

CANADIAN VITALITY PATHWAY

MOVING FROM ASPIRATION TO ACTION

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1 SUMMARY

1.1 WHAT IS THE CANADIAN VITALITY PATHWAY AND WHY IS IT NEEDED NOW?

Canada has enjoyed over 150 years of prosperity, largely due to raw product export from our rich natural resources sector. This paradigm is changing for energy with decarbonization imperatives and growing worldwide abundance of low-cost raw resources. To remain prosperous in a competitive low-carbon world, Canada must develop a means to capture full value from all energy resources, reduce impacts on our land, air and water, while sustaining the economic health of the existing resource base.

The Canadian Vitality Pathway is a proposal to create a ribbon of economic energy threads transporting multiple energy forms from coast to coast to coast. Designed as a corridor for all energy products, the Vitality Pathway will enable entrepreneurs and intrapreneurs from every part of Canada and every facet of the energy spectrum to build long-term projects, partnerships and markets, both domestically and for export. The multi-directional flow of electricity, petroleum, hydrogen, carbon-dioxide and refined products will drive Canada's economic health for the next 150 years.

While not a new idea, the timing for a multi-product energy corridor is imperative. Decarbonization pressures and project approval risks are increasing for single-purpose, non-integrated infrastructure lacking sufficient regard to land, air and water impacts. The goal of the Canadian Vitality Pathway is to establish a pre-approved route, or multiple routes with lower environmental and collective impact for the purpose of transmitting energy of all forms across Canada.

To accomplish this goal, the Vitality Pathway will develop a coalition of parties that will address up-front; regional issues, Indigenous engagement, and environmental impacts in concert with the priorities of a diverse group of proponents, governments, and customers. By establishing a broad coalition of parties who will own and be motivated to use the corridor for mutual benefit, the CVP will reduce regulatory costs, minimize jurisdictional and physical barriers and provide greater market access to long-term higher-value domestic and export energy commerce.

1.2 CREATING LONG-TERM RESPONSIBLE DEVELOPMENT

The CVP differs from past approaches by starting with two Indigenous traditions; early engagement of all impacted communities, and a strategic view of long-term sustainability and responsibility when gathering the resources of the land to deliver the greatest prosperity for the overall nation and future generations. Seeking first a national, Indigenous, environmental, and regional consensus while illuminating comprehensive benefits to a broad spectrum of parties should improve the opportunity for success and reduce approval risks that have plagued other approaches.

The CVP will share regulatory approval costs for several products across a single lower-impact corridor. The approach is designed to separate regulatory risk from business risk (e.g. construction delays, shipper penalties and premature equipment purchases). The CVP will pursue a charter to operate a corridor in the

interest of all Canadians. Once established as a charter, the Vitality Pathway will have lowered the regulatory approval risk and improved the investment climate for such projects. Under the CVP charter, individual projects of economic value can then commit to use of the vitality pathway to deliver their commercially viable products without the premium associated with unknown regulatory risk.

1.3 BENEFITS TO CANADIAN RESOURCE INDUSTRIES AND CONSUMERS

In the past, energy development from electricity to oil has emphasized raw product export over domestic full value-chain market development. Much of this was driven by an energy hungry neighbour creating easy opportunity. Unfortunately, this trade orientation has left Canada trapped by an infrastructure built for the export of raw product into specific export markets. While serving Canadian's monetary interests, it has eroded our collective national interests and damaged domestic resilience.

1.3.1 PETROLEUM ENERGY

In the petroleum sector over the past six years, the market dynamics have fundamentally changed. The US has regained its former title as the world's largest producer of crude oil (up ~70% and growing) with imports declining (down 32%) (US Energy Information Administration, 2019). Because Canada lacks sufficient domestic petroleum transfer capability, greater than 35% of our domestic needs are met by imports, at world price, largely into Central, Eastern and West-coast regions of Canada. Over 60% (2018) of those imports are from the US. Simultaneously, Western Canadian exports to the US, our largest energy customer (~80%), continue to suffer significant discounts to world oil price (National Energy Board, 2019). Our export energy customer has become our main domestic competitor, we have lost significant GDP value and our consuming industries face higher costs.

New oil sands projects already enjoy an emissions profile similar to other oil production methods. However, pressures for decarbonization of the hydrocarbon stream may encourage continued development and implementation of carbon capture and storage. The most logical place to remove and sequester CO₂ is in the very sedimentary basins from which petroleum was extracted. The Vitality Pathway would result in the opportunity for lower-carbon products to flow from upgraders and refineries in the producing provinces to domestic consumers and distant domestic refineries while reducing Canada's overall carbon footprint. By delivering lower-carbon fuels to domestic customers, the CVP can reduce Canadian financial leakage, dependence on export partners, and import related tanker traffic.

1.3.2 HYDRO ELECTRICITY

Our best hydro resources from Quebec, Manitoba and British Columbia were developed and paid for by export markets. Those export markets were focused on acquiring the lowest value product, raw electrical energy. Simultaneously, neighbouring Canadian regions were left disconnected to the benefits of hydro capacity and firming value of these resources. This resulted in several provincial jurisdictions creating excess higher-cost generation facilities. In the last several years, surplus energy from Ontario nuclear and renewables has been shut-in or sold at discount or negative prices to export markets. Instead, this energy could be stored in Quebec or Manitoba hydro systems and returned in peak periods via better domestic

interconnection. By exporting raw energy, Quebec, Manitoba and BC have not received the full value for their hydro product while adjacent Canadian jurisdictions pay too much for electricity. Connecting complimentary resources through the Canadian Vitality Pathway will access low-hanging efficiencies and improve opportunities for higher-value trading across multiple domestic and export markets.

1.3.3 SOLAR AND WIND

Decarbonization of energy will be a strong theme for the remainder of this century leading to more electrification, especially for transportation. This will require substantial increases to electrical supply. The most energetic and lowest-cost wind and solar resources in Canada are located in the prairie provinces. Currently these resources are not accessible and only developed for provincial grid purposes. These cost-effective renewable resources, when combined with the capacity of hydro, can provide a powerful force for total decarbonization of the North American electrical grid. The Canadian Vitality Pathway will allow greater access and distribution of these resources, allowing Canada to cost effectively meet current and growing needs for zero-carbon electricity.

1.4 FUTURE VALUE OF THE CANADIAN VITALITY PATHWAY – THE LONG VIEW

The very concept of the CVP is designed to future proof energy transmission and transport by dealing with regulatory and social issues up-front. The Vitality Pathway will create opportunity for the development of multiple conduits, constructed over several decades. The CVP will be designed to continue to account for and be responsible to Canadians for changing environmental and social developments. The CVP charter will ensure that these changes are dealt with proactively, allowing continued regulatory certainty for companies with products utilizing or wishing to utilize the corridor. Work associated with construction within and operation of the CVP will be multigenerational, moving away from single project events.

Connecting Canada's three large hydro batteries will allow higher-value continental commerce as greater volumes of as-available energy such as solar and wind become significant energy forms in the North American grid. Time shifting of power resources will be a reality through such a connected system. The CVP will allow continuous improvement in lowering carbon within the domestic hydrocarbon fuel stream. With broader access to North American wide markets and cross-jurisdictional carbon pricing, upgrading and refining to decarbonize fuels at source will become economically viable. Through connection, the Vitality Pathway will preserve, grow and enhance the long-term economic value of Canada's energy.

1.5 BENEFITS TO INDIGENOUS PEOPLES OF CANADA

The Vitality Pathway will begin with Indigenous consultation as a means to address potential concerns early such that planning and route selection can accommodate modifications. The CVP will be an independent organization that is separate from the organizations that will build and own infrastructure within the corridor. Direct and ongoing Indigenous participation in the CVP will allow for a robust Indigenous oversight, consultation and advisory mechanism across the entire length of the corridor. The

CVP will operate the Vitality Pathway under a charter that will specify opportunities for Indigenous equity participation, employment, education, oversight and response for all infrastructure built.

As a multi-product pathway, a multitude of infrastructure projects over a span of many decades will be available for Indigenous engagement and participation. This approach will allow for better planning, consistent terms and known opportunities for Indigenous people and communities. Additionally, it will reduce the inertia to ensuring continuous Indigenous community participation in the vitality that the CVP is designed to deliver.

1.6 BENEFITS TO GOVERNMENTS

As one, unified organization with diverse ties to industry, Indigenous communities, and government, the Vitality Pathway is best positioned to coordinate the development and construction of a corridor. The CVP will be a non-political entity, able to work with 14 different governments, multiple industry partners, numerous Indigenous nations, and stakeholders. No single government or industry only proponent can deliver this critical piece of national agreement.

Interprovincial trade barriers continue to cost the Canadian economy between \$50 and \$130 billion every year (Senate of Canada, 2016). However, without the infrastructure to facilitate the free movement of goods between provinces, the elimination of free-trade barriers on these goods has little effect. The Vitality Pathway would lower interprovincial trade barriers and basis differentials to lower overall costs.

Additional key priorities of government would be enabled by the Vitality Pathway such as:

- Ensuring new electrification requirements come from low and zero emissions sources,
- Creating new revenues for royalties and taxation from higher-value and greater domestic sales,
- Opportunities for Indigenous participation with industry in the development of all energy streams,
- Leveraging all parties' clean energy and Carbon Capture and Storage R & D and
- Reducing regional tensions, regulatory risks, costs and burdens for all parties.

1.7 IMPROVED CANADIAN COMPETITIVENESS

Canada has some of the lowest-cost, lowest-carbon resources (hydro, nuclear, wind and solar) and an emphasis on reducing carbon emitted from our hydrocarbon resource production. To be competitive in the energy world of the future, Canada must capture low-hanging domestic efficiencies, lead the world in producing low-carbon energy and ensure the long-term viability of current and future energy and transportation investments. The Canadian Vitality Pathway will create that competitive advantage by:

- Removing jurisdictional basis differentials and cost inefficiencies,
- Connecting isolated, diverse, low-cost and complimentary resources,
- Accessing more trading markets and exchange routes with higher-value products, and
- Enabling lowest-cost investments in decarbonization across the energy spectrum.

2 ORGANIZATION, RESPONSIBILITIES AND FINANCING

2.1 PARTICIPANT RELATIONSHIPS AND OWNERSHIP STRUCTURE

A coalition of support will be built through the participation of a multitude of parties from individual investors through customers each with a form of ownership in the CVP Corporation. The CVP Corporation will be product agnostic and promoter agnostic, thereby reducing partisan opposition and increasing the overall value to all parties (including governments and all Canadians). The opportunity established by the CVP will create value for a multitude of participants to assist in developing their respective projects and self-interests.

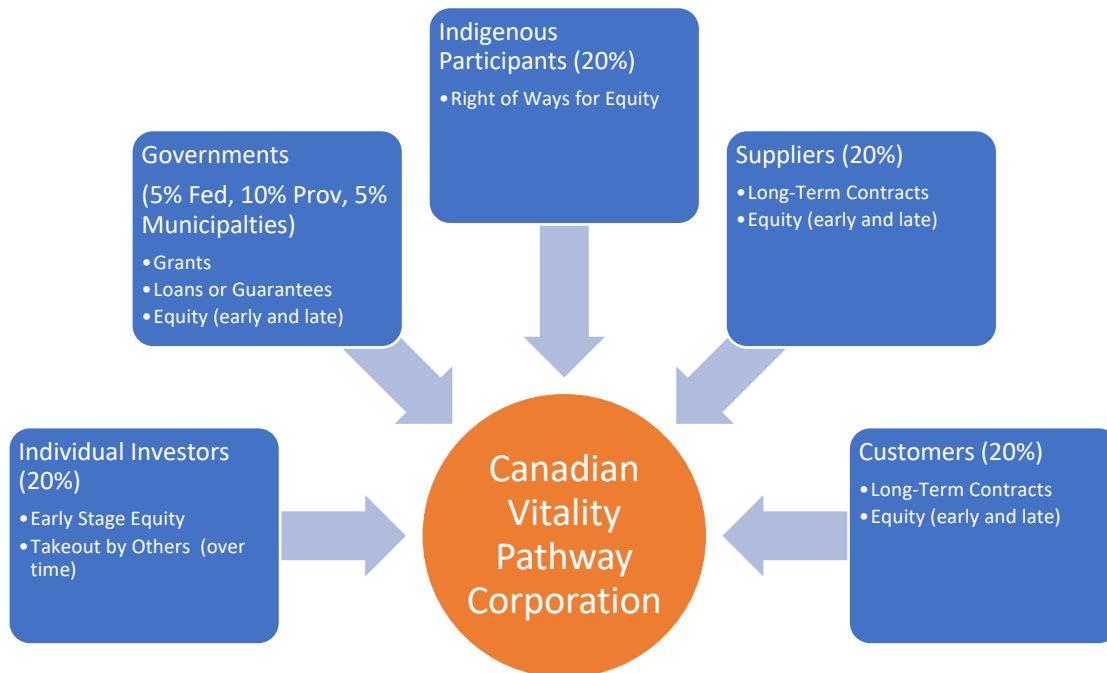


Figure 1: Ownership Coalition and Target Investment Proportions

2.2 DEVELOPMENT CYCLE

The Canadian Vitality Pathway will be financed through initial equity purchases and grants by key early stage partners. Subsequent financing will be through very long-term loans repayable out of CVP revenue and additional equity purchases. The CVP Corporation will be the regulatory applicant of record for and hold the rights and necessary licences to utilize the corridor for a series of pre-established energy product conduits (electricity to individual end products). The CVP Corporation will conduct calls for tenders with individual service providers to construct the facilities required to satisfy the mutually established contractual needs of suppliers and customers. These users of the Canadian Vitality Pathway will compensate the CVP Corporation through an initial bonus to initiate development and a lease to utilize the facilities over time. These user fees will provide the long-term revenue for the CVP Corporation which

will be utilized to repay debt incurred to establish the CVP, ongoing administration and a return to shareholders.

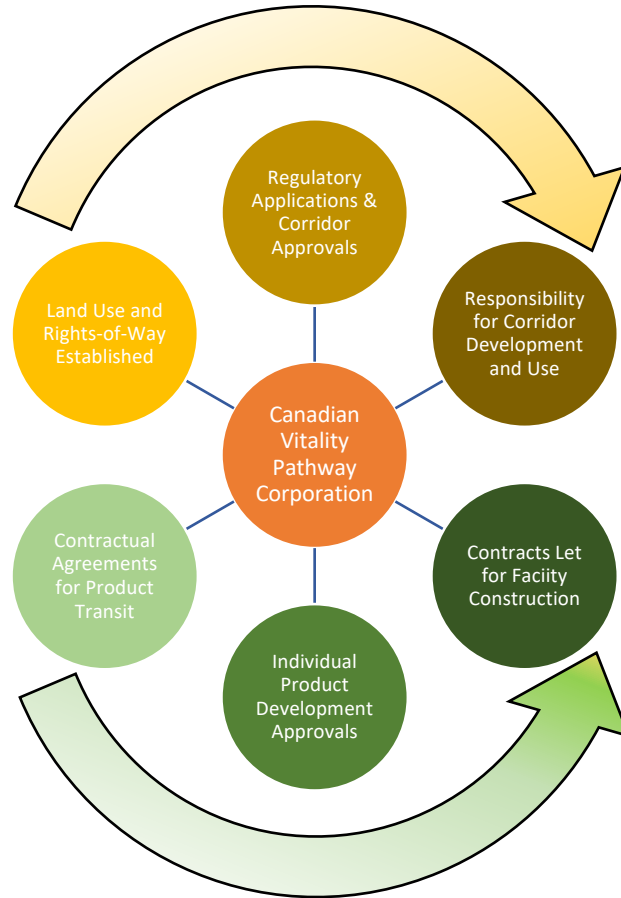


Figure 2: Regulatory and Business Activities of the CVP Corporation

2.3 REGULATORY CHARTER

The CVP Corporation will be responsible for all activity within the corridor through a long-term Charter of Operation sought from the Federal Government and Regulator. Following regulatory approval of the corridor for use with specified products, the Charter will allow the CVP Corporation to authorize development of the corridor over the life of the corridor with minimal additional regulatory approval requirements for specific variances and specific interventions.

3 MILESTONES OF SUCCESS

3.1 EARLY FUNDING AND SUPPORT

The Vitality Pathway will seek early financial and concept support from a variety of individuals and organizations who believe in this approach and its potential to solve the energy transit deadlock that has occurred in Canada. This funding will be used to begin early stage consultations with governments, First Nations organizations, environmental advocates, industry and consumer groups to establish a groundswell of support and funding commitments to move to the next stage.

During this phase, we need supporters who can connect the Vitality Pathway to key players with whom the approach can be tested and who may have the desire to participate financially or through in-kind contributions. It is anticipated that this phase will cost approximately \$15 million and take approximately 12 months.

3.2 COALITION OF THE WILLING

The next stage will require the gathering of willing participants from all sectors who want to contribute ongoing funding, personnel, technical expertise, studies, lands and/or existing rights-of-way towards a general outline of the Vitality Pathway. These resources will be required to begin the process of putting together more support, an early draft regulatory application and establishing the CVP Charter. This stage may be more prolonged depending on how quickly a coalition of the willing can be assembled and whether key groups show willingness to participate at this stage. Discussions with governments and regulators at this stage will be critical to establishing how such a long-term Charter for development can coexist with current regulatory rules and imperatives. This stage will likely cost on the order of \$75-100 million and could take 18-24 months.

The objectives of this stage are two-fold:

- To identify physical, social and societal issues such that the CVP can meaningfully address those issues early on through planning or establishing alternative paths, and
- Create the framework and required elements of the Charter for how the CVP will operate.

3.3 FUNDING TO GAIN REGULATORY CHARTER

At this stage many of the issues should have been identified and resolved and a strong coalition of multiple sectors of society and industry should be well established. Regulatory risk should be considerably reduced. Funding for this stage will likely come from long-term loans repayable out of CVP revenue. The objective of this stage is to work out the detailed plan, location and final operating Charter for the Vitality Pathway. Cost of this stage will be approximately \$1 Billion. It will involve considerable preparation of detailed plans, completion of the regulatory application, associated hearings, intervenor funding and achieving regulatory approval.

4 CONTACTS

4.1 MANAGING DIRECTOR

Frederick Gallagher – is an energy industry entrepreneur whose career has spanned the entire spectrum of energy from oil and gas exploration to renewable energy development. Fred has worked in multinational, utility, and start-up settings providing original thought, guidance and enthusiasm to these organizations. Fred realized early in his career that his most valuable talents were: seeing things from a different angle, bridging gaps in understanding, and working with diverse teams to accomplish lofty goals. The growth of the wind industry is an example where Fred brought ideas from one industry segment to another to create significant new opportunity.

Fred.Gallagher@vitalitypathway.ca

4.2 DIRECTOR OF ENGAGEMENT

Joel Holdaway – has experience in a start-up environment as well as in the federal and provincial governments. He has a passion for identifying shared interests between traditionally opposed parties and developing innovative solutions that better meet their needs. Joel has developed and maintained effective working relationships with diverse groups of organizations and has been involved in commodity analysis and infrastructure impact studies for both the Federal Government and BC provincial government.

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