it make sense to regulate blockchain on a national level?**
- **Why consider flexible regulations instead of, or alongside of, carbon pricing?**
- **Will flexible regulations for deep decarbonization face the same political challenge as a carbon tax?**
- When thinking about flexible regulations, many quickly cite the need to for regulation to be “technology agnostic”. Yet, many of the same parties also state that the regulation should be accommodative of their particular technology for various reasons (e.g., economic, environmental, status within research, development, and commercialization). **How should these conflicting positions be resolved in a principled way? To what extent should all forms of distribution energy resources be subject to the same regulation? Taken to an extreme, are technology agonistic regulations actually inflexible regulations?**
- **How should assets that are stranded as a result of competition or technological change be treated in the case of utilities bound by an obligation to serve?** For example, how should investments in existing distribution utility facilities that may be subject to changes in use over time be treated as a result of the adoption of emerging technologies and innovations, or new market entry?