A Transformative Energy Investment Asset Class

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Billions to Trillions

Capital flows for projects, infrastructure, and ventures at the intersection of decarbonization, climate tech and clean energy have been rising globally, as well as in Canada. According to the International Energy Agency (IEA) investment in renewables, electric vehicles, electricity grids, power storage, low-emissions fuels, and efficiency improvements exceeded USD $2 trillion in 2024. Capital placement in Canadian clean energy tech and infrastructure reached USD $35 billion in the same year according to Bloomberg.

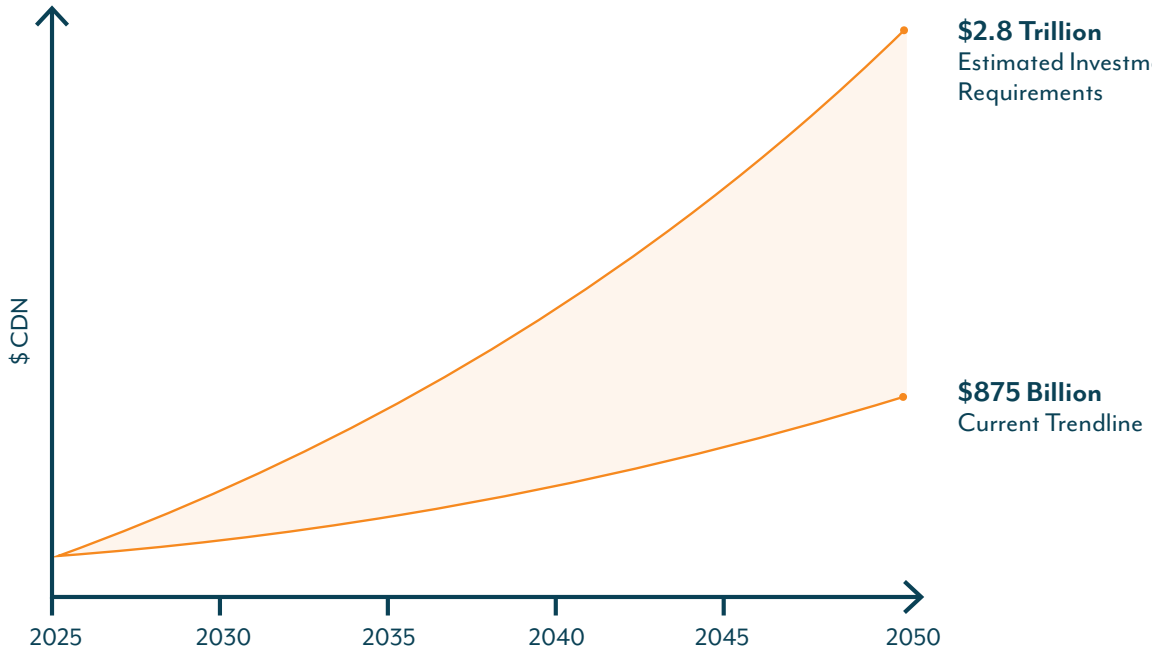
Positive trends.

Yet pinch points and shortfalls in energy transition investment are present in certain markets and regions of the world. The 'big three economies' of the United States, Europe, and China comprise two-thirds of investment totals. Led in large measure by China. The energy transition capital gap in developing countries is particularly acute. Further, investment requirements in certain market segments like grid infrastructure, clean energy manufacturing/supply tech and renewable fuels far outstrip capital placement worldwide. These gaps are growing.

Consider the case for Canada. According to a 2020 article in the magazine, Politics: Canadian Politics and Public Policy, Net-Zero energy Transition will require CAD $2 Trillion in investment over the next twenty-five years. Accounting for inflation and cost escalation, we estimate that energy transition will require CAD $2.8 trillion in investment by 2050. Yet, if current levels of investment are the trend, only CAD $875 billion in capital will be placed. A delta of CAD $1.925 trillion, as the chart below highlights.

Simply put, to realize a transformative energy future, capital deployment needs to rise from billions to several trillions.

Canada's Energy Transition Investment Trends



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Certain Capital Sources Constrained

Why is energy transition capital constrained?

Energy transition investment requirements have been growing rapidly to meet demand by industry and consumer consumption growth, including electricity-based heating/cooling and sustainable transportation. Power demand escalation in major emerging economies like India, coupled with the vector of AI data centers, adds to the equation.

Over the past decade, the prevailing view was that three sources of capital had primacy to build a worldwide 21st century climate-resilient, clean energy economy: public investment, carbon/climate financing funding mechanisms, and development banks.

Time for a reality check.

Globally, public capital and sovereign investment capacity has been severely curtailed due to persistent national deficits and accumulated debt; exacerbated by mega forces such as the pandemic and tariff mania disrupting global trade. Climate financing mechanisms advanced by the UNFCCC and other bodies have been underwhelming, and carbon investment through arrangements like Renewable Energy Credits (REC's) have yet to take off. Finally, the capital capacity of national, multilateral, and regional development banks has been greatly diminished.

The simple fact is that while an energy transition will require public policy and fiscal frameworks, economic realities point to the imperative of private capital inclusion/participation.

Catalyzing Quality Investment Prospects

Capital requirements for decarbonization, climate tech and clean energy capital opportunities are bedeviled, as is often the case with new economic dynamics.

1. First, energy transition markets are fragmented. There is a smorgasbord of instruments and investment mechanisms - most lacking scale, consistency, and reliable definition.
2. Second, the quality of venture and project opportunities are lacking, with every investment seeming to require costly bespoke development.
3. Third, transactional connections between venture and project proponents, and investors and lenders are patchy.

The Canadian government has made a commitment to develop voluntary sustainable investment guidelines, generally known as a taxonomy that would categorize investments with eligibility criteria that seeks to cap carbon emissions growth. While of some value, this mechanism is climate versus transformative energy focused.

To unlock new and substantive sources of private finance, the definition and quality of decarbonization, climate tech and clean energy projects/ventures/infrastructure must be enhanced. Risks need to be better managed, project/venture development costs reduced, and returns amplified. Drivers such as these are key triggers that catalyze investment.

The Value of Asset Classes

It is timely and vital therefore to consider the concept of a Transformative Energy Asset Class as one arrow in the quiver to finance a 21st century energy economy. This would reinforce project and venture quality, amplify yields and unlock reliable and competitive opportunities for investors and lenders.

Conventionally, markets view asset classes in large bundles such as equities, fixed income instruments, real estate, commodities, futures, and other financial derivatives, and even cryptocurrencies. More targeted investment classes include domains such as valuable inventory, artwork, and other tradable collectibles.

One expects an asset class to reflect different risk and return investment characteristics and perform differently in any given market environment. Investors and advisors can balance risk with return preferences by asset class diversification.

Each asset class is not a homogenous group of investments, but rather an array of opportunities and financial tools. However, a market accepted asset class does bring together assets that meet the same criteria. It can be in terms of regulations, structures, or where and how transitions occur with fluidity. Investors and experts use these classes to sort different assets based on how risky or rewarding they are, their investment features, and other traits.

The value of asset classes has been proven. They provide venture and project proponents a means to assemble their offerings with attributes the market is seeking. Investors and lenders place a premium on consistency and clarity to risk and return. Asset classes facilitate effective capital market functioning.

A Transformative Energy Investment Asset Class

We propose that a Transformative Energy Investment Class needs to be underpinned by Market Guardrails, Income Amplification and Capital Intermediaries as illustrated to the right.

The structure places primacy on three economic outcomes:

A. higher quality energy transition projects, ventures and infrastructure opportunities for investors, with lower risk and higher yield,

B. dramatically increasing the pipeline, scale and replicability of investment opportunities with more consistent definitions and offerings, and

C. more efficient and effective investment transactions, in effect, quickening the pace of capital investment and deployment.

Income Amplification puts a premium on realizing higher investment performance in energy transition projects, ventures, and infrastructure within a portfolio

- Vectoring away from one-off transactions towards ***Aggregated Projects & Ventures.*** Size matters, both in terms of investee scale and number.
- Many energy transition investments have the potential to yield ***Project & Venture Revenue Additionality*** beyond conventional commercial earnings. This can include monetizing public good benefits such as ecological (nature) impacts, valuing carbon mitigation, or wiring in externalities such as improved societal health outcomes into investment terms.
- We are in the awkward teenager stage of energy transition, and entrepreneurship and skills enhancement to improve ***Project & Venture Development Capacity*** will improve, and can be advanced through AI, shared learning, and educational modalities.

Market Guardrails are a different approach to positioning the role of governments and public agencies.

- Of crucial importance are public standards and oversight for market ***Transparency and Anti-Corruption Measures***. Such actions substantively increase investor confidence and investment performance.
- Government directives for energy futures are essential, though it may be more effective to build an ***Energy Transition Policy/ Regulatory Platform*** over time rather than one-off media-catching public pronouncements.
- Taxation arrangements, of all kinds – capital gains, excise, trade, corporate, consumption and personal taxes – in addition to well-designed, targeted public expenditures, provide ***Fiscal Frameworks and Social Equity*** for energy transition investment.

Structuring a Transformative Energy Investment Asset Class

Income Amplification

- Aggregated Projects and Ventures
- Project and Venture Revenue Additionality
- Project and Venture Development Capacity

Market Guardrails

- Transparency and Anti-Corruption Measures
- Energy Transition Policy/ Regulatory Platform
- Fiscal Framework and Social Equity

Capital Intermediaries

- Investment Portfolio and Aggregatioin
- Risk Reduction and Diversification
- National to Global Intermediaries

Capital Intermediaries are vitally important as the "glue" binding together the components of a Transformative Energy Investment Asset Class. The number and transactional capacities of Intermediaries must rise.

- Intermediaries should lead energy transition ***Investment Portfolios and Aggregation*** facilitating transactions at scale, and at lower cost.
- By grouping energy transition project, venture, and infrastructure investments, Intermediaries become the trusted market marshals that advance ***Risk Reduction and Diversification.***
- Intermediaries have specialties in countries or regions, or specific sectors and markets. However, it is important that they also create networks and neural connections that take functioning from ***National to International*** interaction. In effect, be both local and global.

Advancing the Concept of a Transformative Energy Asset Class

The Energy Transition must be grounded in altered economic patterns and relationships. Investors need to have security if they are to deploy more of the capital they manage. This involves new language and imagery which we have sought to embed in the concept of a Transformative Energy Investment Asset Class. Think about it this way. We are undergoing a Decarbonization Big Bang akin to the one that deregulated financial markets in the 1980's.

In January 2025, the collaborative Canadian platform Positive Energy issued a report, ***Energy Projects and Net Zero by 2050: Can We Build Enough Fast Enough***. The paper delved into imperatives for policy and regulatory reform. Key issues most certainly, but only one part of the equation. Without capital and market innovations, like a Transformative Energy Investment Asset Class, economies will lack investment capital to build enough, fast enough.

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With almost 30 years experience in the Canadian capital markets, Lida Preyma is the founder and CEO of Cēlandaire Capital, facilitating curated capital introduction and advisory on climate finance transactions including investor readiness, global policy, and carbon markets. She is a member of the B20 Finance & Infrastructure taskforce, the Sustainable Business COP30 Transition Finance & Investment Working Group, a mentor for the Creative Destruction Lab's Paris Climate stream and regularly speaks at international government and industry conferences.

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At the pinnacle of a four-decade career, Chris Henderson is Curator of Transformative Energy, President of Lumos Energy, and Founding Executive Director of Indigenous Clean Energy.
He has established several companies at the intersection of environment, sustainability, cleantech and clean energy. He is Authoring a trilogy of books presenting ground-breaking energy transformation ideas and insights to catalyze national and global dialogue – fostering just and impactful collaborations.

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