The Energy Transition:

Opportunities, Challenges and Solutions for Northern B.C.

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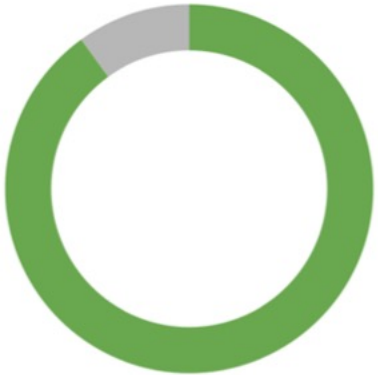
The Net-Zero Moment

Global GDP

90%



$130 trillion in assets

135 Countries

Drivers of the Global Energy Transition

- **Energy Security**
- **Air pollution (saving lives)**
- **Climate Change**

“Every extra bit of warming matters…”

World Energy Outlook 2022

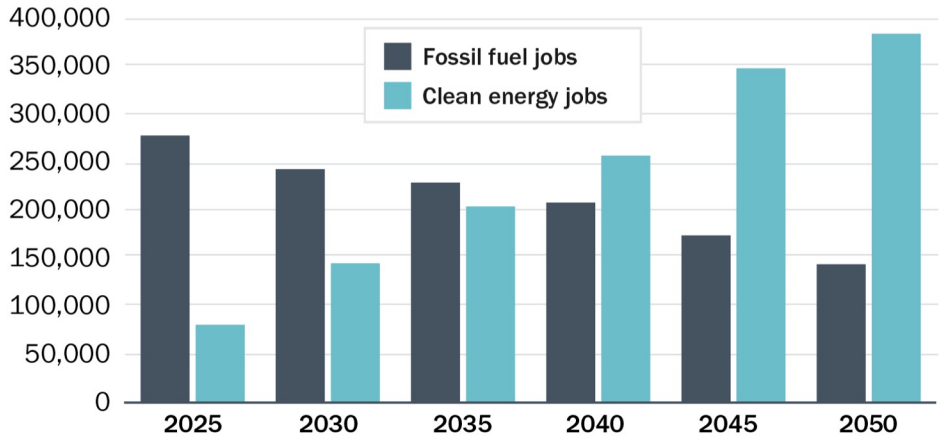
- **"The golden age of gas is approaching the end."** 2022 is first Energy Outlook that saw all fossil energies peak by 2030.
- Higher proportion of RE correlates with **lower electricity prices.**
- **Jobs:** Clean energy jobs already exceed those in fossil fuels worldwide. Projected to grow from around 33M to almost 55M jobs in 2030 (APS).
- **Minerals:** Demand for critical minerals for clean energy technologies is set to rise, more than doubling from today's level by 2030 (APS).
- **Russia's invasion of Ukraine** has turbo-charged the alignment of economic, climate and security priorities.
- T**he U.S.'s Inflation Reduction Act** and other measures = an accelerant! Added ~$500B to accelerate shift to renewable and clean energy technologies.

The new economy starts now

B.C. clean energy job gains will outpace fossil fuel job losses

Clean energy vs. fossil fuel jobs in B.C. under current policy, 2025-2050

Clean energy jobs include jobs in clean energy supply, clean transport, clean buildings, and clean industry. Equivalent fossil fuel jobs are also counted.

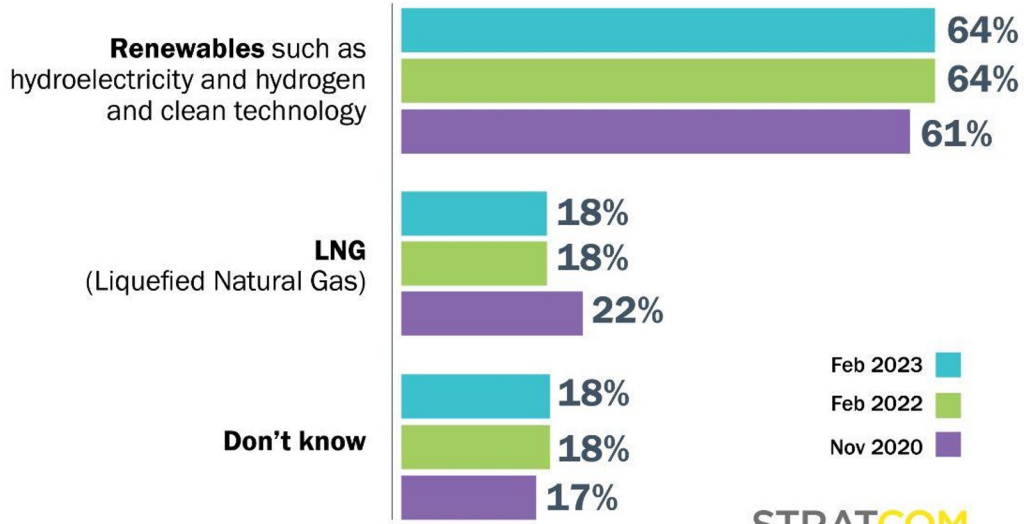


Source: Forthcoming Clean Energy Canada report, modelling by Navius Research

British Columbians prefer government to focus on developing renewables over LNG

Tracking: LNG vs. Renewables

Going forward, which would you prefer the government focus on developing?



Totals may not add up to 100 due to rounding

STRATCOM
STRATEGIC COMMUNICATIONS

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Alberta, Ontario and Quebec are seizing the moment

Select Canadian EV Battery supply chain investments

2020–June 2022

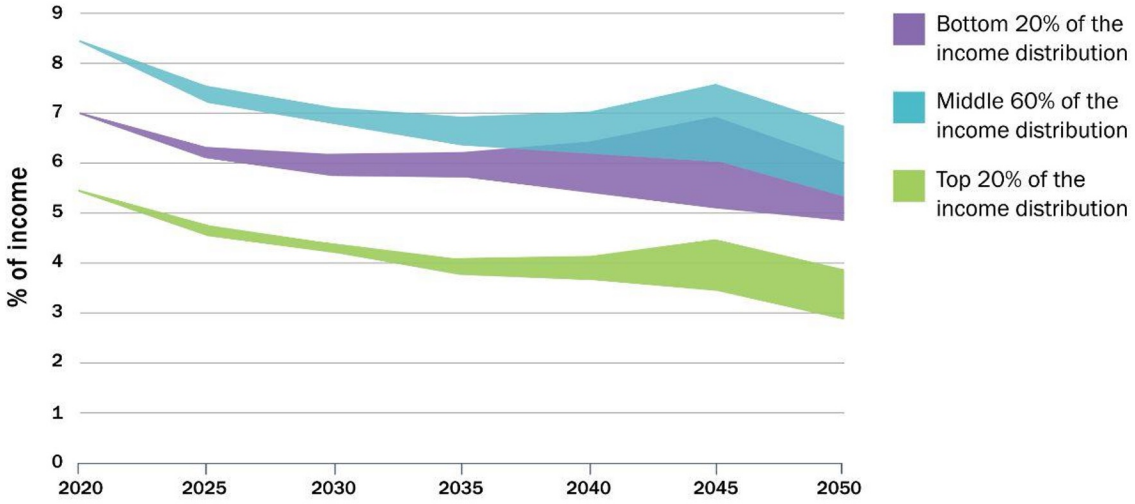
	COMPANY	VALUE
EV Assembly	Ford	$1.8B
	General Motors	$1B
	Stellantis	$3.6B
	Nova Bus	$185M
EV Battery	Lion Electric	$185M
	Stellantis-LG	$5B
Battery Materials	General Motors-POSCO	$500M
	BASF	Undisclosed
	Nouveau Monde Graphite	$15M
	Electra Battery Materials	$84M
Battery Components	Solus Advanced Materials	$450M
	Magna	$50M
Battery Recycling	Lithion Recycling	$125M

Source: Trillium Network for Advanced Manufacturing 2022

Alberta currently has over **$3.75 billion of investment** in solar and wind energy creating nearly **4,500 jobs** and enough clean electricity to power over **640,000 homes**.

Affordability: Climate Action can positively impact affordability

Household expenditure on energy services as share of income



Source: Canadian Institute for Climate Choices

Affordability: What the research shows

ELECTRIC

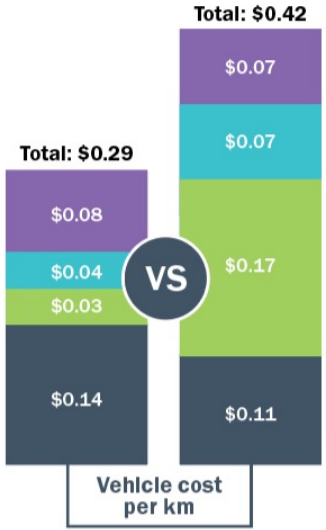
2022 Chevrolet Bolt

Retail price: **$38,198**

Battery range: 416 kilometres

Eligible for rebates: yes

Total ownership cost: $45,509



GAS

2022 Toyota Corolla Hatchback

Retail price: **$21,450**

Total ownership cost: $67,380

48% more expensive for the gas vehicle

- Cost of car (depreciation)
- Fuel
- Maintenance and repairs
- Taxes, insurance, and other costs

Pivoting towards a new reality

- Critical metals & minerals for batteries, plus electricity are economic opportunities for northern B.C.. Also, opportunity for indigenous partnerships.
- There is significant infrastructure development required for B.C. to realize these opportunities.
- LNG future past 2035 is unclear & global consumption is projected to decline.

CleanBC is a North American leading climate plan

1. Accelerate the transition of all vehicles – passenger and trucks – to clean energy.
2. Follow through without delay on existing CleanBC Roadmap commitments.
3. Support families and businesses through the transition with financial and other incentives.

Questions

- Is the energy transition talked about/understood in your community?
- What are the key issues/challenges perceived by your community about the energy transition?
- Are there any opportunities or up sides talked about/perceived by the community?
- How important is addressing climate change to your community? Is the energy transition linked as the solution to climate change?

Track the energy transition

Each Monday we publish the Clean Energy Review, a free weekly digest of must-read climate and clean energy stories from across Canada and around the world.

For follow-up questions, contact:

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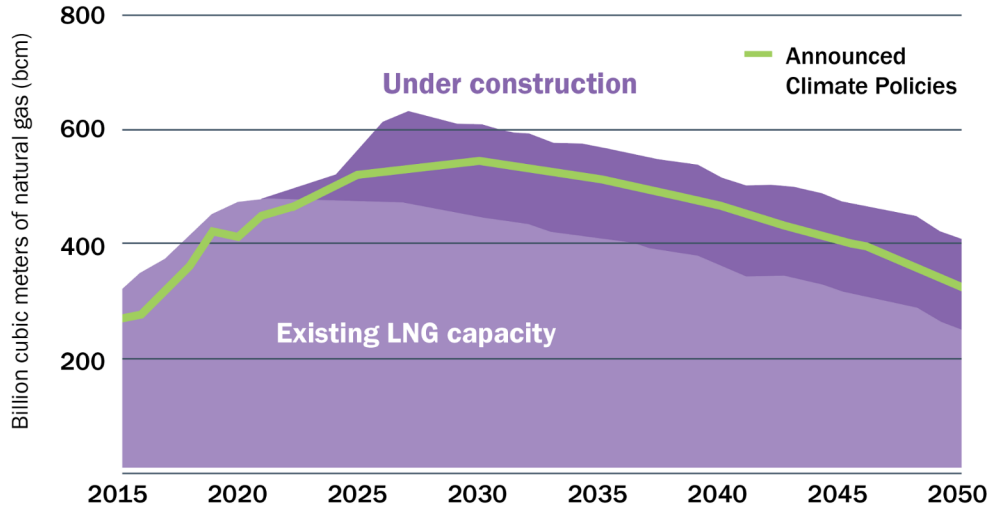
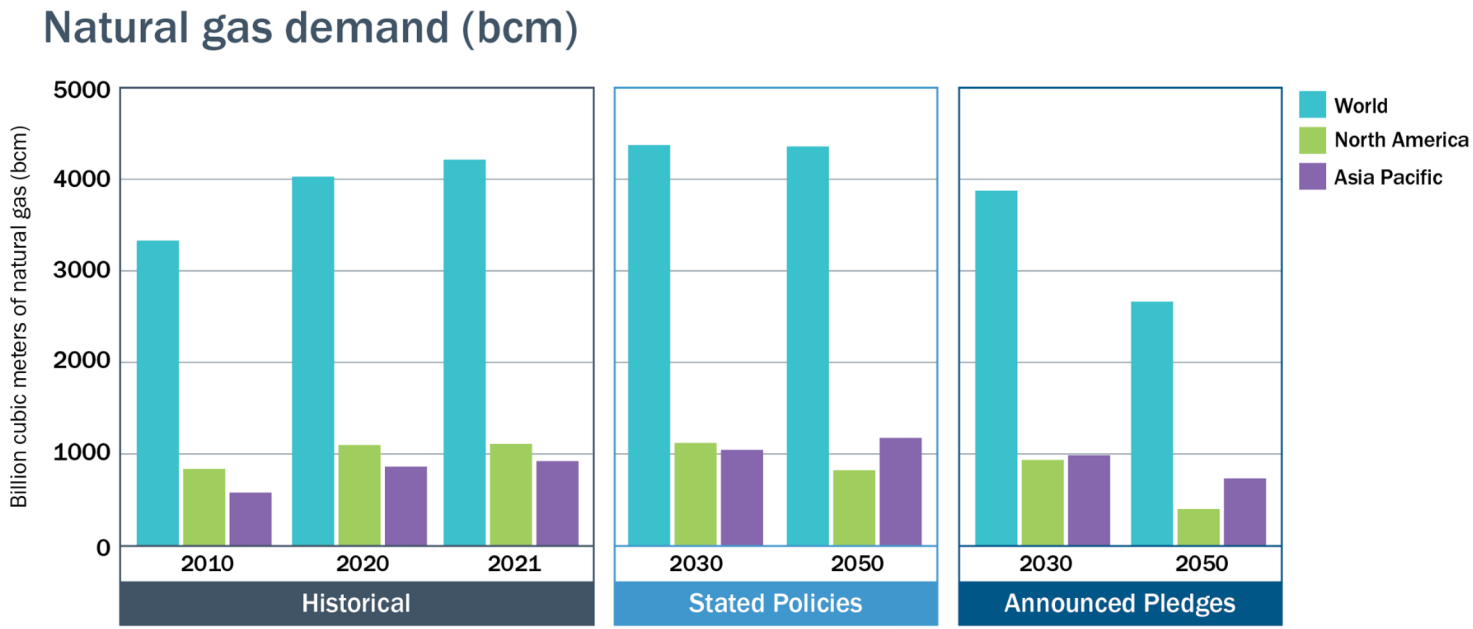
Appendix: The clean energy transition is leaving LNG behind

Existing and under construction LNG capacity and total inter-regional LNG trade by scenario, 2015-2050



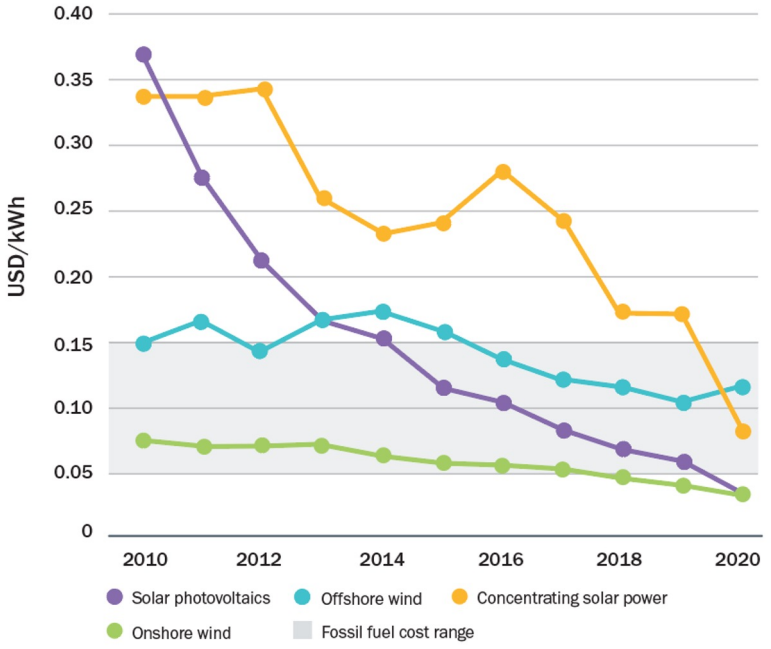
> Our findings suggest that the crunch caused by the war in Ukraine may, in fact, have fast-tracked the transition by an astonishing **five to ten years.**
>
> *–The Economist | Feb 13, 2023*

Appendix: The era of rapid natural gas demand is drawing to a close

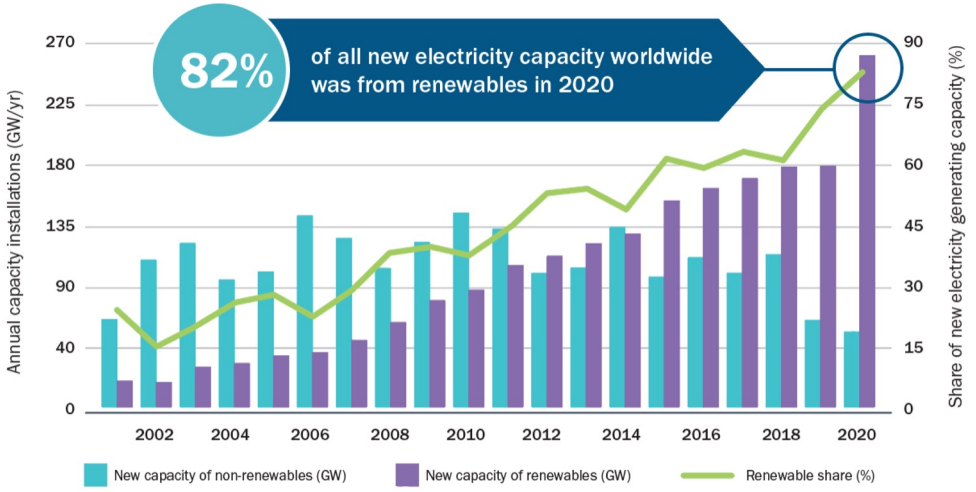


Source: World Energy Outlook (2022)

Appendix: Renewable energy is the lowest cost option



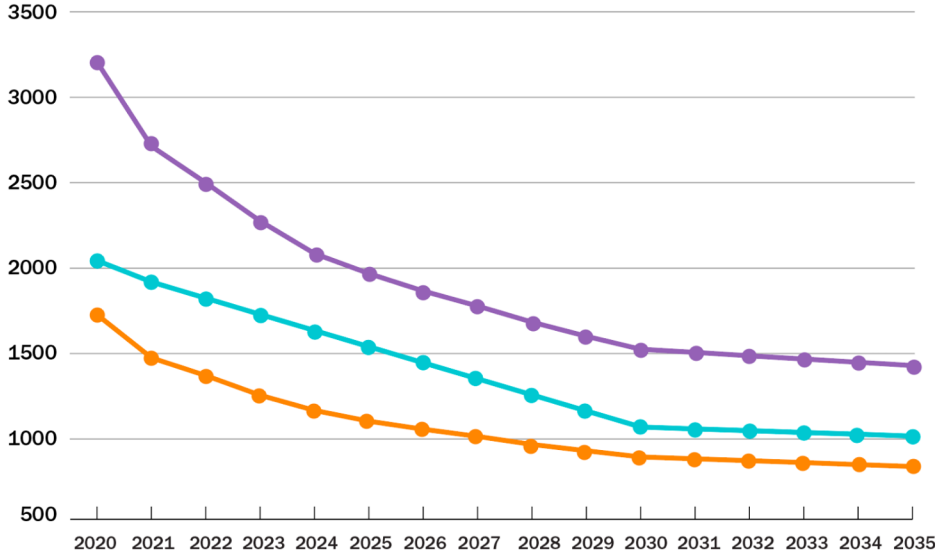
Source: International Renewable Energy Agency (2021)



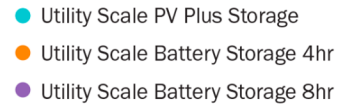
Source: International Renewable Energy Agency (2021)

Appendix: Grid-scale renewable energy storage is here

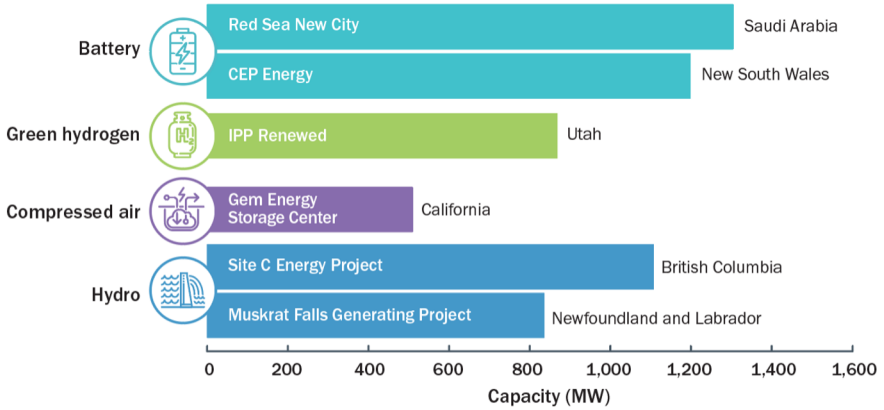
NREL annual technology baseline (2022)



Source: 2022 NREL Annual Technology Baseline - Moderate Scenarios



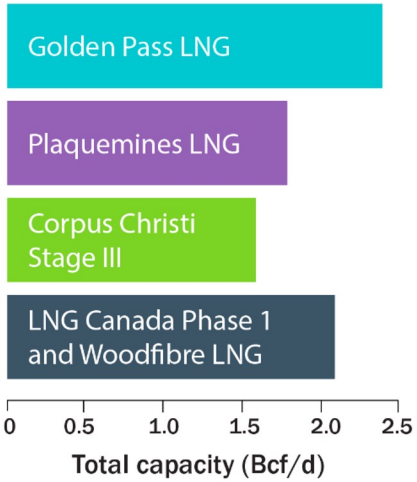
Battery storage costs fell by 72% between 2015 and 2019



Source: BC Hydro (2017), China Daily (2021), Hydrostor (2021), Intermountain Power Agency (2020), Nalcor Energy (n.d.), The Guardian (2021), NREL (2021)

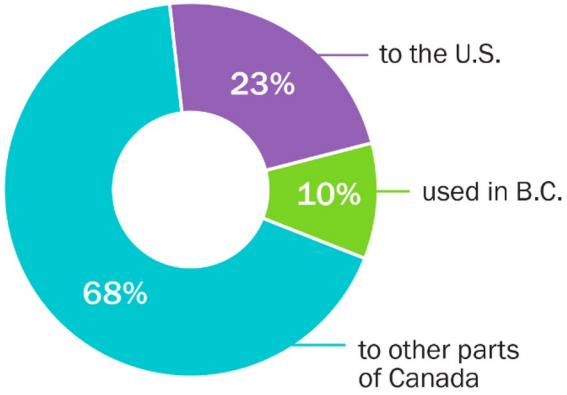
Appendix: B.C. is already doing its part for global energy security

Capacity of LNG facilities under construction



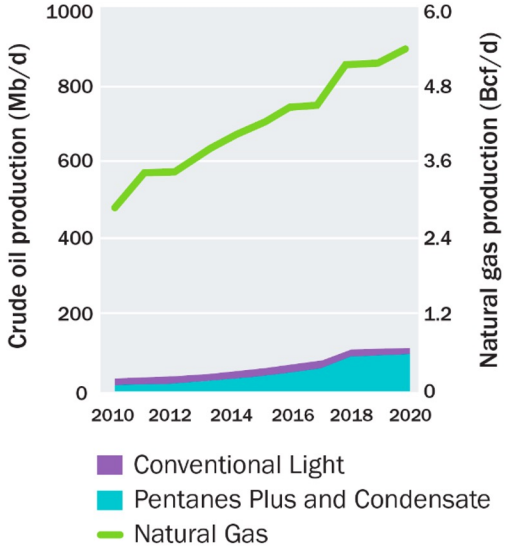
Source: U.S. Energy Information Administration

Destination markets for B.C. natural gas



Source: Production and distribution of Natural Gas in B.C. (2022), Government of British Columbia

B.C. hydrocarbon production



Source: CER – Canada's Energy Future 2021