Sustainability-based guidance for assessing Canadian coal phase-out policy

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Why a decarbonized future?

CONTEXT:

Surpassing **planetary boundaries** + enormous **inequity gaps**

Limiting the **global temperature increase within 1,5°C**/ 2°C above pre-industrial levels

- A climate change mitigation pathway needs:
  - **Energy demand reductions**
  - **Decarbonization of electricity by 2030**
  - **Some form of permanent carbon storage on land or sequestration in geological reservoirs, etc.**
  - **Net-zero by 2050**

Why coal phase-out policy?

Coal-fired power plants

=

-30% electricity generation

-Largest single source of energy-related CO_2 emissions.

-20% of global GHG emissions

-0% in IPCC 1.5 °C pathway

Coal-fired power plants in operation, under construction or planned

=

emissions overshoot of 1.5°C—317% of the Paris budget.

Coal phase-out policy

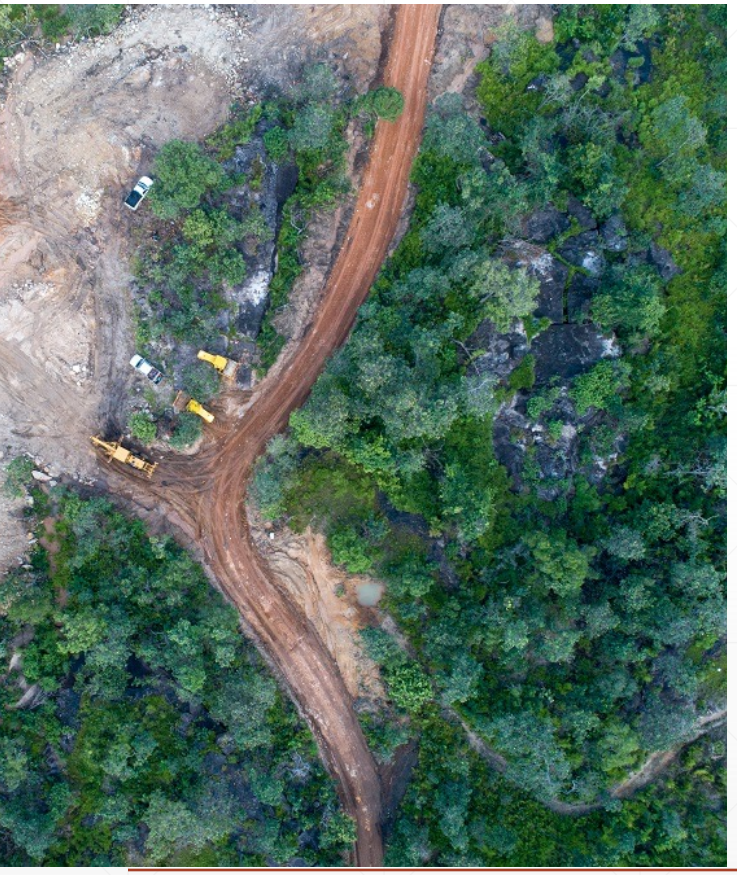
=

essential role in climate change mitigation

Socioeconomic context for phasing out coal is not trivial – just transition is needed to soften the impact.

Alliance of environmental goals with requirements for a just transition = robust framework for climate change mitigation policies assessment

Considerations on sustainability-based assessment criteria



- ✓ Integrating, not balancing, sustainability criteria
- ✓ Trade-offs as a last resort
- ✓ Replacing balancing losses and gains with multiple reinforcing gains
- ✓ Beyond minimizing negative impacts
- ✓ Mutual support for development in the short and the long term
- ✓ Respecting socioecological systems complexity, interactions and feedback – favor precaution
- ✓ Seeking continuous generation of positive effects towards integrating human, social, economic, and environmental well-being

Take an Integrative approach towards sustainability

Goal: develop and apply the necessary sustainability-based criteria to assess national coal phase-out policy

Considerations on just transition

long-lasting well being for communities and ecosystems + **justice and equity when sharing the burden of transitions**

Climate justice | **Environmental justice** | **Energy justice**

- recognitional justice
- distributional justice
- procedural justice

A just transition process to decarbonization:

- government support
- capacity and infrastructure
- affected communities as active parties

Valuing job security and caring for the environment as not two mutually exclusive goals

Sustainability-based assessment criteria for coal phase-out policy

Gibson et al. (2005)

1. **Life support**
2. **Livelihoods**
3. **Intragenerational Equity**
4. **Intergenerational Equity**
5. **Resource Maintenance and Efficiency**
6. **Understanding, Commitment and Engagement**
7. **Precaution and Adaptation**
8. **Immediate and long-term integration**

Heffron, R.J. (2021). The just framework. Introduction: The Just Transition to a Low-Carbon Economy**.**

International Labour Organization (2015) Guidelines for a just transition towards environmentally sustainable economies and societies for all

Kieran Harrahill, Owen Douglas (2019) Framework development for 'just transition' in coal producing jurisdictions

Keeney, R. L., & McDaniels, T. L. (2001) A Framework to Guide Thinking and Analysis Regarding Climate Change Policies.

McCauley, D., & Heffron, R. (2018) Just transition: Integrating climate, energy and environmental justice

The World Energy Trilemma Index (2021) The World Energy Council.

Sustainability-based framework for assessing coal phase-out policy

Two additional generic criteria / core categories:

9. Effective governance for long-term sustainability:

- Apply intergenerational timescales in the assessment process design, ensuring effective follow-up, evaluation of needs and options for precaution and adaptation in the long-term

10. Respect for planetary boundaries and fundamental climate change mitigation objectives:

- Ensure transition processes enables the achievement of fundamental climate change mitigation objectives (e.g., by 2030 and 2050 to meet Paris Agreement commitments and respect IPCC recommendations).
- Prepare communities to better mitigate and adapt to climate change problems in the long-term.
- Transitioning to energy sources that promote pathways to halt climate change impacts and promote a healthy environment to the communities.

Sustainability-based framework for assessing coal phase-out policy

Specified criteria for the core generic categories

1- Life-support
- Energy security and reliability respecting planetary boundaries and ecological systems integrity.
- Decarbonisation, air quality
- Restorative justice: proper decomissioning, waste management, ecosystem integrity
- Systems integrity preservation and rehabilitation.

2- Livelihoods
- Just transition and employment: same or a better standard of living for those displaced
- Re-training programs to workers and communities through Proactive assistance for workers to re-enter employment in clean industries
- Fundamental principles and rights at work.
- Gender-based policies to promote equitable outcomes.
- Affected communities' reputation as liveable

3- Intragenerational equity
- Energy equity : universal access to reliable, affordable, and abundant energy for domestic and commercial use.
- Distributive justice: equal distribution of benefits and negative impacts Recognition of rights in particular the rights of indigenous communities.

4- Intergenerational equity
- Distributive justice: avoid displacement of negative impacts to future generations.
- Recognition of rights in particular the rights of future generations.

5- Resource maintenance and efficiency
- Enabling environment for enterprises, workers, investors and communities
- Environmentally sustainable and inclusive economies and societies.
- Mitigating and avoiding potential environmental harm and adverse climate change impacts
- Promoting decarbonisation, innovations for system efficiencies, conservation.

6- Understanding, Commitment and Engagement
- Social dialogue through enhancing the potential for workers to influence energy transition Secure social acceptance and public support of transition through open participation
- Ensure gender equality in consultation processes and in decision making.
- Equity in the recognition of rights in particular indigenous communities and future generations.
- Foster partnerships and cooperation to diversify and sustainably transition the region's economy.

7- Precaution and adaptation
- Favour flexible, low risk options
- Minimize risks and damages, especially to those most vulnerable
- Rehabilitaton of valued systems disturbed by energy production, infrastructure, use and waste.

8- Immediate and long-term integration
- Ensure Trade-offs are a last resort
- Establish trade-off rules for specific contexts, through informed choices by affected stakeholders

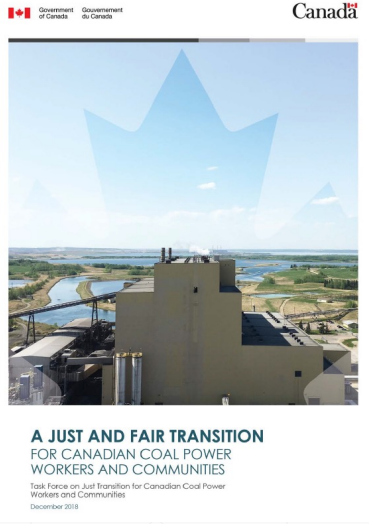
9- Effective governance for long-term sustainability
- Energy justice, equity, liveability of communities assessed continuously through intergenerational timescales.
- Assess environmental and climate change impacts through intergenerational scales
- Establishing transparent and clearly allocated or shared governing authority committed to lasting wellbeing

Context for coal phase-out in Canada

7.4% of electricity generated from coal

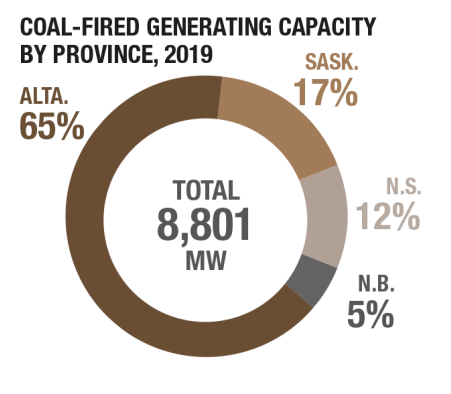
63% of electricity-related GHG emissions

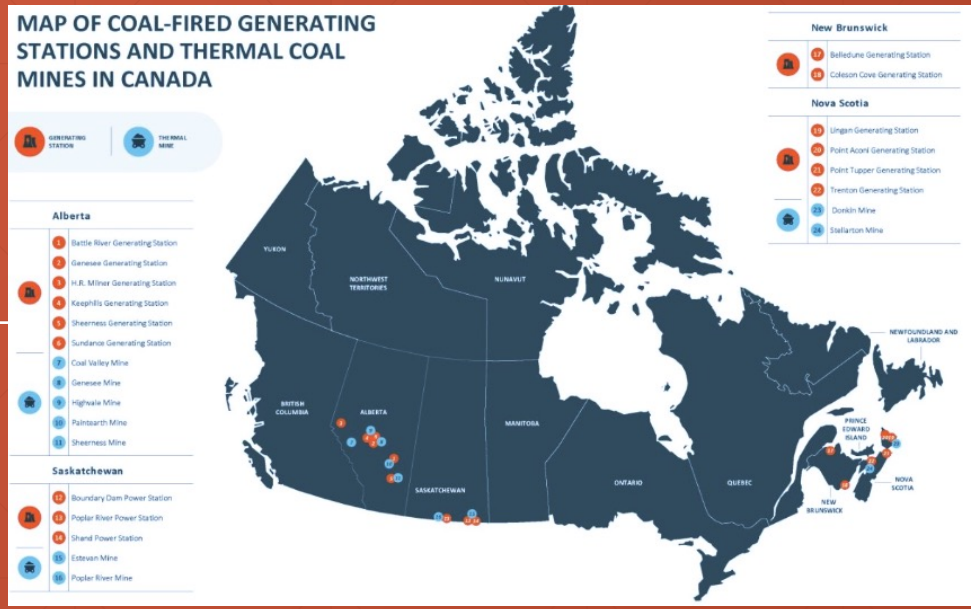
- Canada is the world's 10th largest emitter of greenhouse gases. (Carbon Brief, 2019)
- Canada: 4th largest exporter of metallurgical coal, after Australia, the United States and Russia
- 2019: the electricity sector was the third-largest source of GHG emissions, after road transportation and oil and gas sectors
- Canada's updated climate plan: reduce GHG emissions by 32% - 40% by 2030 / 2005 levels & net-zero by 2050
- Regulations to phase out thermal coal-based electricity by 2030
- Canada's exports are primarily metallurgical coal (95% in 2019).



Context for coal phase-out in Canada

- 2018: **Task Force on Just Transition for Canadian Coal Power Workers and Communities** recommendations
- Provinces dependent on coal power generation: Alberta, Saskatchewan and Nova Scotia. New Brunswick also has coal plants
- Relevance of inter jurisdictional approach
- JT Task Force: “Nationally coherent, regionally driven, locally delivered actions” (transition centres)
- “Immediate yet durable support” (short term + long term)
- Framework and case study focus on coal-fired power
- Coal mining affected by phase-out (thermal coal mines)





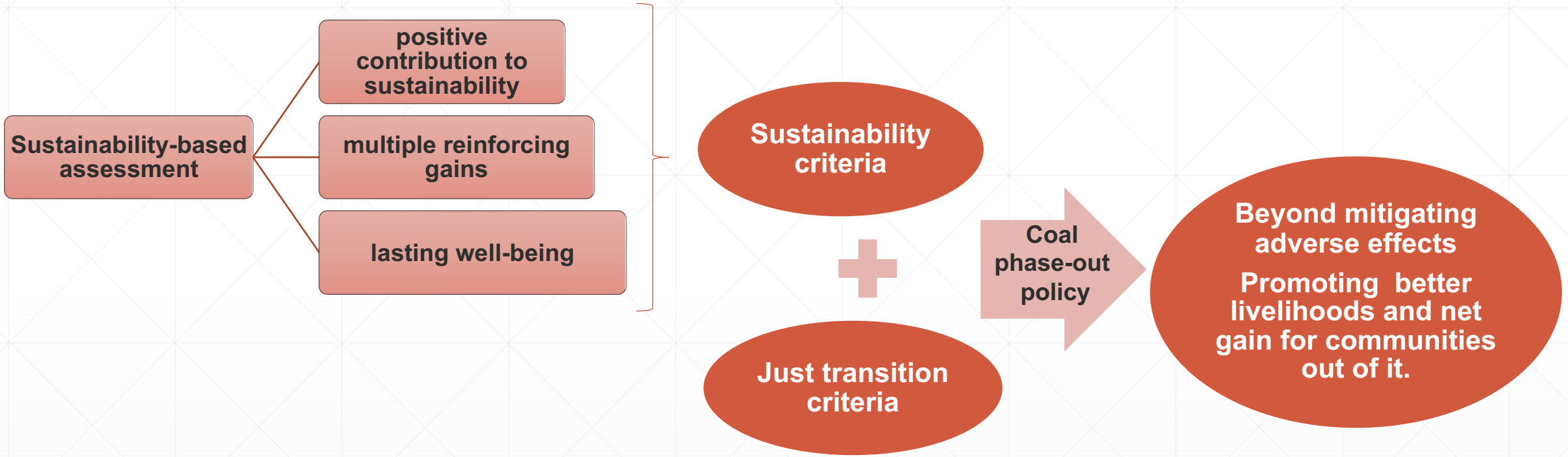
Alberta:

- 2015 Climate Leadership Plan: power generation mix to 70% natural gas and 30% renewables by 2030.
- Currently committed to phase out coal-fired electricity by 2023

Risks for Net-zero:

- phasing out coal and switching to low-abatement gas-fired generation
- federal GHG regulations weakened by CEPA equivalency agreements.

Final considerations



Next steps

- Application of the sustainability-based framework to specific cases (Canada and Germany)
- Integrating specific contextual criteria, illuminated by the discussion of the cases

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Thank you!

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