

# **Long-Term Strategic Thinking Placing the Pembina Institute in Divergent Scenarios of the World for 2025**

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## **About the Pembina Institute**

The Pembina Institute creates sustainable energy solutions through research, education and advocacy. It promotes environmental, social and economic sustainability in the public interest by developing practical solutions for communities, individuals, governments and businesses. The Pembina Institute provides policy research leadership and education on climate change, energy issues, green economics, energy efficiency and conservation, renewable energy, and environmental governance. More information about the Pembina Institute is available at <http://www.pembina.org> or by contacting: [info@pembina.org](mailto:info@pembina.org)

# Long-Term Strategic Thinking Placing the Pembina Institute in Divergent Scenarios of the World for 2025

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# 1 Introduction

The Pembina Institute is a non-profit organization committed to achieving positive change in the energy sector. The institute is focused on four long-term behavioural change outcomes aligned with four environmental objectives:

Long-Term Behavioural Change Outcomes:

- A. The Canadian Corporate sector continuously shifts to more sustainable energy production and consumption.
- B. Communities in Canada and developing countries continuously move towards more sustainable energy production and consumption.
- C. Today's Canadian youth become empowered with the skills and knowledge to make the decisions necessary for the shift to more sustainable energy.
- D. Federal and provincial/territorial governments in Canada implement policies and programs that result in more sustainable energy production and consumption.

Objectives:

- 1. To minimize negative impacts from conventional energy.
- 2. To optimize energy conservation and efficiency.
- 3. To maximize low-impact renewable energy.
- 4. To minimize greenhouse gas emissions.

The Pembina Institute has begun to think strategically about realizing its long-term outcomes and objectives. As part of this process, the organization is using scenario planning to enhance its strategic thinking and to examine the question of focus versus diversity.

This report outlines the results of the scenario-planning process conducted by the Pembina Institute.<sup>1</sup>

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<sup>1</sup> In June 2004, Pembina's senior staff team and selected external stakeholders gathered in Calgary for a one-day scenario-building session. In July 2004, staff and board members, using the future scenarios developed at the workshop, discussed core and emergent strategies that Pembina could pursue towards its achieving long-term objectives.



# 2 Introduction to Scenario Planning

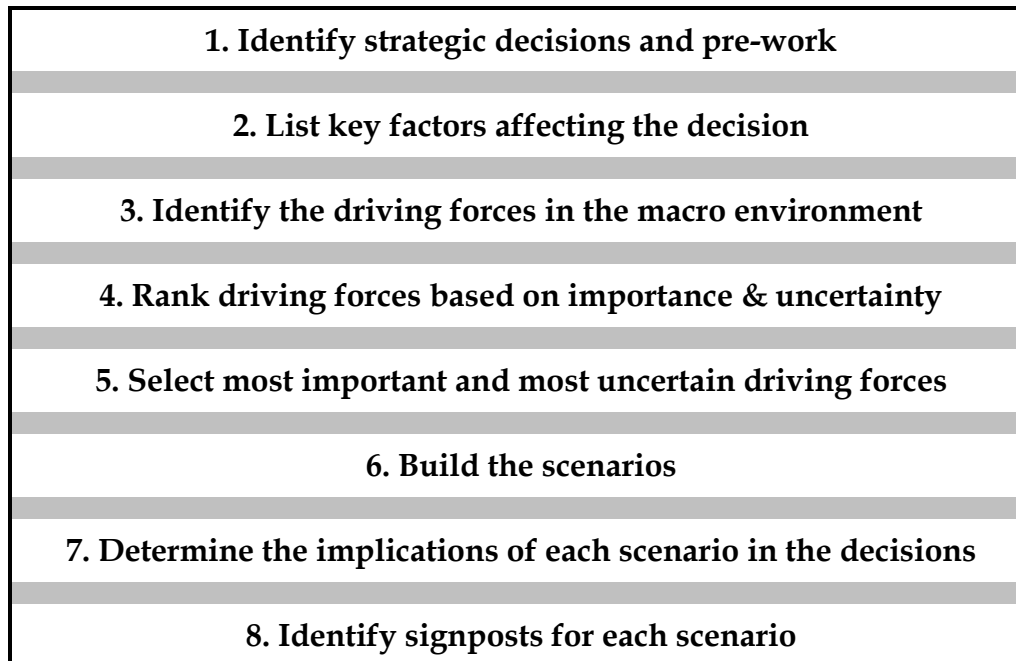
## 2.1 What Is Scenario Planning?

Scenario planning is not an exercise in trying to predict the future or in forecasting, but a process of exploring and developing strategies that can work in a variety of contexts or possible futures. The benefit of scenario planning lies in its ability to anticipate the future, thereby improving the potential of an organization to better respond to future events.

In practice, scenarios are a set of stories about the future, each one modeling a distinct, plausible world in which we might someday have to live and work. These stories are built around carefully constructed "plots" that emphasize significant elements of the world scene. Often, scenarios fall into three categories: 1) More of the same, but better; 2) worse (decay and depression); and 3) different but better (fundamental change).<sup>2</sup>

## 2.2 Steps to Creating Scenarios

The flow chart below outlines the steps taken in the scenario-planning process:



<sup>2</sup> Schwartz, Peter. 1996. *The Art of the Long View*. Doubleday, New York.

The process of building scenarios starts with identifying the focal question or strategic decision. We could craft an infinite number of stories about the future but our purpose is to develop relevant stories that will lead to more informed long-term decision making. The Pembina Institute's focal question will be: "*Over the next 20 years, what are the most effective strategies for the Pembina Institute to accomplish its long-term outcomes and objectives while remaining a viable organization?*"

Scenarios are a way of understanding the dynamics shaping the future. The next step is to identify the primary driving forces at work in the present. Driving forces roughly fall into the following categories:

- Social dynamics;
- Economic issues;
- Science and technology;
- Political issues and,
- Environmental issues.

Once identified, the driving forces have to be sorted out based on their significance, relevance, and degree of influence on events. After exploring the driving forces, we must identify the predetermined elements — forces completely outside of our control that will play out in any scenario. For instance, the number of high school students in Alberta 10 years from now is more or less predetermined by the number of elementary school children now.

After identifying the predetermined elements from the list of driving forces, we are left with a number of critical uncertainties — uncertainties that are key to the focal issue (e.g., what might cause the price of oil to rise again?). Once identified, uncertainties that have some commonality can be reduced to a single spectrum or axis of uncertainty. If the entire list of related uncertainties can be simplified into two orthogonal axes, one can define a matrix of four very different, plausible quadrants of uncertainty, or plot lines. Each of these four corners forms a logical future one can explore (See Figure 1).

- When the scenarios are fleshed out, the team can return to the focal question to envision the future and explore questions such as:
- What does the decision look like in each scenario?
- What vulnerabilities have been revealed?
- Is the decision or strategy robust across all scenarios?
- How could that strategy be adapted to make it more robust if the desired scenario shows signs of not happening.



# 3. Pembina's Scenario Planning Process

## 3.1 Focal Question and Key Driving Forces

In light of Pembina’s long-term outcomes and objectives, the strategic focal question for the scenario planning process is:

***“Over the next 20 years, what are the most effective strategies for the Pembina Institute to accomplish its long-term outcomes and objectives while remaining a viable organization?”***

During the scenario-planning session, the two most important and uncertain driving forces influencing the focal question were identified:

- Society’s Priority on the Environment
- Relative Cost of Renewable Energy

These driving forces formed the axes for the scenario plot lines. Stories were developed for each quadrant (See Figure 1).

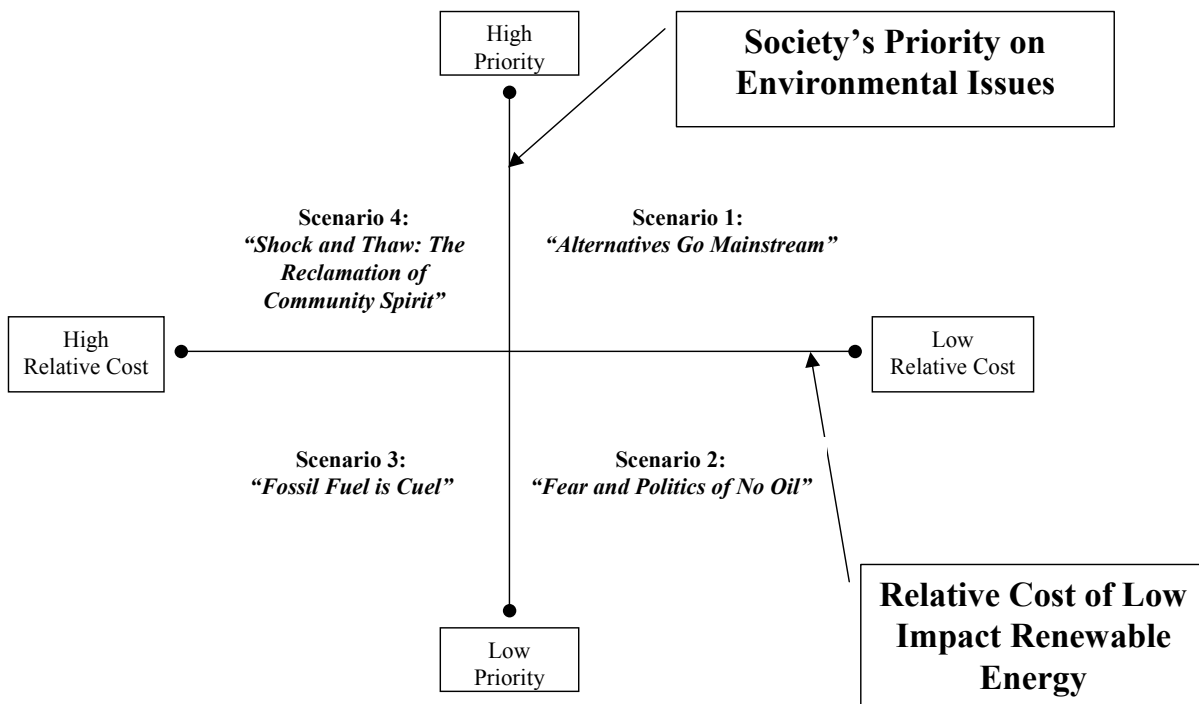


Figure 1 Pembina Institute Scenario Planning Story Plots

### 3.2 Scenario Planning Stories—Key Points

The following figure summarizes the key points of the Pembina Institute's scenario planning stories.

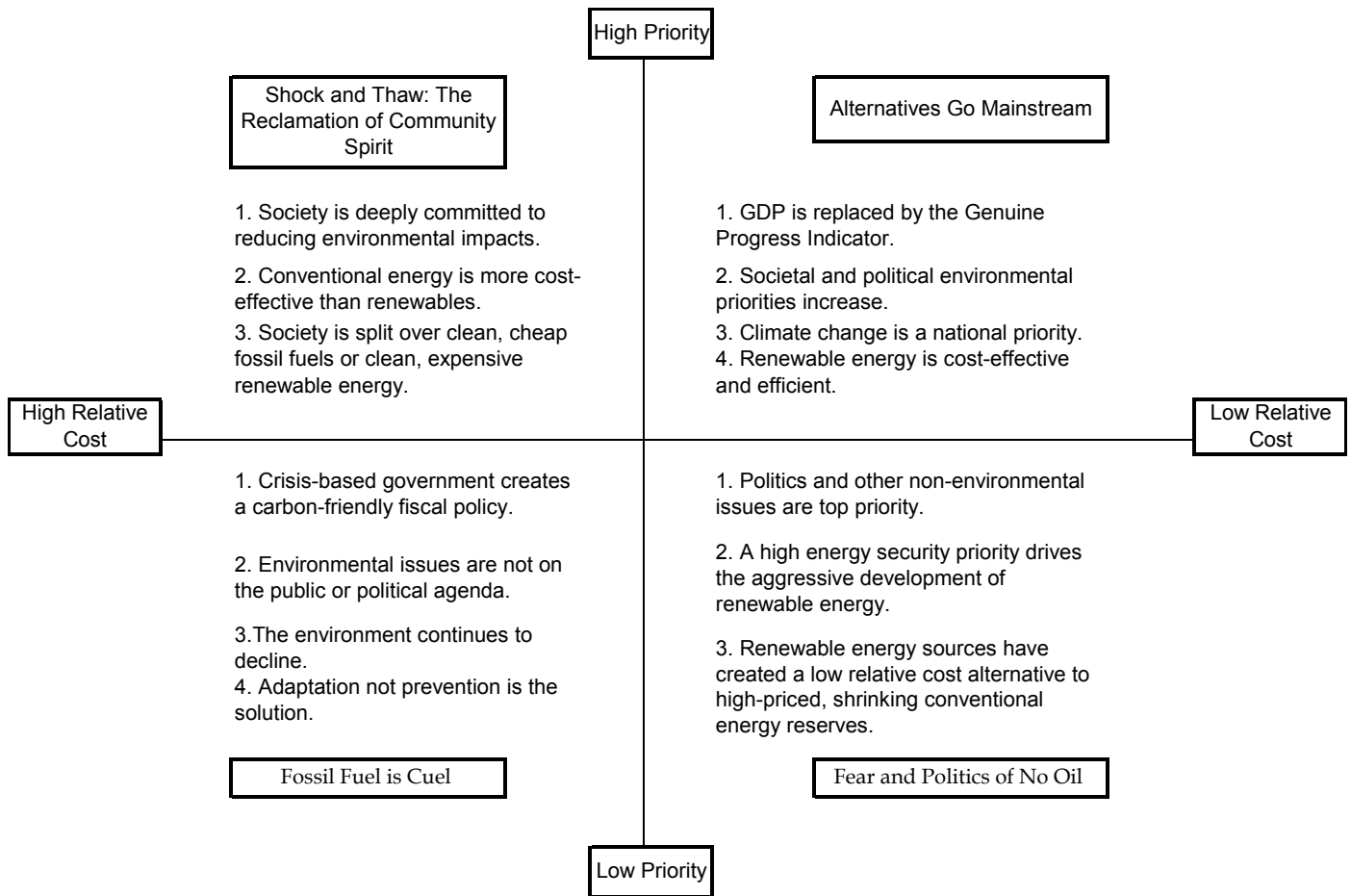


Figure 2 Point Summary of Scenario Planning Story Plots

### 3.3 Scenario Planning Stories—Key Implications

The following figure summarizes the key implications associated with each of the scenario planning stories.

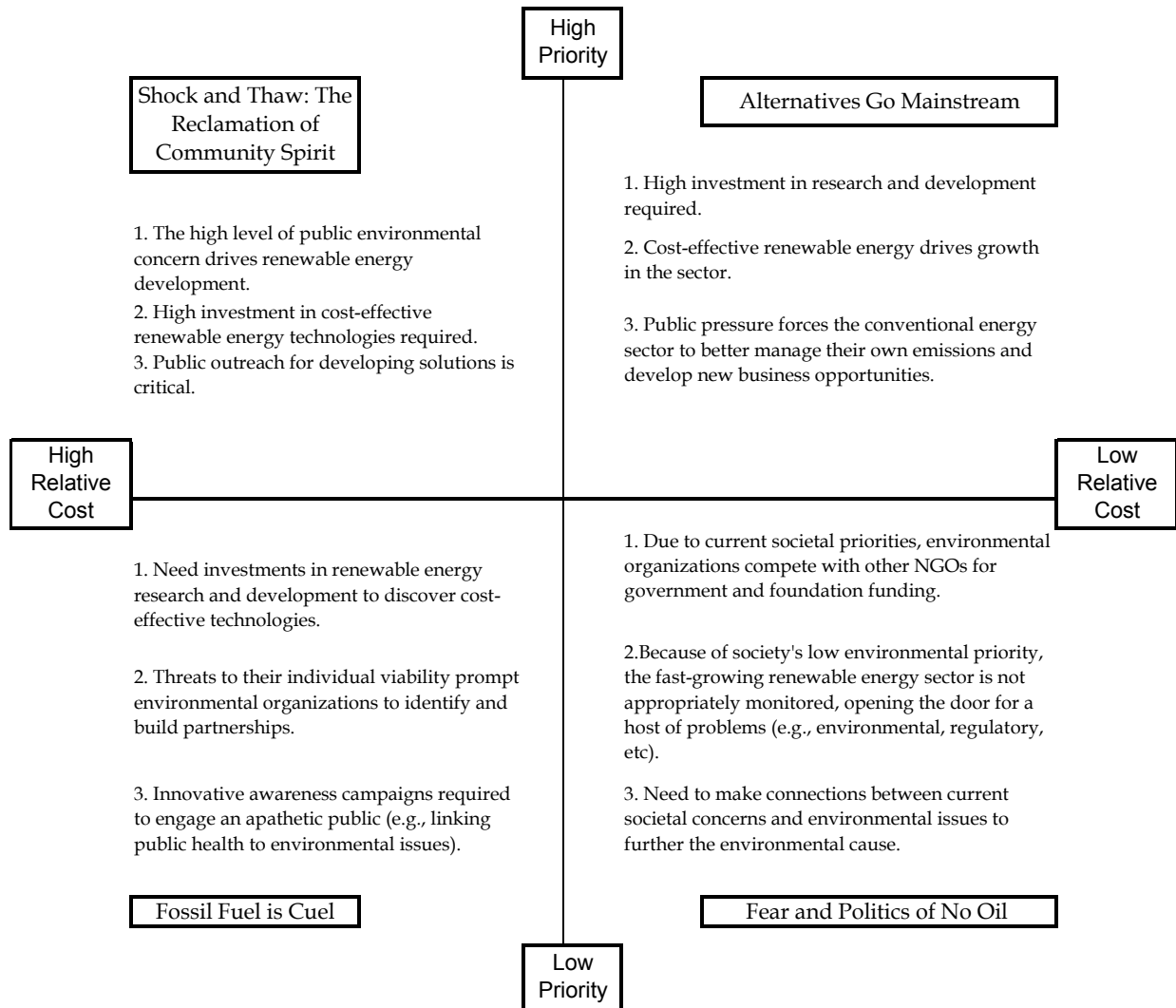


Figure 3 Scenario Planning Story Plot Implications



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# 4 The Scenarios for 2025

This section presents the four scenario-planning stories developed during the workshop. For each story, a brief description of the state of the world in 2025, including events leading up to 2025, is presented. Implications associated with the scenarios are also provided.

## 4.1 Scenario One—Alternatives Go Mainstream

### **SCENARIO 1: ALTERNATIVES GO MAINSTREAM**

**(HIGH Priority on Environment and LOW Relative Cost of Low-Impact Renewable Energy)**

#### ***State of the World in 2025***

Imagine the GDP being scrapped, replaced by the more holistic Genuine Progress Indicator. Society has become increasingly green with a high demand for eco-friendly products. Energy policies, primarily led by the U.S., focus on renewable sources. Oil and gas production decreases in favour of more cost-effective renewable sources.

On the home front, greenhouse gas (GHG) emissions are on a net decrease, with strong regulations designed to meet Canada's international commitments. Canadians have evolved spiritually, embracing a philosophy that embodies environmental connectedness. This organic social atmosphere changes the landscape; suburbs are shrinking as the population consolidates its living space in return for more green space. The Green Party, a marginal party during the early part of the century, now holds a majority government. Climate change is a national priority.

Technologically, new innovations have maximized the efficiency of renewables and perfected CO<sub>2</sub> capture. Reasonably priced and plentiful, renewables create an increase in employment. This has led to a reduction in smog and improved air quality.

#### ***How It Happens***

A series of environmental catastrophes around the world (polluting technologies are largely to blame) drive governments to embed environmental costs into "brown" technologies and non-renewable energy sources. This drives oil prices to \$US 100/barrel, sending a fossil-fuel dependent world economy into a tailspin.

A spiritual renaissance engulfs the world. Catastrophic environmental events spark concern for the environment like never before. Internationally, the U.S. admits climate change — not terrorism — is the dominating threat to homeland security. Government and society begin to "get it," and a spiritual awakening begins. Despite a tough economy, governments attempt to buy their way out of the problem by investing heavily in the research of renewable energy sources.

Before renewable energy sources become efficient and viable, the world endures an energy shortage. Oil and gas has experienced reduced subsidies, increased prices and decreased production. Distributed energy systems begin to take hold.

### ***Broad Implications of “Alternatives Go Mainstream”***

- High investment in research and development occur (e.g., carbon capture and storage, renewable energy).
- A comprehensive monitoring program is required for the renewable energy sector (i.e., a proactive approach to managing the renewable energy sector).
- Cost-effective renewable energy drives growth in this sector.
- Catastrophic events (e.g., forest fires) are used to raise awareness of environmental issues.
- Rising societal expectations drive an environmentally responsible retail sector.
- Public pressure forces the conventional energy sector to better manage their emissions and develop new business opportunities.
- Multi-stakeholder relationships (between government, industry and environmental groups) are necessary to develop a solid regulatory framework for the renewable energy sector.

### ***Implications for the Pembina Institute***

- This scenario is dependent on an environmental crisis linked to fossil fuel pollution, with government recognizing that link.
- Should these events occur, Pembina must be prepared to leverage them and ensure energy solutions are low impact.
- Pembina will need to position itself as the partner of choice for government in helping advance renewable energy technologies.
- There will likely be significant conflict between the fossil fuel industry and government. Pembina will need to balance its relationships carefully.
- Pembina’s current strengths in the fields of Genuine Progress Indicators and Ecological Fiscal Reform will be valuable in this scenario, as governments will be seeking practical policy solutions.
- Pembina will likely be in a position to diversify to non-energy issues once government has fully embraced the move to sustainable energy.
- Primary sources of funding for policy research and education will likely be the government and the renewable energy industry.

- Advocacy will likely focus on the pace of change and ensuring truly low-impact energy solutions are implemented (likely need to be prepared to get involved in the nuclear debate).
- Pembina's primary role in the environmental movement would be policy, technical research, and government lobbying.

## 4.2 Scenario Two—Fear and Politics of No Oil

### ***SCENARIO 2: FEAR AND POLITICS OF NO OIL***

***(LOW Priority on Environment and LOW Relative Cost of Low Impact Renewable Energy)***

#### ***State of the World in 2025***

Despite a number of environmental catastrophes, geopolitics and energy security issues have captured the attention of the world. Oil and gas prices rise dramatically as Al-Qaida's domination in the Middle East creates a tenuous political balance. China's demand for energy dwarfs that of the U.S. Energy security is the global issue.

In this energy-constrained world, alternative energy and energy efficiency are financially competitive. Money matters more than a direct concern for the earth. Canada has eliminated its national debt by acquiring high profit margins from conventional energy exports. However, Canada has not positioned itself well for a global market for alternative energy.

Because of the worldwide political shift and control of world energy reserves, the U.S. and Canada are nearly self-sufficient. Europe and the U.S. have implemented strong policies supporting distributed alternative energy systems and energy efficiency. China has effectively leapfrogged to small-scale energy systems. The priority of these policies is on energy security, not environmental performance.

#### ***How It Happens***

As Al-Qaida gains strength in a shaky political world, the U.S. looks to become self-sufficient in energy. Research is propelled forward in the race for energy security and self-sufficiency. Environmental priorities are severely compromised by world events. Society is adjusting to the great political power shift of China. As the population in China grows and western influence becomes even more popular, demand for energy intensifies. This increased demand fuels a rush to expand the oil sands projects.

Political pressure and strong policies that support alternative energy result in major breakthroughs in energy technology. Renewable energy sources create a low-cost alternative to high priced non-renewables.

### ***Broad Implications***

- Because of current societal priorities, Environmental Non-Governmental Organizations (ENGOS) compete with other Non-Governmental Organizations (NGOs) for government and foundation funding.
- Because of society's low environmental priority, the fast-growing small-scale energy sector is not appropriately monitored, opening the door for a host of problems (e.g., environmental, regulatory, etc).
- Threats to their individual viability prompt ENGOS to identify and build partnerships.
- Climate change is not a priority.
- With a low environmental priority, environmental education and outreach might not be an effective tactic for inspiring change.
- Need to make connections between current societal concerns and environmental issues to further the environmental cause.

### ***Implications for the Pembina Institute***

- Pembina's primary struggle is to get government to follow other countries, including the U.S., that are implementing strong policies supporting alternative energy.
- Pembina will be fighting the "Canada is your gas tank" mindset in a world where the environment does not matter.
- Need to package a clear national renewable energy strategy that supports the security priority. Solutions must be sold on economic merit rather than environmental performance.
- Use of local environmental issues related to fast-paced oil sands development will be important in this scenario.
- Partnership with U.S. and European ENGOS will be important since their progress on policy change will be faster.
- More progressive Canadian energy companies may break from the dirty ranks and invest in alternative energy given that they will have significant profits and there is international movement towards alternatives — these companies will be good allies.
- Pembina will need to support environmental agencies within governments, as they will likely be threatened in this scenario.
- Important to build and maintain top expertise in energy economics and security.
- Expertise in renewable energy policies very important in this scenario. Need to lobby for low-impact energy solutions, not just alternatives.
- Seek to influence research and development criteria for energy solutions.



## 4.1 Scenario Three—Fossil Fuel is "Cuel"

### **SCENARIO 3: "FOSSIL FUEL IS 'CUEL'"**

**(LOW Priority on Environment and HIGH Relative Cost of Low Impact Renewable Energy)**

#### **State of the World in 2025**

Imagine that a crisis-based government creates a carbon-friendly fiscal policy. This is a government run by big oil and big industry in a world where the Kyoto protocol has been quashed. Coal and oil sands crude supplies increase while prices decrease. Gas-powered cars remain a strong and popular choice for transportation. With a high jobless rate and a decline in public health, no environmental issues are on the political or public agenda. There is no apparent shift in behavior, urban form, or the economy. Technology, not behavioral change, is the solution to any problem.

With cheap and easy access to oil and gas, the environment continues its decline. Despite clear indicators of a faltering world, climate change isn't a topic of discussion for an eroding community. Ideas and solutions come from the top, with a large military to help flex its muscle. Human capital has become the substitute for environmental capital. Research and development (R&D) efforts focus on solutions to help society escape the environment. Society is happy to enter a "clean" virtual world to forget about the problems of today.

By 2025, the low societal priority on the environment, coupled with the high relative cost of low-impact energy, means climate change is a low priority. If problems are acknowledged, reactive solutions are demanded in the form of lifeboat technologies. The *Calgary Oil Times* newspaper's front-page headline reads: "Plastic Bubble Over Calgary Predicted to Reduce Annual Air Quality Deaths by 20%." This is a world focused on adaptation not prevention.

#### **How It Happens**

Driven by government ideology, Kyoto fails internationally. The pro-fossil government is re-elected, and Canadian politics continue to be reactive in the face of environmental change. Federally, Canada declares health and military spending as the key to economic renewal. Non-renewable power generation experiences rising profits as oil recovery technologies improve. Fossil fuel use skyrockets as more people travel farther in their gas guzzling Sport Utility Vehicles.

This dominant government ideology spills over into the public realm. In a society increasingly dependent on technological breakthroughs, apathy reigns after hydrogen technology fails. This is a society more interested in a "virtual" world. "Eden", an engaging 24/7 role-playing game, garners more interest than negative environmental indices. The country sees massive social cuts due to funding shortfalls.

Terrorism and fear mongering dominate the headlines. Religion is revived as the "drug of the masses." Answering the prayers of many, sea levels are reported not to be rising as quickly as predicted by the Intergovernmental Panel on Climate Change. This numbs society into further apathy and sedation.

In the long term leading up to 2025, politics and the economy become priorities while renewable energy and environmental organizations go out of business. An emerging global problem has the potential to create more damage than climate change.

### ***Broad Implications***

- Because of lack of interest in environmental issues many ENGOs go out of business.
- The media is not interested in covering environmental stories.
- Government is not offering work to environmental organizations.
- The biggest challenge will be a self-absorbed public.
- Threats to their individual viability prompt ENGOs to identify and build partnerships.
- Innovative awareness campaigns required (e.g., linking public health to environmental issues).

### ***Implications for the Pembina Institute***

- Pembina will need to better link environmental issues to people's self interest. Communications, communications, communications.
- Important for Pembina to leverage its positive image as an approach to gain public attention to the issues.
- Strongest allies will be renewable energy companies.
- Nuclear debate will be irrelevant in this scenario, as fossil fuels will dominate.
- Pembina might not be able to achieve short-term wins and instead will have to focus on longer term gains through education.
- Pembina needs to look towards prestigious, charismatic people and organizations to help keep the public's attention.
- Important to have a diversified funding base.

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## 4.3 Scenario Four—Shock and Thaw: The Reclamation of Community Spirit

**SCENARIO 4: “SHOCK AND THAW: THE RECLAMATION OF COMMUNITY SPIRIT”**  
**(HIGH Priority on Environment and HIGH Relative Cost of Low Impact Renewable Energy)**

### **State of the World in 2025**

Imagine a society deeply committed to reducing its impact on the planet. This is a world where cooperatives create venture capital. Society demands R&D for low-impact energy sources. Despite society’s high priority on the environment, the relative cost of low-impact renewable energy is high.

Renewable energy simply can’t compete with low-cost “clean” fossil fuels. Newly discovered oil and gas reserves are tapped cheaper than ever. Existing end-of-pipe pollution control systems meet stricter regulations on greenhouse gas emissions, air contaminants, and water effluents. Canadians place a high priority on environmental issues; however there is a split on the support for renewable energy. The majority of Canadians favor clean, cheap fossil fuels rather than clean, expensive renewable energy.

### **How It Happens**

A series of high-profile, tragic events such as acts of terrorism, a sweeping pandemic, and serious economic depression lead to a broad feeling of a dimming of the lights of life.

With the lack of resources and fragility of life, comes a rise in community spirit and stewardship. This is a highly innovative society with strong environmental convictions. Knowledge is rapidly shared via the Internet. All levels of government go through significant change with a power shift towards parties supporting pollution control regulations and the internalization of environmental impacts.

During the depression, corporate power is fragmented, R&D for renewable technologies is stalled, and venture capital is non-existent. Prices of fossil fuels remain relatively low because of decreased demand. As the economy slowly recovers, government places increasingly stricter regulations on pollution but does not specifically provide incentives for renewable energy. As a result, significant dollars are invested in end-of-pipe pollution solutions for conventional energy systems. Renewable energy markets in China and other major growth areas do not materialize as relatively clean conventional energy is seen as the solution. As a result, by 2025 low-impact renewable energy is still failing to meet consumer’s price expectations.

### ***Broad Implications***

- A high level of public environmental concern drives renewable energy development.
- Public outreach for clean solutions is critical.
- ENGOs need to work with the public for change.
- An environmentally aware public is supporting the government to regulate industry.
- Government/Industry/ENGO partnerships in R&D are needed.

### ***Implications for the Pembina Institute***

- Pembina's major challenge is to push for renewable solutions as opposed to end-of-pipe solutions.
- Important for Pembina to maintain technical expertise and consulting services to companies and governments.
- Energy efficiency will be an important focus area.
- Push hard on reducing the costs of renewable energy and energy efficiency. Build a strong case for greater employment from renewable energy.
- Public outreach for economically competitive solutions is critical.
- Both Ecological Fiscal Reform and Genuine Progress Indicators will be important tools in this scenario.

# 5. Cross-Cutting Implications for the Pembina Institute's Strategy

The Pembina Institute used the four scenarios to test and refine its long-term strategy. As part of this process, the organization identified some win-win strategies that are robust for all scenarios. These include:

1. Build a strong business case for low-impact renewable energy and energy efficiency.
2. Broaden linkages to energy issues from a social perspective (e.g. employment) and an economic perspective.
3. Maintain flexibility and responsiveness to emerging opportunities.
4. Target public awareness — build and maintain strong communications.
5. Educate youth — focus on experiential education
6. Strengthen strategic relationships with other ENGOs and non-environmental organizations.
7. Diversify funding sources.
8. Build, maintain, and leverage intellectual properties.
9. Leverage our past work as much as possible — i.e. use and re-use research results.
10. Continue to hire and retain top people and build intellectual capital.