Canada-Germany Resource Security: Navigating in a Changing World Order

2023

Atlantik-Brücke Canada, Konrad Adenauer Stiftung Canada & Nanos Research

ATLANTIK-BRÜCKE CANADA

KONRAD ADENAUER STIFTUNG

NANOS

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Introduction

Atlantik-Brücke Canada, Konrad Adenauer Stiftung Canada and Nanos Research have partnered to advance evidence-based dialogue between Canada and Germany by exploring binational economic opportunities.

As part of the engagement, Nanos Research conducted in-depth interviews with experts in the binational relationship to identify strategic cooperation opportunities for Germany and Canada. Through this research Nanos identified the greatest opportunity for collaboration to be related to energy resource files, including green hydrogen, critical minerals, LNG and oil and gas.

The engagement consisted of three phases, as follows:

- Phase I – Sector Identification
- Phase II – In-Depth Interviews with Sector and Policy Stakeholders
- Phase III – Environmental Scan

The following report details current media, public policy and public opinion environment related to the Canada-Germany relationship and energy, as well as opportunities for greater binational cooperation on these resource files, as well as obstacles that must be overcome, and recommendations for actions to be taken to advance these opportunities.

If you have any questions about this report, please send them by email to Jennifer Henwood at jhenwood@nanosresearch.com

About the Report

Our approach to this report included an environmental scan of current media related to the Canada-Germany relationship and energy landscape, a review of relevant public opinion research, and insight from in-depth interviews with policy and sector experts in Canada and Germany.

This report also contains recommendations for a path forward based on the environmental scan, public opinion research, and German and Canadian stakeholder insight which have been reviewed by experts who have provided their thoughts and insights on this topic.

Message from Atlantik-Brücke Canada

Atlantik Brücke Canada is pleased to present this report in collaboration with Konrad-Adenauer-Stiftung Canada and Nanos Research. Our mission at Atlantik Brücke Canada is to advance positive relations between Canada and Germany. This report explores energy and critical minerals as opportunities for increased collaboration between the two nations. It also identifies challenges and recommendations to advance a stronger partnership.

What is clear from the findings is that both countries must keep transitioning from expressions of goodwill to more concrete actions. Both Germany and Canada have not been asleep at the switch. For example, there is a working group on critical minerals within the energy partnership. However, much needs to be done. In Canada, investing in port and energy infrastructure will be critical to remaining competitive globally as an exporter. Export opportunities with Germany and the world cannot be realized unless the infrastructure investment is made. This needs to be linked to a regulatory process for infrastructure projects that is stable, orderly, and around which investments can be planned. For Germany, if it intends to be a real partner with Canada, it must invest in Canada to share the risks related to a closer relationship. It is not realistic for it to offshore financial risks on energy and critical minerals projects that have long time horizons in sectors that are realizing significant change as countries balance economic priorities with environmental aspirations.

This is especially pertinent in an environment where both Canada and Germany look to move towards a lower carbon and renewable energy transition. War in Ukraine and European dependence on Russian energy has led to a heightened focus on energy resilience. This report, containing insight from policy and sector experts in both countries, puts a spotlight on these key opportunities and ways that Canada and Germany can work together to form a strong energy partnership in the short and long-term.

We hope that the findings in this report lead to increased dialogue between senior leaders in both Canada and Germany, as well as result in concrete actions for a stronger relationship.

Nik Nanos
Chair, Atlantik-Brücke Canada
Chief Data Scientist and Founder, Nanos Research

Message from Konrad Adenauer Stiftung Canada

The promotion and deepening of German-Canadian relations is the principal task of both Atlantik-Brücke Canada and Konrad Adenauer Stiftung Canada. Both organizations are aware of their particular responsibility, expressed in the joint preparation of the present study, which came about in time as a result of an increasingly tense international security situation. The resulting central questions for the future concern both countries equally and virtually demand a combination of all political and scientific resources.

KAS Canada is very grateful to Atlantik-Brücke Canada for this initiative and to Nanos Research for its exceptionally constructive role in the genesis of this study. Without this, the collection of the data required for this investigation on the scale presented would not have been possible. The final result demonstrates that the chosen topic is in line with the priorities for future bilateral cooperation as seen by informed stakeholders.

We would like to thank our two partners for their excellent cooperation and hope that this study will be useful to many interested readers.

Dr. Norbert Eschborn
Director, Konrad Adenauer Stiftung Canada

ABOUT THE AUTHORS

Atlantik-Brücke Canada

Atlantik-Brücke Canada is a not-for-profit and non-partisan organization dedicated to the development of positive relations between Germany and Canada, partnered with Atlantik-Brücke.

We are member-driven and provide a forum for our members to learn from one another and develop direct relationships with German counterparts for the betterment of Canada. We educate our stakeholders through research intended to facilitate policy and business decisions, and we promote dialogue and thought leadership on important bilateral issues. Atlantik-Brücke Canada also contributes to the development of the next generation of leaders, through our active support of young and future members.

We fulfill our mission by:

- encouraging dialogue between senior stakeholders in Canada and Germany on the binational relationship;
- supporting academic research and thought leadership on a broad range of topics, and,
- promoting interchange among young leaders from the next generation in both countries.

For more information, please go to: https://atlantik-bruecke.ca/

Konrad Adenauer Stiftung Canada

The Konrad-Adenauer-Stiftung e.V. (KAS, Konrad Adenauer Foundation) is one of six so-called political foundations of Germany and is politically associated with, but legally and financially independent of, the Christian Democratic Union (CDU), post-war Germany's governing party for more than 50 years. As cofounder of the CDU and the first Chancellor of the Federal Republic of Germany, Konrad Adenauer (1876-1967) united Christian-social, conservative and liberal traditions. His name is synonymous with the democratic reconstruction of Germany, the firm alignment of foreign policy with the transatlantic community of values, the vision of a unified Europe and an orientation towards the social market economy. His political legacy continues to serve both as our aim as well as our obligation today. Nationally and internationally, KAS promotes freedom, peace, and justice through civic education. Our offices worldwide are in charge of over 200 projects in more than 120 countries and focus on consolidating democracy, promoting European integration, the strengthening of transatlantic relations, as well as on development cooperation. We cooperate with governmental institutions, political parties, civil society organizations and decision-makers, building strong partnerships along the way. Together with our partners we make a contribution to maintaining and developing a rules-based international system that enables every country to develop in freedom and under

its own responsibility. In Canada, we also seek to intensify political cooperation between Germany and Canada to strengthen transatlantic relations and to address common challenges of global nature. For more information, please go to: kas.de/en/web/canada/home.

Nanos Research

Nanos Research Corporation is a national leader in Canada's research industry. Since 1987, Nanos has been called upon and trusted by corporations, governments, and major national public interests to provide them with the value-added intelligence critical to their success. Our expertise in conducting public opinion and strategy research extends to a wide variety of clients ranging from Fortune 500 companies through to leading advocacy groups interested in understanding and shaping the public landscape.

Nanos Research is continually in the field conducting quantitative market and public opinion research across North America and has conducted numerous projects related to energy and the environment for clients in the energy sector such as the University of Ottawa Positive Energy Collaboratory, the Canadian Propane Association, Shell Canada, the Canadian Nuclear Safety Commission, the Canadian Independent Petroleum Marketers Association, the Canadian Wind Energy Association, Blue Green Canada, Clean Energy Canada, the Canadian Centre for Energy Information, Senvion, and the Thousand Islands Energy Research Forum. Nanos also regularly tracks views on the Canadian-German relationship for Atlantik-Brücke Canada.

The firm's polling data has appeared in all of Canada's major print and electronic media outlets including the CBC, CTV, CPAC, Globe and Mail, and the Toronto Star, as well as international media outlets such as the Wall Street Journal, The Guardian, and The Economist Magazine.

Not only does Nanos have research practices which meet or exceed industry standards, but we have a reliable track record where we have accurately predicted within the margin of error every federal and provincial election we have ever polled in. The Nanos track record of accurately capturing opinion extends to consumer sentiment where the weekly tracking for the Bloomberg Nanos Canadian Confidence Index strongly correlates to real world economic data.

For more information, please go to: https://nanos.co

METHODOLOGY

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experts consulted to identify sector to study

18

energy sector stakeholders consulted

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policy stakeholders consulted

19

sources consulted in the environmental scan

As part of a larger overall engagement exploring the relationship between Canada and Germany and potential avenues for collaboration and further research, Nanos Research consulted with 27 experts and stakeholders, in Germany and Canada. The purpose of the research was to identify opportunities for potential cooperation between Canada and Germany on a variety of resource files including but not limited to green hydrogen, critical minerals, LNG, and oil and gas.

The engagement consisted of three phases, as follows:

Phase I – Sector Identification – Consultation with three experts on the binational relationship to provide a recommendation on the sector of interest for the study in the form of in-depth interviews. The findings of the in-depth interviews were utilized to provide a recommendation on energy as the specific sector of interest.

Phase II – In-Depth Interviews with German and Canadian Stakeholders – In-depth interviews with 27 stakeholders from Canada and Germany who are sector and/or policy experts to examine opportunities for collaboration within the energy sector, the current public policy environment surrounding the sector, as well as obstacles and recommendations to advancing the binational collaboration.

Phase III – Environmental Scan of Sector Data – Nanos Research collected sector data in the public domain through a media scan to quantify the existing environment and potential opportunities within the sector.

Expert External Review

Review/Comments to the report “Canada-Germany Resource Security: Navigating in a Changing World Order”

Frank Umbach

University of Bonn, Germany
Senior Associate of the Centre for European Security Strategies (CESS) in Munich-Berlin and Consultant on International Energy Security.

When I was on a presentation tour in Canada on energy security and transatlantic energy policies a decade ago in 2011 on the invitation of the German Embassy in Ottawa, I found much interest in my talks and discussions with Canadian energy experts for enhancing our bilateral energy cooperation – partly for the reason that many Canadian experts have favoured a diversification of their energy exports for reducing its dependence on the U.S. markets.

When the German Chancellor Olaf Scholz and Economic Minister Robert Habeck visited Canada in August 2022 to support Canadian LNG imports for Germany’s newly charted 5 Floating Storage Regasification Units (FSRUs) (with a first one beginning its operation next December) in the short-term and Canadian green hydrogen as well as critical mineral exports to Germany in the mid- and long-term, their mutual interests appeared to fit perfectly as “Canada has the resources and Germany the market” as this report has outlined for their bilateral partnership.

But as this new report on bilateral resource cooperation, based on interviews and consultations with 27 experts and stakeholders, highlights correctly, their mutual interests and future collaboration is presently hampered by a lack of sufficient Canadian infrastructure such as LNG and hydrogen export terminals and long-distance pipelines for transporting oil and gas to its east coast (only one LNG import terminal is existing there) and new mines of critical raw materials and minerals. While Germany is at present desperately seeking LNG import volumes for replacing Russian pipeline gas, it will equally reduce its overall gas consumption and LNG imports by 2030 and phasing out any natural gas consumption as well as LNG imports afterwards. By contrast, Canada is looking for long-term investments and supply contracts to justify the huge investments into costly LNG import terminals and long-distance pipelines to its east coast.

Confirmed by public opinion research and media reports, both countries perceive each other as like-minded partners with shared political, business, and environmental values. The interviews have also confirmed the overall importance having a reliable energy partner in terms of supply – particularly on the German side after the collective misjudgements with Russia as an authoritarian state, but reliable energy partner and, thereby, overlooking its geopolitical interests by weaponizing energy dependencies as a geopolitical instrument.

Thus, the mutual collaboration between Canada and Germany for green hydrogen and critical mineral supplies appear more promising and realistic in the mid-term perspective than any short-term LNG exports to Germany. But both need to work on mutual investment conditions, define common (global) standards, overcome regulatory challenges, enhance cost effectiveness in a global competitive environment and quicken the approval processes on both sides to translate their mutual interest into concrete common lighthouse projects and a bilateral strategic energy as well as raw material cooperation.

By highlighting these pre-conditions for enhancing their mutual resource cooperation for the transatlantic energy transition and decarbonization, the report defines the mutual interests and realistic perspectives of a still underestimated and somehow dormant bilateral German-Canadian energy and resource cooperation for the years and decades to come. Anyone who is interested at this bilateral Canadian-German energy and resource cooperation, will benefit from this report highlighting the prospects and the barriers to overcome for translating the mutual interest into realties with a common energy future based on concrete projects.

Foreword for "Canada-Germany Resource Security: Navigating in a Changing World Order"

Pierre-Olivier Pineau

Montréal, QC, Canada

Research Chair, Energy Sector Management at HEC Montreal

As energy crises come one after the other, every country must rethink its energy policy and strategy. Canada and Germany are no exception. However, as both are leaders in many fields, share many values and have a strong relationship with each other, it is natural for them to explore if their complementarity in energy can help them in reshuffling their respective energy sectors. Canada, a net energy exporter, could indeed partner with Germany, a net energy importer, to secure an energy partnership helping them overcoming future energy crises.

In order to do so, a good knowledge of the landscape is required. This document provides an excellent summary of the key opportunities and challenges that Canada and Germany face when considering deepening their energy relationship. We learn here not from the state of the resources, markets and technologies, but from the perceptions of key stakeholders from both countries. Their views are probably as much, if not more, important than the underlying reality of the energy sectors in Canada and Germany, because they are representative of the human drivers behind agreements and projects.

Much would need to be done if Canada and Germany were to build a strong energy partnership. Internal challenges in both countries would have to resolved, since decentralization of power creates internal frictions and limits the ability of the two Federal governments to directly deal with each other. A coherent bi-national framework would have to be developed, to offer the required long-term perspective economic actors need to work on new projects, answering non-traditional demands such as low and no carbon energy sources, at stable and (preferably) affordable costs. Existing energy markets in OECD countries are on the contrary dominated by high price volatility and companies focused on short-term profitability, unused to fully consider the carbon cost of their products.

The key contribution of the report *Canada-Germany Resource Security: Navigating in a Changing World Order* is to clearly present the lay of the human land, in each country, on which any future cooperation will have to rest. Many efforts will have to be made to secure our energy future – it is therefore extremely important to benefit from such a report. We cannot afford to ignore the views of the current key stakeholders, otherwise our misunderstandings will keep us away from the winning strategies.

Make Canada and Germany Resilient again! Thoughts on the paper: Canada-Germany Resource Security: Navigating in a Changing World Order

Ulrich Blum

Martin-Luther-University Halle-Wittenberg, Germany

Professor of Economics and CEO ITEL – Deutsches Lithiuminstitut GmbH

The Western world has lost economic and political resilience. The Purpose is to establish a mutually beneficial technological partnership around resources that make both countries resilient and robust against external shocks.

The text below analyzes the strategical arguments that directly and indirectly follow from the article and translates these into a geo-economic concept.

Situation analysis from a Western perspective

1. Systems' rivalry between the West and China, but also between the West and some Emerging Countries including the oil-producing world is challenging the order-based world system. Chinese expansionism and Russian revisionism have made the world less safe – major wars have become thinkable in Europe and in East Asia.
2. The Western World has an *Achilles Heel* in the supply of critical minerals necessary to make it less energy dependent, especial vis-à-vis China, for instance rare earths: 61%. The reliance on China is even more extreme in the field of chemical processing and refining: Nickel 68%, Cobalt 73%; graphite 100%, lithium 59%, manganese 93%. This continues in specialized production: anodes: 89%, cathodes 80% cells: 79%.[1]
3. A common risk in both Canada and Germany comes with the loss of processing and early stages in the value chain; then, a continuous erosion of downstream the value chain is likely. In the extreme case, this would reduce Canada to a resource country, Germany to a consumption country. Tradeable goods for both would be produced in extended workbenches elsewhere.
4. Future economic wealth will depend on an abundance of (cheap) energy, an abundance of (brainy) young people and technological sovereignty in strategic fields such as resources, energy, and defense. Canada has resources, cheap energy, and a positive record of welcoming and integrating immigrants. Germany has many leading-edge Original Equipment Manufacturers (OEMs) and Global Medium-Sized Enterprises (GMEs) that would culturally fit into Canadian value structures. It has a leading industry in the Internet of Things (IoT, "Industry 4.0").

[1] US -Geological Survey; Benchmark Minerals Intelligence.

5. Resource security implies the security of the value chain from mining to the final product. The sanctions against Russia show that deposits alone are not helpful if the supply of technology (from recovery to transport and chemical processing/refining) is halted.

This leads to the following evaluation:

- Reshoring and friendshoring may reduce comparative advantage and positive externalities of trade, but these losses may have to be compared to the costs of supply-chain interruptions – as presently visible. Globalization, slowbalization and deglobalization should be evaluated from a rational perspective. Moreover, it is inefficient to allocate the savings from free trade to firms, and the costs to nation states.
- It cannot be expected that an economic advantage is not exploited at home as long as it can be absorbed. Hydrogen, for instance, will only be exported from Canada to Germany or Europe in case of excess supply. From the German perspective, this means that it is in its own interest to promote production technologies also in Canada as well as to address the potential of integrating technologies in resource-based value chains that promote Canadian labor markets.
- Because of shared value structures, Canada and Germany should be able to quickly agree on environmental standards, Environmental, Social and Corporate Governance (ESG) standards – and potentially: the unifying of corporate rating and ESG in a consistent standard, thus promoting markets for their products.

The consequences to take are:

1. In a world in which hybrid war, especially economic war has become normal and in which existing certainties are challenged, societies with shared value systems must exploit these as a fundamental, trust-guaranteeing externality. The aim is to build a club that provides technological sovereignty to its members. In such an alliance, certain technologies that presently seem to be obsolete might be preserved as their future need may be unsure (i.e., coal mining would become a good option).
2. Given this basis, other externalities can be raised from cooperation, especially in the downstream development of specialized resource-based industries. This would make the Canadian-German world more resilient. Firms should become industrial leaders, i.e., define the length of product or market life cycles.
3. The reduction of dependence and thus, a reduced economic relevance of systems' rivalry would make the world safer by reducing dependencies – and blackmail potentials.

Commentary on 'Canada-Germany Resources Security: Navigating in a Changing World Order'

Jim Dewald

Calgary, AB, Canada

Dean at Haskayne School of Business

My perspective on this research on Canada-Germany Resource Security is from a management theory and practice, and more specifically business strategy and entrepreneurial thinking principles, as an exploratory lens to understand public policy challenges.

In other words, how would this situation be expected to play out if Canada and Germany were corporations?

We must recognize and acknowledge that there are significant differences between governments and companies, but the analysis provides an informative perspective.

Having read the report, *Canada-Germany Resource Security: Navigating in a Changing World Order*, and other related work, if Canada and Germany were corporations, their strategic positioning would be considered massive failures, particularly on the part of Canada. The prime problem is that excuse-making for internal failures, combined with purposeful distraction via long-term solutions anchored by unknown applications of unscaled and unproven technologies are, at best, strategic options. At worst, they are a dream. Such speculation would not provide the foundation of a positive business relationship and certainly would not cut it as forming a business relationship.

As with corporations, these nations should be thoughtful and forward-looking in pursuing ways to work together to bring forth hydrogen as a viable alternative energy source. But no business would survive if their business dealings were grounded in such uncertain and unproven foundations. This is an option for the future, an investment in research and development, an idea that should sit alongside a myriad of other ideas in hopes that one of many might work out. What works for political popularity by making governments look progressive and concerned about important environmental and social concerns simply does not measure up to the hard realities of a CEO needing to make payroll.

If Canada were a corporation, particularly a powerful corporation with the ability to grant permits, and shift priorities, and with three years to invest before facing the next shareholder meeting, the C-suite would see this as a great opportunity to do something that has not been done before. When the hard realities of economics (and Environmental Social and Governance priorities) are put to the front, it is much more reliable to "move mountains" by slashing timelines, focusing research on efficiency and optimization instead of placing all eggs in the basket of pioneering unproven ideas. When one has a secure dependable customer, secure reliable resources, and only need to do it faster, this would be far more attractive to any CEO.

This situation is Canada's moonshot opportunity to save the day from the wrath of a brutal dictator. It is the stuff that history books are made of, and less risky in the whole scheme of energy contributions than the far-off pledge to be hydrogen suppliers to the world.

When I first took on this assignment, I actually expected to come to an opposite conclusion. However, the obstacles to making a nearer term difference are mostly (or all) human-made and fixable. Also, effective contracting with customers should severely mitigate the economic risks.

One final thought, as it is now becoming clear that Canada has excess gas supplies, and that natural gas will be part of the energy mix for a prolonged period of time, in a business environment competitors and customers might wonder if hoarding were being applied for long-term strategic benefit. I sincerely hope that Europeans freezing through this winter do not feel Canada is playing a game here.

Recommendations

Based on the consultations with sector and policy stakeholders, experts and a thorough review of relevant media coverage and public opinion research, the following recommendations have been identified for Canada and Germany to consider to better realize potential opportunities for collaboration.

Both Canada and Germany

1. **Prioritize critical minerals and green hydrogen –** These energy forms were identified by stakeholders as the largest opportunities for Canada and Germany to have closer collaboration, especially as Germany and Canada begin an energy transition away from oil and gas and towards de-carbonization and net-zero. While there is a need for Germany to move away from dependence on Russian oil in the immediate short-term, ultimately there are too many obstacles to make this a feasible opportunity within that timeline.

2. **Put forth investment in needed infrastructure –** Across all four key energy files, stakeholders in both Canada and Germany identified a lack of infrastructure as an obstacle. This includes port infrastructure, pipelines for transporting oil, mines for critical minerals, and terminals for LNG and green hydrogen. Both countries require additional infrastructure in order to import or export energy supply and these opportunities cannot be realized until the infrastructure is in place.

3. **Work together on regulations and standards –** Canada and Germany should work together to develop standards and regulations, especially related to critical minerals and green hydrogen, as stakeholders feel that commonly accepted standards and practices may help speed up approval processes and instill greater confidence in each other as energy partners.

4. **Develop a strategic plan for the partnership –** Stakeholders identified a lack of communication and trust as obstacles to a potential energy partnership, and while there is an existing working group on critical minerals between the countries that aims to improve this, continuing to develop other collaborative efforts and an overall strategic plan for a Canada-Germany energy partnership will be key to build out that relationship and ensure agreement on the processes and systems from the beginning.

5. **Show viability of technology and supply –** Both governments should conduct small pilot projects to demonstrate the use and value of technology and energy in order to boost private investment and marketability, especially related to green hydrogen.

Germany

1. **Consider revisiting additionality policy –** This policy, which states that a country supplying energy into Germany cannot utilize existing resources or infrastructure to do so, was identified as an obstacle especially relevant to green hydrogen and critical minerals. As Canada already has a number of existing hydro plants and other relevant infrastructure and capacity, this policy renders that existing capacity moot. The policy requires Canada to build all new infrastructure, which will require extensive investment, as well as lead to longer lead-times for Canada being able to provide green hydrogen to Germany, both of which will limit potential opportunities for collaboration.

2. **Provide security for Canada's investments –** Germany should provide the security to Canada of offtake agreements and possibly funding to offset the price differences in green hydrogen vs other forms of hydrogen. If Canada has this security, it can develop the market and begin production of green hydrogen without the risks related to unknown costs and unknown market.

3. **Take on the risks alongside Canada –** In order to form a true energy partnership, it will be critical for Germany to help Canada shoulder the risks associated with these energy projects and critical minerals rather than offshoring them onto Canada. Germany can do so by investing in Canada to help move these projects forward.

Canada

1. **Improve regulatory approval process timelines** - A major obstacle identified by stakeholders, especially for critical minerals, is the long timeline for permits and regulatory approvals in Canada. The federal Canadian government should work to find ways to make this process more efficient, including supporting offtake agreements to speed things up.

2. **Develop a domestic strategic energy plan with provinces –** Canada should work with provinces to develop a strategic plan for Canada's energy supply in both the short and long-term. Differing views across Canada pose challenges to building the needed infrastructure to supply Germany with energy and, while it will be a challenge, there needs to be some form of standardized strategy for Canada's energy policy.

3. **Demonstrate leadership and interest** – The Canadian government should demonstrate its willingness to be a leader on the energy transition and show interest in supplying energy to Germany and developing green hydrogen as a market.

4. **Ensure proper consultation with Indigenous Peoples** – As energy projects often have an impact on the environment and resources, it will be important for Canada to engage and consult with Indigenous Peoples for any new energy projects or opportunities, especially related to mining and pipelines. This is also key to ensuring that all energy projects in Canada have a focus on ESG, which is something that Germany is looking to do as well moving forward.

Current Relationship Between Canada and Germany

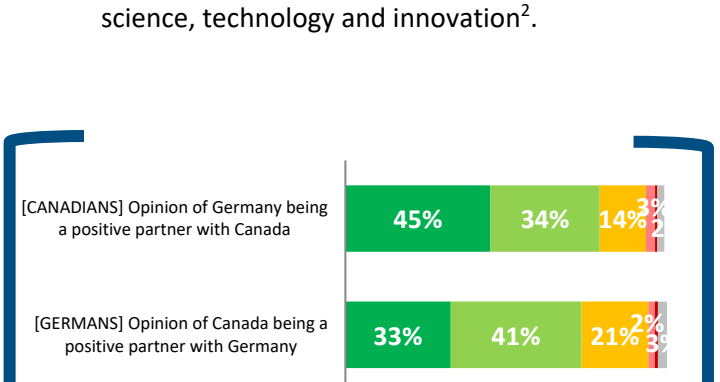
Media Context

German-Canadian relations are based on common values and shared fundamental convictions. According to the German Government these include a shared commitment to preserving the rules-based international order in fields such as security and disarmament, human rights and climate and energy policy[1]. Canada and Germany have collaborated closely when dealing with the economic and political impact of the COVID-19 pandemic, have a strong trade relationship, and when it comes to cooperation in science and research, Canada is one of Germany's most important partners worldwide[1].

Similarly, the Government of Canada boasts that Canada and Germany are like-minded global partners that enjoy a close partnership with a shared commitment to bolstering multilateralism and the rules-based international order, including most recently through the Alliance for Multilateralism[2]. Also mentioned is an active cultural and academic exchange to promote strong cultural connections, Germany as a key economic partner for Canada (Germany is Canada's largest merchandise export market in the EU, and its sixth-largest trading partner globally), and their dynamic relationship in science, technology and innovation[2].

Nanos Public Opinion Research

According to recent public opinion research conducted by Nanos in May 2022, about eight in ten Canadians have a positive (46%) or somewhat positive (34%) view of Germany in terms of being a positive partner with Canada – the UK and Germany were most likely to be seen as positive partners for Canada compared to other countries like France, Mexico, the US and China[3]. Similarly, about three in four Germans have a positive (33%) or somewhat positive (41%) view of Canada in terms of being a positive partner with Germany – with France and Canada most likely to be seen as positive partners for Germany compared to other countries. Germans are most comfortable (score of 7 to 10 out of 10) with Canada (64%) as an energy partner for Germany and a majority of Canadians say the same for Germany (61%), along with the United States (61%) and Australia



(62%)[3]. Russia is given the lowest rating (score of 0 to 3 out of 10) by both Canadians (90%) and Germans (75%)[3]. Based on the views of the general public from both countries, Canada and Germany are logical partners on energy.

Canadians are hungry for collaboration with their German counterparts - about four in five Canadians think Canada should have strong cooperation with Europe when it comes to working together on security issues as well as on

trade and prosperity issues. Canadians show higher levels of intensity compared to Germans when it comes to the level of collaboration there should be whether on security issues (80% of Canadians, 51% of Germans), trade and prosperity issues (79% of Canadians, 52% of Germans), or cooperation between Canadian and European/German universities (68% of Canadians, 55% of Germans)[3]. In another study by Nanos conducted in July 2022, Canadians also ranked Germany as a top country (after Britain and the US) that is closest with Canada in terms of human rights and business values[4].

Interviews with Stakeholders

Describing current Canada and Germany relationship

The relationship between Canada and Germany as a whole is seen as largely positive by stakeholders in both countries and they paint a picture of a friendly and cordial relationship built on a foundation of shared values, collaboration, and partnership. Despite these positive views, stakeholders are split on the future of the relationship with an equal number of stakeholders each describing the relationship as getting stronger and improving or minimal and weakening, with a sense of complacency. Other descriptions included being open and transparent, as well as the relationship being long-standing and well-established.

> ***The Canadian-German relationship is described as friendly, positive and built on a foundation of shared values and collaboration.***

Table 1: What words would you use to describe the relationship between Canada and Germany today? [OPEN-ENDED]

Words Describing Relationship (Top Mentions)	Frequency (n=80)*
Friendly/cordial/good	13 mentions
Shared values/democracy	12 mentions
Collaborative/cooperative	9 mentions
Allies/partners	9 mentions
Getting stronger/improving	4 mentions
Weak/minimal	4 mentions
Open/transparent/honest	4 mentions
Long standing/well established	3 mentions

***Based on multiple mentions**

Shared values between Canada and Germany

> ***"…we know that democracy, human rights, and freedom are under a lot of pressure and it will only increase in the future...We now know that it is very important to have these values and visions of the world as humans to work together and shape the world to make it a better place." - German Stakeholder***

Democracy and a respect for freedoms and human rights are values that the sector and policy stakeholders feel are shared and valued by both Canada and Germany, and a number of stakeholders consulted emphasize the importance of these values in the current reality, especially with the ongoing conflict between Russia and Ukraine. Stakeholders also identified shared values under the umbrella of environmentalism, including a strong desire to move forward on climate action, striving for de-carbonization and net-zero and the energy transition. German and Canadian stakeholders also mention the rule of law as a shared value between the two nations, as well as a focus on the economy and economic development, including having market-based economies and prioritizing trade.

Table 2: What would you say are some shared values between Canada and Germany? [OPEN-ENDED]

Shared Values (Top Mentions)	Frequency (n=101)*
Democracy	17 mentions
De-carbonization/net-zero	9 mentions
Human rights	8 mentions
Freedom	8 mentions
Rule of law	8 mentions
Market based economies/trade	6 mentions
Energy transition	6 mentions
Climate change/environmentalism	5 mentions
Honesty/transparency/trustworthiness	5 mentions
Economy/economic development	5 mentions

***Based on multiple mentions**

Challenges to the bilateral relationship

In terms of challenges facing the relationship between Canada and Germany, pressure and the seemingly urgent need for Canada to help Germany transition quickly from Russian oil emerged as a top challenge, with consulted stakeholders noting that this can be a challenge due to Canada's slow regulatory approval processes, as well as a current lack of the correct infrastructure and minerals needed to help Germany as quickly as may be needed. Another challenge mentioned is Germany's lack of acceptance and negative perceptions of fracking and Canada's oil and gas sector, as well as Canada's lack of needed infrastructure and supply, as noted above. Stakeholders also mentioned a lack of understanding in Canada of Germany and viewing Germany as synonymous to Europe as a whole, Germany being more active on the climate change file than Canada, and the two countries simply having different energy situations and realities.

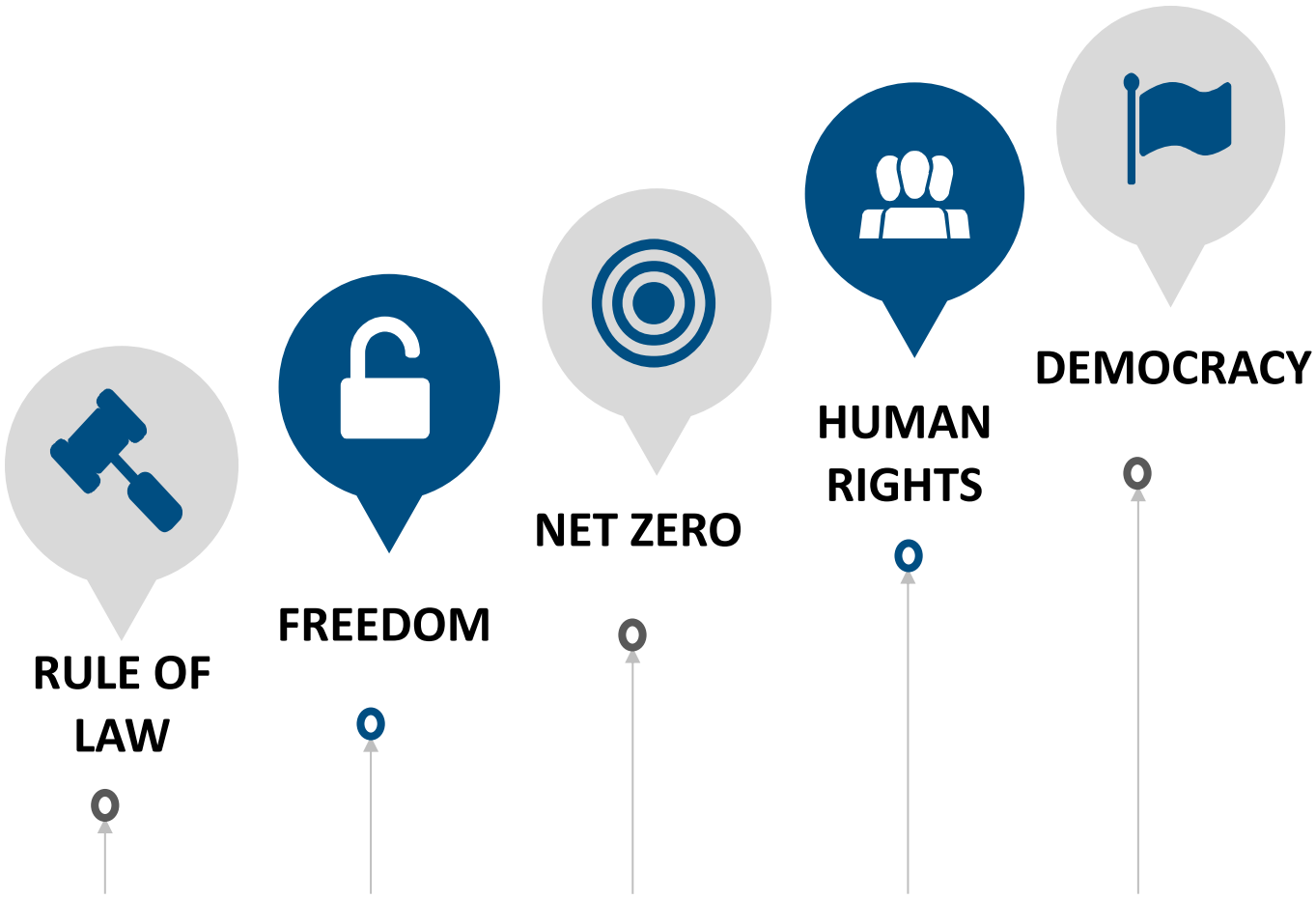
> ***"For the future, the only challenge could be Canada figuring out how to help Germany balance their energy targets, including the path to net zero, and getting them less dependent on Russia's oil as quickly as possible."***
> ***- Canadian Stakeholder [sector leader]***

Table 3: What challenges might there be in the Canada Germany relationship as a whole? [OPEN-ENDED]

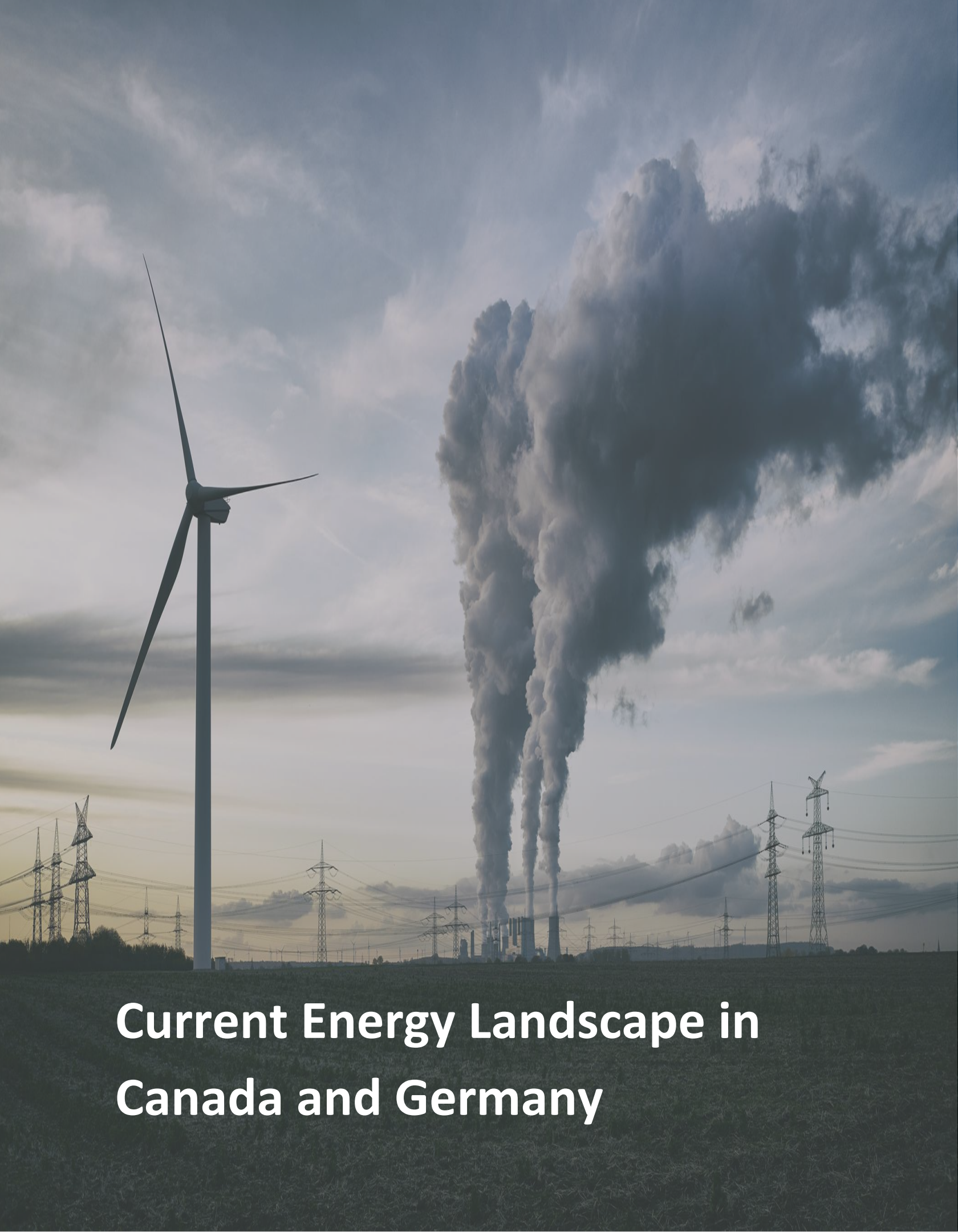
Challenges to Relationship (Top Mentions)	Frequency (n=58)*
Pressure/push to help Germany transition from Russian oil	8 mentions
Germany not accepting of fracking/Canada's oil and gas	5 mentions
Canada lacks supply/infrastructure/minerals	6 mentions
Canada not understanding Germany/seeing Germany as completely different	4 mentions
Different situations/realities	4 mentions
Germany more active on climate	4 mentions
Shipping/transport challenges related to energy	3 mentions

***Based on multiple mentions**

Shared Values



Q What would you say are some shared values between Canada and Germany? [OPEN-ENDED]



Current Energy Landscape in Canada and Germany

Media Context

Current Canadian Energy Landscape

While Canada has some of the world's largest reserves of oil and gas, along with world class deposits of many critical minerals, Canada is also a world leader in hydroelectricity production, ranks fourth largest as a natural gas producer, fourth largest as a crude oil producer, and tenth largest as a renewable electricity generator[5]. Canada's energy sector made up 9.2% of Canada's GDP in 2017 and approximately 11% in 2022[5,6].

Canadian production of crude oil is centered in western Canada (Alberta and Saskatchewan), which accounted for about 95% of total production in 2020 – the remaining 5% was produced mostly in Newfoundland and Labrador[5]. In 2020, 75% of the total Canadian production was exported to the United States (U.S.). Natural gas production is also centered in western Canada with Alberta and British Columbia accounting for almost 98% of Canadian natural gas production in 2020. Smaller amounts of natural gas are produced in Saskatchewan, New Brunswick, Ontario, and the Northwest Territories. As production of oil and gas is centered in western Canada and exports are largely to the United States, infrastructure is sparse on the east coast of Canada[5].

As the holder of the some of the world's largest reserves of oil and gas, along with world class deposits of many critical minerals needed for the energy transition, Canada is well-positioned to meet the energy needs of its allies and partners[7]. This position has been especially spotlighted with the Russian invasion in Ukraine which called into question the world's dependence on Russia as a major energy producer.

Despite this, the reality of Canada's canceled pipeline projects has put the country in a difficult spot – potentially impacting its broader geopolitical influence, hindering its ability to provide much needed energy security to the U.S. and Europe[8]. Energy transitions take decades and there are no quick and easy replacements for fossil fuels, meaning that even the most optimistic scenarios for an energy transition still see coal, oil, and natural gas providing a majority of the world's energy supply for at least the next decade[7,9]. Canada should leverage its position as a stable, reliable, and environmentally responsible supplier of energy resources to the world throughout the transition.

Current German Energy Landscape

Despite an ardent focus on moving to renewable energy in the country to meet their ambitious environmental and climate change targets, the war in Ukraine is taking a toll not only on Germany's progress in meeting these targets but also their energy security in general.

Residents in Germany have been asked to change heating systems, to cut down on their consumption, and even to cut down on their shower time due to the changes in the flow of gas from Russia over the last few months (June-July 2022)[8]. Rising natural gas prices also have European governments warning their citizens of blackouts as factories are being forced to shut down. The war in Ukraine has forced Germany to radically rethink its energy policy, given that the country is heavily dependent on Russian fossil fuels, and there are now significant efforts to reduce both Western investments in Russian oil and gas and European dependence[7,8,9]. German Green Party agriculture minister Cem Özdemir has been outspoken on their disapproval for the continued reliance on Russian gas, but efforts to transition away and build new capacity have come with challenges including those caused by

Germany's decentralized federal structure and the fact that its political culture is very focused on equity decision-making[10]. A perfect example of this is their current struggle with nuclear energy. The ruling Greens and Social Democrats pledged to shut down Germany's nuclear grid following the Fukushima disaster in 2011. When Russia invaded Ukraine in February, the German government said it would revisit the decision — and has voted to keep those plants closed and to keep the three remaining nuclear plants operating temporarily until April 15th, 2023 at the latest due to the ongoing energy crisis.[20] Germany has shut down its nuclear power plants and ramped up wind and solar and is now forced to keep coal power plants open and buy nuclear power from France[7].

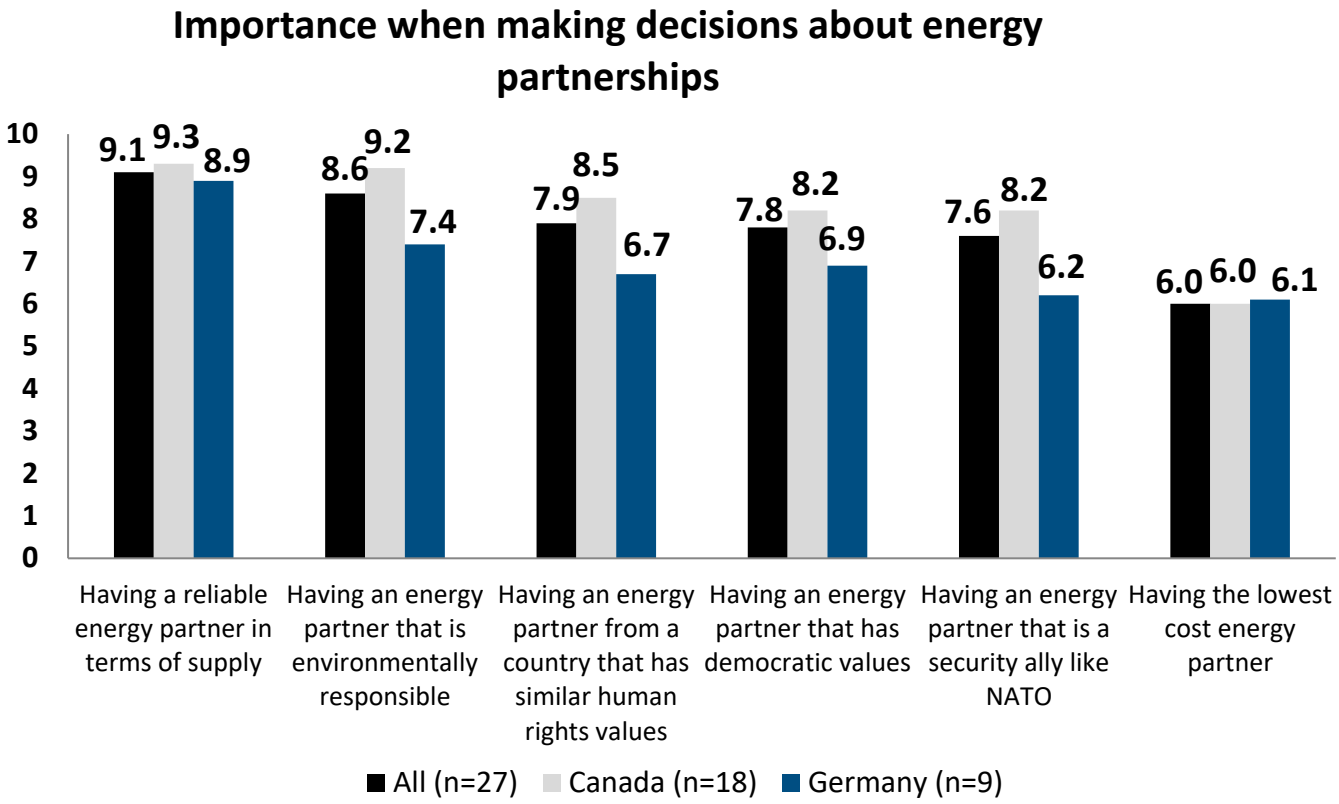
Efforts have also been made to import additional LNG and expand infrastructure, but these initiatives have also seen pushback from German residents with protests of thousands taking place early August calling on Germany and Europe to find an alternative to LNG to address the energy crisis[12].

Interviews with Stakeholders

Important factors for energy decision making

Asked to rate a number of potential priorities when making decisions about which country Canada and Germany should partner with on energy, policy and sector stakeholders in Canada and Germany gave the highest importance rating to having a reliable energy partner in terms of supply (mean of 9.3 out of 10 for Canadian stakeholders; mean of 8.9 for German stakeholders). Some differences emerge for other potential priorities, with Canadians rating them as more important across the board than German stakeholders, including having an energy partner that is environmentally responsible (Canadians: mean of 9.2; Germans: mean of 7.4), having an energy partner from a country with similar human rights values (Canadians: mean of 8.5; Germans: mean of 6.7), an energy partner with democratic values (Canadians: mean of 8.2; Germans: mean of 6.9) and an energy partner that is a security ally (Canadians: mean of 8.2; Germans: mean of 6.2). Stakeholders from Canada and Germany give a similar importance rating to having the lowest cost energy partner (Canadians: mean of 6.0; Germans: mean of 6.1), with stakeholders from both countries giving it their lowest mean importance score overall.

Chart 1: Rating Importance of Priorities When Making Decisions About Energy Partnerships



Q

On a scale from 0 to 10, where 0 is not at all important and 10 is very important, how would you rate the importance of the following when making decisions about which countries [CANADA/GERMANY] should partner with for energy projects? [RANDOMIZE]

Having the lowest cost energy partner
Having a reliable energy partner in terms of supply
Having an energy partner from a country that has similar human rights values
Having an energy partner that is a security ally like NATO.
Having an energy partner that is environmentally responsible
Having an energy partner that has democratic values

Q

Please **rank the top 3 most important priorities** when it comes to making decisions about which countries [CANADA/GERMANY] should partner with for energy projects, where 1 is the most important priority, 2 is the second most important priority and 3 is the third most important priority. [RANDOMIZE]

Having the lowest cost energy partner
Having a reliable energy partner in terms of supply
Having an energy partner from a country that has similar human rights values
Having an energy partner that is a security ally like NATO.
Having an energy partner that is environmentally responsible
Having an energy partner that has democratic values

Stakeholders were then asked to rank the top three priorities they feel are most important when it comes to Canada or Germany making decisions about which countries to partner with for energy projects - reliability of the potential energy partner in terms of supply continued to be viewed as a top priority of importance, being ranked first most often by stakeholders from both Canada (13 of 18) and Germany (six of nine). Canadian stakeholders most often ranked a partner that is environmentally responsible as the second most important priority (seven out of 18). Among German stakeholders the second most important ranking was split among several priorities: reliability in terms of supply, having democratic values, being environmentally responsible, and having the lowest cost.

Table 4: Ranking Importance of Priorities When Making Decisions About Energy Partnerships

	Rank 1		Rank 2		Rank 3	
	Canadians (n=18)	**Germans (n=9)**	**Canadians (n=18)**	**Germans (n=9)**	**Canadians (n=18)**	**Germans (n=18)**
Having a reliable energy partner in terms of supply	**13 out of 18**	**6 out of 9**	2 out of 18	2 out of 9	2 out of 18	0 out of 9
Having an energy partner from a country that has similar human rights values	2 out of 18	0 out of 9	4 out of 18	1 out of 9	3 out of 18	0 out of 9
Having an energy partner that is a security ally like NATO	1 out of 18	1 out of 9	0 out of 18	0 out of 9	4 out of 18	2 out of 9
Having an energy partner that has democratic values	1 out of 18	0 out of 9	3 out of 18	2 out of 9	3 out of 18	1 out of 9
Having an energy partner that is environmentally responsible	1 out of 18	1 out of 9	7 out of 18	2 out of 9	4 out of 18	4 out of 9
Having the lowest cost energy partner	0 out of 18	1 out of 9	1 out of 18	2 out of 9	0 out of 18	2 out of 9
Unsure/No answer	0 out of 18	0 out of 9	1 out of 18	0 out of 9	1 out of 18	0 out of 9

Opportunities for Collaboration

Media Context

The focus of the media in the context of the war in Ukraine has been on the current energy crisis in Germany and liquified natural gas (LNG) exports from Canada as a way to help – a short term opportunity in the Canada-Germany energy partnership. There is a lack of coverage on long-term opportunities for collaboration such as green hydrogen or critical minerals which can play a role in helping the countries meet their environmental targets and transition to greener energy.

Although media focus has been largely on LNG, a recent energy-focused tour of Canada by German Chancellor Olaf Scholz, who was accompanied by a delegation of business leaders from Europe's largest economy, saw agreements reached on hydrogen (between German energy providers E.ON SE and Uniper SE and Canada's EverWind Fuels) and electric vehicle battery minerals (between the Canadian government and Mercedes-Benz and Volkswagen), although a plan for Canada to ease the soaring cost of natural gas in Germany did not come to pass[12]. Canada's Prime Minister Justin Trudeau also noted that there has never been a strong business case for a number of LNG projects on Canada's East Coast, largely due to distance and transportation challenges of exports from Canada to Germany[12]. There were no formal meetings with Canadian natural gas firms, no travel to Alberta, and there was no concrete agreement with Canada on LNG projects and according to some media organizations, the German Chancellor Scholz's visit failed to address 'the elephant in the room'[12,13,14].

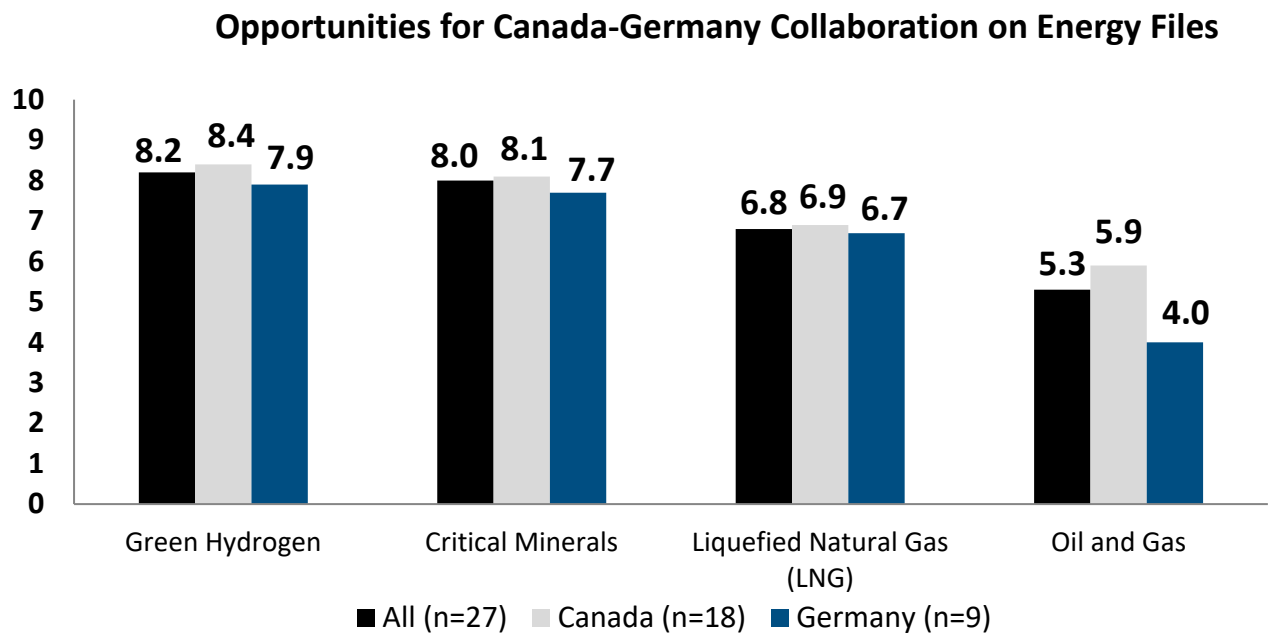
Most recently, hydrogen-based energy initiatives are moving to the forefront in Canada and more than a dozen new Canadian hydrogen projects began moving faster in the last six months[14]. In addition to Germany's National Hydrogen Strategy (2020) which states that green hydrogen will play a key role in their energy transition, the recent Canada-Germany agreement is aiming to get things flowing by 2025[15]. However, one Canadian company looking to build a green hydrogen plant emphasizes that if product is going to be produced by 2025, construction has to start next year and that means it is key to have an efficient contemporaneous regulatory process[14].

Interviews with Stakeholders

Opportunities for energy partnerships with Canada and Germany

Canadian and German energy stakeholders see at least minor opportunities for closer cooperation between Canada and Germany on various energy files, and they see the biggest potential opportunity related to green hydrogen (mean of 8.2 out of 10) and critical minerals (mean of 8.0 out of 10), followed by LNG (mean of 6.8 out of 10) and Oil and Gas (mean of 5.3 out of 10). A stakeholder in the Canadian ports sector identified the overall opportunity for Canadian-Germany energy partnerships as a major opportunity (8.0 out of 10) and noted that Canada has the resources and Germany has the market, making this a natural fit for a partnership. However, they mentioned that this opportunity is lessened because Canadian ports and energy infrastructure are not readily able to capitalize on such a partnership in the short-term and said that Canada has not supported the development of LNG, pipelines and the energy sector transition to the extent required to capitalize on the demand from Germany and globally for Canada's energy and critical minerals.

Chart 2: Rating potential opportunities for closer cooperation between Canada and Germany related to energy



Q

On a scale of 0 to 10 where 0 is not at all an opportunity and 10 is a major opportunity, how would you describe the opportunity for Canada and Germany to be energy partners?

Why do you have that opinion? [OPEN]

On a scale from 0 to 10, where 0 is not an opportunity for collaboration and 10 is a big opportunity for collaboration, how big of an opportunity is **critical minerals/LNG/oil and gas/green hydrogen** in terms of potential collaboration between Canada and Germany related to energy?

What is the opportunity? [OPEN]

Opportunity for collaboration on critical minerals

Both Canadian and German stakeholders identified critical minerals as a major opportunity for potential collaboration between Canada and Germany (mean of 7.9 out of 10), with nine out of 26 consulted stakeholders giving it a nine or 10 out of 10.

According to stakeholders who identified this as a major opportunity, the specific opportunity for collaboration most often mentioned was Canada's abundance of mineral resources, including the metals required for a number of high-tech technologies that far surpass Canada's domestic needs. Stakeholders said that this abundance of minerals means that while a large amount is used domestically within Canada and a small amount is currently exported to the United States, there is a significant opportunity to export more of these critical minerals abroad, especially as demand increases with the

> ***"In Canada, I think we have a huge role to play in leadership for critical minerals. I think Canada has a brand in terms of carbon transition. There is a massive opportunity for a supply chain with clean energy and supply of minerals."- Canadian Stakeholder [sector leader]***

increasing use of renewables. They also noted that Germany being a technology manufacturing powerhouse and having downstream manufacturing capacity means there is a natural fit and demand for these minerals within Germany's supply chain and suggested that Canada should build up its internal capacity to meet that need and demand. One stakeholder noted that Canada has great opportunities in terms of critical minerals and the value in deposits including nickel and lithium, and while not all deposits have been explored and not every project has been executed, there is an opportunity for Canada and Germany to develop projects together. They noted these projects may not be ready in the next 10 years, but that the possibility for these developments is strong.

Also mentioned was an emerging need for Germany to diversify its supply chain, especially in light of the war in Ukraine and that most critical minerals currently come from China. They mentioned that this is a priority for the German government, including finding new resource partners which is a role Canada could take on. One expert noted that it may depend on how secure the supply chain needs to be, including needing to identify whether Germany wants the supply chain to be secure with like-minded nations like Canada or whether there is room for a country like China, with such a large amount of critical minerals, to participate in that supply chain. Another expert mentioned that Canada has a key role to play as a counterbalance to China in the critical minerals market, and that if it doesn't step up then China will continue to control the market, including for minerals such as lithium, of which they currently control more than 50 per cent. A Canadian stakeholder said Canada should make Germany a preferred partner for this rather than China, saying that with limited supply and excessive demand it makes more sense to supply a country with closer relations and shared values.

Technology and the role of critical minerals in technology manufacturing also emerged as an opportunity for Canada and Germany to collaborate, with stakeholders mentioning that

Germany is a large producer of technology, including in their role as a major manufacturer of cars and the increasing focus on battery operated vehicles. One stakeholder said there are lots of opportunities for the Canadian government to support projects and innovation, including a lot of technological opportunities to pull critical minerals from waste streams in some industrial operations and taking on new critical mineral developments. A stakeholder in Canada mentioned that it would create jobs if Canada developed the business of mining and fabrication of critical minerals and if Germany is open to having them produced in Canada.

They also identified an opportunity for Canada to provide the raw materials for the production and manufacturing of clean energy tech products such as wind turbines, noting they could be shipped to and from Atlantic ports. One Canadian stakeholder said that Germany appears to have a lack of interest to pursue mining within their own borders and Canada already produces some of the minerals of interest. They concluded that Canada could produce additional minerals and the critical minerals sourced from Canada would serve the German Raw Materials Strategy by providing critical minerals that follow the strict ethical and environmental standards, and in turn, a collaboration could include Germany providing the end-use clean energy tech products that Canada needs for their energy transition goals. They noted that the appeal of purchasing these clean energy technology products from Germany versus China is the Canadian inputs into the technology and that they are made in Germany therefore following strict ESG standards. One stakeholder said while Canada has the resources for batteries and electrolysers, it ultimately depends on the cost and they are not sure if a partnership is feasible from a German consumer point of view.

Opportunity for collaboration on Liquefied Natural Gas (LNG)

Collaboration between Canada and Germany on Liquefied Natural Gas (LNG) was generally seen as a minor opportunity by stakeholders in both countries (mean of 6.7 out of 10), with 15 of the 26 consulted stakeholders giving it a score of 7-10.

The stakeholders identified several opportunities for this collaboration, with the most mentioned being Canada becoming an LNG supplier to Germany, noting Germany has a need and Canada has the supply. One Canadian stakeholder said Germany seems very interested in developing and establishing the technology to utilize LNG, and a few said there is a relatively short distance between the Atlantic ports and Germany and the two countries have similar production standards which make it a good fit for a partnership. A German stakeholder said that while Germany importing LNG from Canada would require a lot of infrastructure to be built, they do see potential there.

A stakeholder from Canada said there is a potential opportunity in terms of the development of eastern Canadian based LNG export facilities, which they mentioned is top of mind as it was discussed by the Trudeau administration in Europe. However, they also mentioned that most of Canada's natural gas resources are on the opposite side of the continent and a bigger advantage would be to produce the LNG on the west coast, allowing for export into the Asian market and thereby

reducing prices and having a greater influence on the market.

Another Canadian stakeholder said the opportunity is to get Canadian LNG to where it is needed and act as a 'helper nation', and that while Germany and Europe are a big part of it, the global trade of the commodity is on the west coast, so western Canada is also key. They also noted that the major opportunity is to get projects going and find a harmonization of what the energy transition or transformation means. The stakeholder noted that the energy transformation has put Europe in a compromised position and that LNG is in a good position for the future of lower emission power. A Canadian stakeholder said that while they do not doubt the demand is there, they are concerned the transportation logistics and infrastructure will be difficult, while another said despite the urgency of the opportunity there are risks of stranded assets and Canada should avoid rushing into big investments that cannot be undone in the future.

Another opportunity identified was Canada acting as a geo-politically stable supplier of LNG to Germany and the European market, including as a catalyst to help Germany remove their dependence from Russian oil and that in light of the current geopolitical climate, LNG has been made an important priority where it previously was not. One stakeholder said LNG will be an important form of energy for Europe and a collaboration with Canada would provide security of supply since Canada is an ally to Germany and Europe. A few of these stakeholders from both countries did note that they see this as more of an immediate opportunity because of the issues with Russia, and that LNG is more of a short-term solution to help Germany get through the next few years. They said they don't see this as a long-term opportunity since there is pressure in Germany to move away from natural gas and to de-carbonize building heating, while the production and shipping of LNG is climate and greenhouse gas intensive, and that Canada does not have sufficient carbon border mechanisms to mitigate the climate impact. The length of time to approve and build the necessary infrastructure to meet Germany's immediate need was also mentioned as an important factor in determining the strength of LNG as an opportunity.

> ***"It is complementary interests, Canada is interested in exporting its natural gas outside the US, and Germany is very acute on their immediate need for natural gas due to their waning supply from Russia." - German Stakeholder [policy expert]***

Those who feel this is not an opportunity mentioned that LNG is not a clean fuel and fracking methane is a potent greenhouse gas and would void any net-zero efforts in place, and that while there are potential short-term benefits, the costs would be too high to be worth doing in the long-term. Another stakeholder said that they view the opportunity as increasing production in Canada and having it shipped to world markets through the US, rather than through a collaboration with Germany.

Opportunity for collaboration on oil and gas

Stakeholders are split on whether oil and gas is a major opportunity for collaboration between Canada and Germany, giving it the lowest overall opportunity score of the four potential energy files (mean of 5.3 out of 10), with a lower score among German stakeholders (mean of 4.0 out of 10). Seven stakeholders each said this is either a large opportunity (score of 7-10) or not an opportunity (score of 0-3).

In terms of what the opportunity is, those who say oil and gas is a major opportunity most often mentioned the deposits and supply of oil that Canada has and that there is an opportunity to increase exports to Germany while utilizing the existing capacities, as well as Canada's high production standards and close proximity to Germany from Atlantic Canada. One Canadian stakeholder noted that the opportunity will require Germany to see the environmental aspects of how the oil sands are developed now and to understand the environmental benefits of the newest processing methods. Stakeholders noted that while there is a surplus of capacity in Canada's export corridors, the import infrastructure would need to be built up in Germany.

Another opportunity mentioned connects back to the theme of energy security in Germany and Europe, which they feel Canadian supply can contribute to, including reducing German and European dependency on Russia in the immediate term.

Stakeholders who do not see this as an opportunity often mentioned that Canada should be transitioning away from oil and gas, while others see it as only as a short-term opportunity and feel that a longer-term opportunity in line with the aim to reduce emissions would be to collaborate with Germany on diminishing oil and gas reliance over time and provide more clean energy. A stakeholder said that gas will be critical for the next few years and then we will return to being much less dependent on gas, making the lifespan for the opportunity quite limited. One stakeholder suggested working together with Germany to develop environmentally friendly solutions to the extraction of oil.

> ***"We have abundant resources in Canada for gas, good production standards, a high level of transparency and very short distance to European market across the Atlantic." – Canadian Stakeholder [sector leader]***

One stakeholder said that while there is an opportunity for Canada to increase exports of oil and gas, they recommended increasing production and shopping it to world markets, as exports directly to Germany from Canada are fairly limited, while another said they don't see an opportunity since nearly all of Canada's oil exports go into the US and up through the Gulf of Mexico.

Opportunity for collaboration on green hydrogen

Stakeholders see green hydrogen as a major potential opportunity for collaboration between Canada and Germany, giving it the highest overall opportunity score of the four potential energy files (mean of 8.2 out of 10), with 10 of 26 stakeholders giving it a 10 out of 10.

> ***"This is a dual opportunity because we have a number of Atlantic provinces which are transitioning off coal, and building cleaner fuel, and this bodes quite well with Germany's objectives. You can kill two birds with one stone." – Canadian Stakeholder [policy expert]***

When asked what the opportunity is, stakeholders often mentioned the availability within Canada including the vast hydro and wind resources that can be used to produce hydrogen, as well as the excitement around hydrogen, specifically green hydrogen, as a relatively clean fuel-source. One stakeholder noted that this opportunity is key to get feedstock to countries like Germany while respecting ESG metrics, due to the low carbon footprint of green hydrogen. Stakeholders also mentioned that the timing is key as a number of Canadian Atlantic provinces are transitioning off of coal and moving to cleaner fuel, which is in line with Germany's objectives and could enable Canada to build out a green hydrogen supply chain from the ground up.

Also mentioned was the opportunity for a strong partnership by way of Canada being a NATO ally, making it easier for Germany and Canada to become partners as there are shared values, interests and environmental laws, and both are democratic nations. Canada's proximity to Germany from the east coast was also mentioned, and that Canada has an abundance of unused land where dams and offshore wind power could be built. A Canadian stakeholder also said that with Canada having the shortest route to Germany by sea and some of the best onshore and offshore wind power in the world, harvesting these factors provides a major opportunity to provide Germany with green hydrogen.

A few stakeholders described the potential opportunity as a two-way collaboration, with Germany as a major source of electrolysers and the capacity to produce it, and Canada utilizing hydro power to convert it into ammonia. They mentioned Germany could export the required knowledge and technologies to Canada and Canada providing fuel cells to Germany or working with Germany to develop new electrolyser technologies or hydrogen-ready technologies like turbines.

Knowledge sharing was also mentioned as an opportunity related to close collaboration on green hydrogen, specifically best practice sharing around the use of green hydro for transport, with a stakeholder mentioning Germany is ahead of Canada on that and can likely share some lessons learned, as well as regarding the production of green hydrogen. Stakeholders also mentioned opportunities related to Canada and Germany working together the establish the standards and certification settings, including categorizing types of hydrogen, contributing to the formation of a global hydrogen market so there are consistent standards internationally, as well as cooperating on formulating regulations and establishing partner networks. They note the EU is already progressing on this and Canada should be part of that dialogue too.

One stakeholder said there is an opportunity, as both Germany and Canada are pursuing clean energy grids for 2035, to share lessons on long term storage. They noted that Germany has more inter-ties with jurisdictions and therefore more options, and that green hydrogen is a chance for Canada to find a role there.

Canadian stakeholders noted the opportunity depends on the region in Canada, and that Canada's ability to produce green hydrogen is there but the opportunities are bigger in provinces like BC and Quebec where there is a market to sell to. They also noted the east coast is key, especially with the strong wind resources which enable the production of green hydrogen at a reasonable cost, and that Atlantic provinces and Quebec both have great resources for producing renewable energy and therefore green hydrogen, but Quebec is not interested in exporting it.

One Canadian stakeholder said that Germany and the EU have made it clear that green hydrogen will be the future base for fuel models moving forward but producing it in Europe is more expensive than in Canada and transport costs in Canada are lower than importing. They noted that working through how much to import and export and where to import from will be key and that Canada will be a key player in that.

Among stakeholders who feel closer collaboration between the two countries is a minor opportunity or not an opportunity, they mention that Canada has large resources of natural gas, which is the primary fuel to create hydrogen, but green hydrogen is renewable focused, so they do not believe that can be derived from gas and therefore Canada does not have the needed resources. Another said opportunities related to green hydrogen are less obvious than those for LNG and oil and gas, and that there is a less tangible need for the resource.

One German stakeholder said that while green hydrogen is a promising energy source, there is little interest in Canada to further develop the use of green hydrogen and the technology to produce it.

Another stakeholder said the difficulty is the market is emerging and not existing, so it is possible it becomes a very important energy source, however, they noted that it is not an opportunity in the short or medium term for Germany, and that Germany is likely more concerned with keeping their heat on in the winter and keeping their economy safe and secure in the immediate and medium-term future.

Q

Are there any other areas related to energy and the environment where you see potential opportunities for closer collaboration between Canada and Germany? Why is it an opportunity? [OPEN]

Other areas for potential collaboration

Asked if there are any other potential opportunities for closer collaboration on energy files, stakeholders mentioned a number of possible opportunities, including renewable energy such as wind and solar (four mentions), nuclear energy (three mentions), inclusivity and ESG standards (three mentions), and knowledge sharing and best practices (three mentions). Also mentioned was blue hydrogen, energy security, codes, standards and regulations, and recycling (two mentions each).

In terms of the opportunities related to renewable energy, stakeholders mentioned potentially exporting wind or solar energy from Canada to Germany, saying that would be an important component of the renewable energy mix, and that offshore wind energy could be a major opportunity for collaboration as there is existing expertise in Germany as well as wind farms, and a lot of interest in Canada on the east coast. One stakeholder noted there is huge potential for renewable energy production in Alberta and Saskatchewan, especially because of the liberalised energy market in Alberta.

Stakeholders see the opportunity around nuclear as Canada having a large amount of resources and being eager to export the technology if Germany changed its position on it, although they noted they are not optimistic that will happen and they still feel the biggest opportunities for Canada will be to supply oil and gas and critical minerals. The stakeholders specifically mentioned small modular nuclear reactor development as a major potential opportunity.

The opportunity related to ESG and inclusivity is described as collaborating on the energy transition and ensuring no one is left behind in that process, including a re-training and refocusing of the workforce to clean energy. Also mentioned was working on the ESG component regarding energy production, including Canada further strengthening collaboration with Indigenous peoples, which would show Canada as unique and resonate with Germany, as well as an opportunity for Germany to create a market demand for lower emissions and strong ESG metrics for oil and gas which Canada could adopt.

> ***"Everything that we've discussed has to do with climate change in the end and this is the backdrop of it. Canada is a very strong partner in terms of the value of fighting climate change and recognizing that this is one of the most important challenges." – German Stakeholder [policy expert]***

Knowledge sharing and best practices was also identified as another opportunity, with stakeholders stating that the two countries sharing their lessons learned and knowledge on a number of energy files could be fruitful, as well as discussing best practices and solutions. Also

mentioned was the potential for additional collaborations between the National Research Council and partner organizations in Germany, noting there are some currently but there is potential for a lot more.

Other opportunities identified were blue hydrogen, where stakeholders said this could be a medium-term solution as Germany needs hydrogen, as well as that it being natural gas derived means Canada has a large supply and large carbon storage capacity. Energy security was also mentioned, specifically Canada and Germany providing leadership by providing energy security to their own citizens and working together to reduce energy insecurity in the world as a whole, as well as openly discussing energy security and the impact of relying on Russia and China.

In terms of codes, standards and regulations, stakeholders mention sharing and developing them together for clean energy and technology as a whole and not just hydrogen, noting they feel Germany will play an outsized role here as major consumers and producers of clean technology. They said Canada and German working together on this would be very useful. Standards and regulations related to buildings was also mentioned, with a German stakeholder saying Germany is ahead of Canada on this, including retrofitting programs and standards and there is a lot Canada can learn from this, especially as it works on its emissions reduction plan.

Two stakeholders mentioned recycling, including the recycling of metals to reduce energy consumption, noting the challenge would be to develop and establish improved collection and sorting systems, which the two countries could collaborate on.

Table 5: Are there any other areas related to energy and the environment where you see potential opportunities for closer collaboration between Canada and Germany?

Other Areas for Collaboration (Top Mentions)	Frequency (n=32)*
Renewable energy (wind, solar, etc)	4 mentions
Nuclear/small modular nuclear reactors	3 mentions
Inclusivity/ESG	3 mentions
Knowledge sharing/best practices	3 mentions
Blue hydrogen	2 mentions
Security	2 mentions
Codes/standards/regulations	2 mentions
Nothing	2 mentions
Recycling	2 mentions

***Based on up to three mentions**

Overarching Obstacles to Collaboration

Media Context

Despite Germany's continued need for LNG, financing and timing remain major obstacles in securing an energy relationship with Canada. Most recently, the German utility company Uniper SE (one of the largest European electricity producers) announced that a 20-year supply contract with Canada's Goldboro LNG for liquefied natural gas deliveries originally planned to start in 2025 "no longer plays a significant role" in its plans[16]. Uniper spokesperson Lucas Wintgens said the Goldboro project in Nova Scotia – one of two proposed LNG export facilities on Canada's East Coast – has remained in the planning stage, but has not been financed by Goldboro's owner, Pieridae Energy Ltd., for the past year[16]. This could be evidence that Canadian LNG exports will not be on the table in Germany's short-term quest for energy security. Instead, Prime Minister Trudeau says Canada should be focused on investing in hydrogen, investing in critical minerals and investing or re-investing in different approaches like nuclear which is being looked at on a broad scale including working closely with partners like Germany[16].

Canada has faced similar challenges in other energy sectors, such as oil and gas, namely when it comes to securing the infrastructure needed to meet export demand. Planning is a key component of ensuring timelines meet the needs of energy-importing companies with interest in doing business with Canada. For example, it takes two to four years for an oil or gas project to be built and to begin producing, meaning production growth seen today could be from initial investments made as far back as 2018[17]. This means that if Canada wants to meet Germany's demand for LNG or renewal energy, a coordinated effort must be made to start the planning process early and determine the urgency and duration of those needs.

Opposition also plays a key role in energy projects and initiatives in Canada both between provinces and stakeholder groups. Canada has a complex political landscape that boasts both a very powerful oil and gas regime and a growing movement that demands action on climate change on top of an already complex patchwork of provincial, territorial, and First Nations governments that make up Canadian federalism[18]. Due to the unique way that environmental matters cut across both sides of the division of powers and the conflicting policy priorities of the federal and provincial governments, jurisdictional conflicts concerning the environment and energy are plentiful[19]. Germany's decentralized federal structure poses similar challenges.

Interviews with Stakeholders

Regulatory barriers to energy and critical minerals partnership

Individuals in the Canadian Ports sector said the main regulatory barriers for Canada and Germany becoming energy partners are Canada's ports facing challenges in obtaining funding to build infrastructure, slow project approvals with a new and broad impact assessment process, and no strong push from the Canadian government to support the energy transition and the required infrastructure. They note that the impact assessment processes often being excessive and delayed is a major regulatory barrier for Canada and Germany becoming critical mineral partners and that some of the regulatory frameworks for the storage of newer fuels such as hydrogen are still unclear.

Critical Minerals

Canadian and German stakeholders raise a number of obstacles that need to be overcome related to closer collaboration between Canada and Germany on critical minerals, one of which is the slow regulatory approval process in Canada and the long waits and delays related to the impact assessments and permit processes for mining. One Canadian stakeholder said the decision-making cycle in Canada is a major obstacle and that Canada makes decisions very slowly, which they find very frustrating. They noted that Canada misses opportunities by being slow and delaying its decision making, impacting its ability to be competitive.

Infrastructure, or lack thereof, was also mentioned as an obstacle including ensuring Canada has the right infrastructure to facilitate the importing and exporting of critical minerals at reasonable costs, and one stakeholder noted that this is a challenge in Canada as many provinces have an energy monopoly and some will not export power. Also mentioned was Canada's large abundance of land and resources as an advantage and obstacle, due to the large distances and deposits of minerals being spread across Canada. They noted that to develop these deposits would require a thousand-kilometer railway, pipelines or power integration, which requires major investments up front to prepare any projects and that this is a risk many are unwilling to take on.

Stakeholders also mentioned the additionality requirement to supply Germany, where a country cannot use its existing resources or infrastructure and that also requires Canada to build infrastructure from scratch, which again requires investment and poses challenges.

Stakeholders from both countries say obstacles could be lack of communication and say it is crucial to set out processes and systems at the beginning of projects to work together, while another said it would be beneficial to explore partnerships with industry associations like Chambers of Commerce. One stakeholder said while it is good to talk about alliances and working together, each country will look for its own interests so it is important to focus on building trust and partnerships, while another Canadian stakeholder said there needs to be a coordinated government effort across all levels and a strategic plan in place on what Canada will do with its minerals.

Costs were also mentioned as an obstacle related to building infrastructure, as well as overall difficulties keeping costs low enough to be competitive in markets already dominated by

lower cost alternatives. One stakeholder noted that Canada is a high-cost place to mine critical minerals and another said that ultimately whether the collaboration is successful depends on the price, and they are unsure if a partnership can be feasible from a German consumer point of view. They noted that the German industry is currently re-orienting itself and looking to established supply chains and identifying new trade partners like Canada, but costs and the willingness to take on the risk to invest in the partnership is the biggest obstacle although they note that sharing this risk is crucial for a true partnership between the countries. Stakeholders mentioned a lack of investment into this and a need to demonstrate to the investment community that Canada can provide critical minerals in large quantities so that they invest in Canada and create virtuous investment loops to ensure a resilient energy system.

Consultations with Indigenous groups and other stakeholders was mentioned as an obstacle in terms of it being important for Canada and a necessary step in the process in order to get a project started, with stakeholders noting strategies would need to be developed in consultation with Indigenous Peoples and utilize UNDRIP as a guide for the process. They said it will be something Germany would need to build into their critical minerals strategy and account for, and that Indigenous partnerships must be considered key to the process and not an after-thought.

Liquefied Natural Gas (LNG)

Timelines and regulatory delays also emerged as an obstacle for closer collaboration between Canada and Germany on LNG, including the long regulatory approval processes. A few stakeholders noted that it would require several years of lead in time in order to get things going and they are concerned that the market may not be there by the time Canada is ready. Part of that includes that LNG export facilities would need to be constructed or re-purposed, which would take years. One Canadian stakeholder noted that there have been issues in the past with energy infrastructure projects in Canada being delayed due to regional opposition and environmental activism, and Germany's needs are immediate and short-term as they are still moving forward on their energy transition. They noted that projects like this are usually made to be 30-to-40-year commitments but there are predictions that consumption will fall significantly in the 2030s and onwards, making this an unlikely target for Canadian or foreign investors if the terminals will not be needed beyond the next decade and this investment would be needed to get the projects off the ground.

Stakeholders mentioned transportation and logistics as a major obstacle, including that Canada's supply is concentrated in the west, so there are capacity challenges getting the gas to the east coast to then export it to Germany and note that the supply chain would need to be set up to accommodate additional transportation. Stakeholders also mentioned the longstanding opposition of Eastern Canada and the Northeastern US to new pipeline projects, making this an uphill battle and they aren't sure how to get around this. They also mentioned needing transportation to Germany, including LNG ships and infrastructure which Canada does not have, as while there is an LNG terminal in St. John, it is an import rather than an export terminal. The terminal would require changing it from liquid to gas, which they say is completely different equipment and would take years to set up. Stakeholders mentioned requiring infrastructure

on the German side as well as the Canadian side, including new terminals in Germany and concerns about this resulting in stranded assets on both sides.

Another obstacle mentioned is climate change and the Canadian government needing to balance competing priorities for climate, the economy and energy security, including Canada's clean energy agenda, which they note runs contrary to LNG and other fossil fuels. Other climate challenges mentioned are the emissions that come from natural gas and the general climate implications of LNG, and the poor reputation of LNG. One stakeholder mentioned that if there were exports to Germany, work would be needed to convince people in Germany this would be a way to remove their dependence from Russian oil and gas due to their skepticism of tracking, while another noted that Germany needs LNG in the immediate short-term to get away from Russian gas but said this shouldn't be seen as a long-term solution or collaboration and that investments should be made in green hydrogen instead.
One German stakeholder said a risk is the powerful fossil fuel industry in Canada, noting the industry has too much political power and doing business with the industry is seen as very risky.

Oil and Gas

Obstacles related to closer collaboration between Canada and Germany for oil and gas mentioned by stakeholders in both countries include a lack of infrastructure, including pipelines to get the oil to the east coast in order to be exported to Europe, as well as no terminal or import infrastructure for gas. They noted the German and Canadian governments need to be convinced to increase capacity and do the necessary investments to support what would be needed for this. One stakeholder said while pipelines and other infrastructure is needed, they have not heard of any political plans for this or intentions to do so in Canada, which is an issue because the oil markets need oil now and not in 10 years.

Another stakeholder said the lack of infrastructure limits Canada's ability to supply this to Germany and as a result there is very little interest from Germany, while another said Germany's lack of domestic oil and gas resources mean they tend to partner with key players, and while they may need oil and gas from Canada, they are not aware Germany has considered doing so because of the challenging transportation logistics. A Canadian stakeholder said that they do not think there is a need for oil to be exported from Canada to Germany.

Ideological resistance to oil and perceptions of Canada's oil were also mentioned, including a perceived lack of interest in fossil fuels from Germany in line with the views of some Canadian provinces and an overall ideological resistance to oil and gas from both Canadian and German governments. One stakeholder said the extraction of oil is also controversial in Germany, and both Canada and Germany struggle to accept the use of oil. One stakeholder noted the climate impact of oil and gas is a challenge and makes it difficult to sell and that Canada needs to work harder to improve the upstream production of the oil sands to make it more climate friendly. The stakeholder said there is movement on this in the federal budget, including a 50% tax credit towards the oil tax, but there is a risk of spending the next 5-10 years focused on who will pay for it rather than building what is needed and won't know if it will actually improve emissions until it is built, which is a risk.
One stakeholder said they do not see it as a strong opportunity because Germany can get oil

from Rotterdam, and that Canadian oil will likely be more expensive and have a different sulfur content. They said this is not something the government can impact on the policy side as it will be decided by the market. Another said while Germany may view Atlantic Canadian oil and gas as an attractive option because of the shorter transport and environmental regulations, that the future of the sector depends on the support provided from each province, which is a challenge with ambitious greenhouse gas emissions targets in place for provinces.

Green Hydrogen

A number of obstacles were mentioned by stakeholders in Germany and Canada related to closer collaboration on green hydrogen, including costs, timelines and regulations and building the market for it.

In terms of costs, stakeholders in both countries often mention this as an obstacle, with one noting the cost of natural gas is one third of the price of green hydrogen and people would rather absorb the cost of the carbon tax and that the cost to produce hydrogen would need to be brought down. A Canadian stakeholder said that green hydrogen is not cost competitive currently and especially not compared to grey and blue hydrogen in Canada. They said Canada's gas sector sees hydrogen as an opportunity, but blue and grey hydrogen have a carbon footprint.

A lack of infrastructure was also mentioned, including the impact of the supply chain issues on the ability of both countries to build things like windmills, solar panels and electrolysers, as well as a lack of infrastructure to enable Canada to export this to Germany. A Canadian stakeholder said Canada has not demonstrated it can export the amount of energy to Germany that the federal government has envisioned, and that it has not yet demonstrated there is an advantage to exporting that amount. They noted that a common linkage to green hydrogen is wind power and this works 35 to 40 per cent of the time, which limits the amount of green hydrogen that can be produced. They said if Canada wants to make this a strong part of the economy then that capacity needs to be increased significantly. Technical issues around transport were also raised, as it is very difficult to transport pure hydrogen by ship, and while the technology exists, a stakeholder noted it is not viable at the moment and this is possibly a long-term opportunity rather than immediate. They said instead it would likely involve transporting ammonia or ethanol and then converting it to hydrogen in Germany, which would result in a loss of energy. They noted ammonia could be used directly in Germany without conversion but first there would need to be sufficient demand.

A few stakeholders said this is not a strong opportunity, with one noting that Germany can produce its own green hydrogen so there is no fundamental advantage to producing it in Canada and exporting it to Germany, while another said there are no solutions to solve the export obstacles currently and green hydrogen is not as appreciated in Canada as it is in Europe. They noted that there is inaction on this by the Canadian government, and the lack of demand makes it hard to get things off the ground since green hydrogen is not seen as a priority.

Timelines and decision-making again emerged as an obstacle, with stakeholders in both countries noting Canada is slower around decision making and approval processes as they have to consider each step in the process. They said each country should work though the agreements and frameworks to expedite this and that Canada

needs to support take-off agreements to speed these processes up. A Canadian stakeholder said the federal Canadian government has to commit to fostering an environment for private companies to be successful in, and having the resources alone is not enough. Stakeholders also mentioned conflicting views on the importance of the colour of hydrogen, with Germany more focused on this than Canada. They noted Canada is more open to blue hydrogen or hydrogen derived from natural gas which is the same greenhouse gas footprint and lower cost, but Germany is not interested at this point. Stakeholders from both countries mentioned obstacles around the green hydrogen economy still being fairly unknown in terms of its future size and which sectors it will reach, which means it cannot yet be known if Canada is the best positioned to provide this as it is not a natural renewable energy powerhouse. Another mentioned there currently is not a real market for green hydrogen so the entire market will need to be developed and that will mean green hydrogen will be more expensive. They said this will be an issue as there will always be some people who care more about the price than it being 'clean', and that the price difference is significant. They mentioned the unknowns surrounding the market include not knowing who will buy the green hydrogen and how it will be produced, noting that someone will need to pay a fixed price to develop the market, requiring the revenue model to be changed from fluctuating to fixed and provide a steady price for 10 years to get this investment. A German stakeholder said that green hydrogen being so new means neither country has much experience with it yet and there is a lot to learn, so its more of a long-term plan than an immediate one.

Regulations and standards were also mentioned as an obstacle, including a need to better define and regulate what can be called 'green', noting the term is being misapplied to things like natural gas. They mentioned governments need to take control of the sectors and move away from the influence of big businesses and panels with external influences on their decision making for regulations. Additionality was mentioned by Canadian stakeholders as an obstacle, as it would require Canada to build new facilities, rather than using existing ones, such as a hydro dam built 50 years ago which is already running and has the capacity, resulting in resources going to waste. One stakeholder said this causes a major issue for Canada as its biggest and best assets have already been built but cannot be utilized for this and it has the biggest impact on Ontario, Nova Scotia, New Brunswick and PEI if they wanted to explore this opportunity. One stakeholder said there would need to be proven viability of the technology on a large scale as hydrogen is in a much earlier phase than other energy files.

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Appendix A – Stakeholders Consulted

The following Canadian and German stakeholders were consulted as part of the research engagement and provided consent to be listed in this report.

Mark Agnew, Canadian Chamber of Commerce

Stephen Appleton, Fortescue Future Industries

Mante Bartuseviciute, Federation of German Industries

Nick Best, Evolugen

Richard Carlson, Pollution Probe

Jasper Eitze, H2 Kompass

Amandeep Garcha, Natural Resources Canada

Daniel Robert Gooch and Debbie Murray, Association of Canadian Port Authorities

Petya Gutzmer, ERZLABOR

Chris Henderson and Cole Sayers, Indigenous Clean Energy

Fabian Hinz, ABO Wind

Jens Honnen, Adelphi

Binnu Jeyakumar, Pembina Institute

Rory Johnston, Commodity Context

Dr. Timm Kehler, Zukunft Gas

Eric Melis and Peter Routlif, H2One

Carel Mohn, klimafakten.de

Nicolai Pogadl, Canadian German Chamber of Industry and Commerce

Sven Scholtysik, Net Zero Atlantic

Dr. Franz Spachtholz, Baymag Inc.

Dr. Sebastian Timmerburg, HAW Hamburg

Matthew Tinari, Everwind Fuels

Ivette Vera-Perez, CHFCA