



A Study on Local Government Energy Efficiency Programs

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Group 1

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Objective

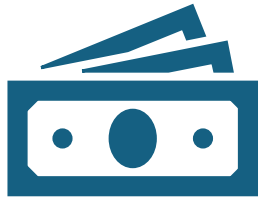
To analyse the impact of funding mechanisms on local government energy efficiency programs (LEEP) across different Canadian provinces.



Problem Statement

- Global energy consumption is rising, causing increased CO2 emissions and climate change.
- Despite international efforts such as the Paris Agreement, many regions, including Canada, struggle to meet emission reduction targets.
- There's a gap in understanding the effectiveness of funding in the Provincial level.
- The gap also extends to the long-term sustainability of such policies.

Issue Addressed




Funding allocations and investment strategies among provinces.



The need to focus on provincial strategies and diverse funding mechanisms to improve energy efficiency.



Evaluating the long-term sustainability and effectiveness of LEEP initiatives.



Literature Review

Research gaps	Description
Limited Evaluation of Long-Term Sustainability	Comprehensive studies evaluating the long-term sustainability of local energy efficiency programs (LEEP) are lacking. Research focusing on the continued impact of these initiatives beyond the initial implementation phase is essential
Comparative Analysis of Different Program Models	There is a need for research that compares and evaluates the effectiveness of different models of local government energy efficiency programs. Comparative studies can provide insights into the most successful approaches and help identify best practices.
Socio-Cultural Factors Impact	Further research is required to understand the socio-cultural factors influencing the success or failure of energy efficiency programs at the local government level. Exploring how community attitudes, behaviors, and perceptions shape program outcomes can enhance program design and implementation.
Impact of Funding Mechanisms	Examining the impact of different funding mechanisms on the success of local government energy efficiency programs can provide valuable insights. Studies analyzing the effectiveness of funding sources, such as grants, loans, and public-private partnerships, can provide valuable insights.
Decarbonization of Existing Residential Buildings	There is a clear roadmap for new constructions, but existing residential buildings lack a comprehensive decarbonization plan. Studies focusing on the decarbonization strategies for existing homes across various regions and climate zones in Canada would be beneficial

Methodology and Data

Research Design:

Mixed methods approach combining qualitative and quantitative analysis.

Data Collection:

Sources: Government reports, case studies, surveys.

Data from Our World in Data, Natural Resources Canada, and various other governmental and academic sources.

Data Analysis:

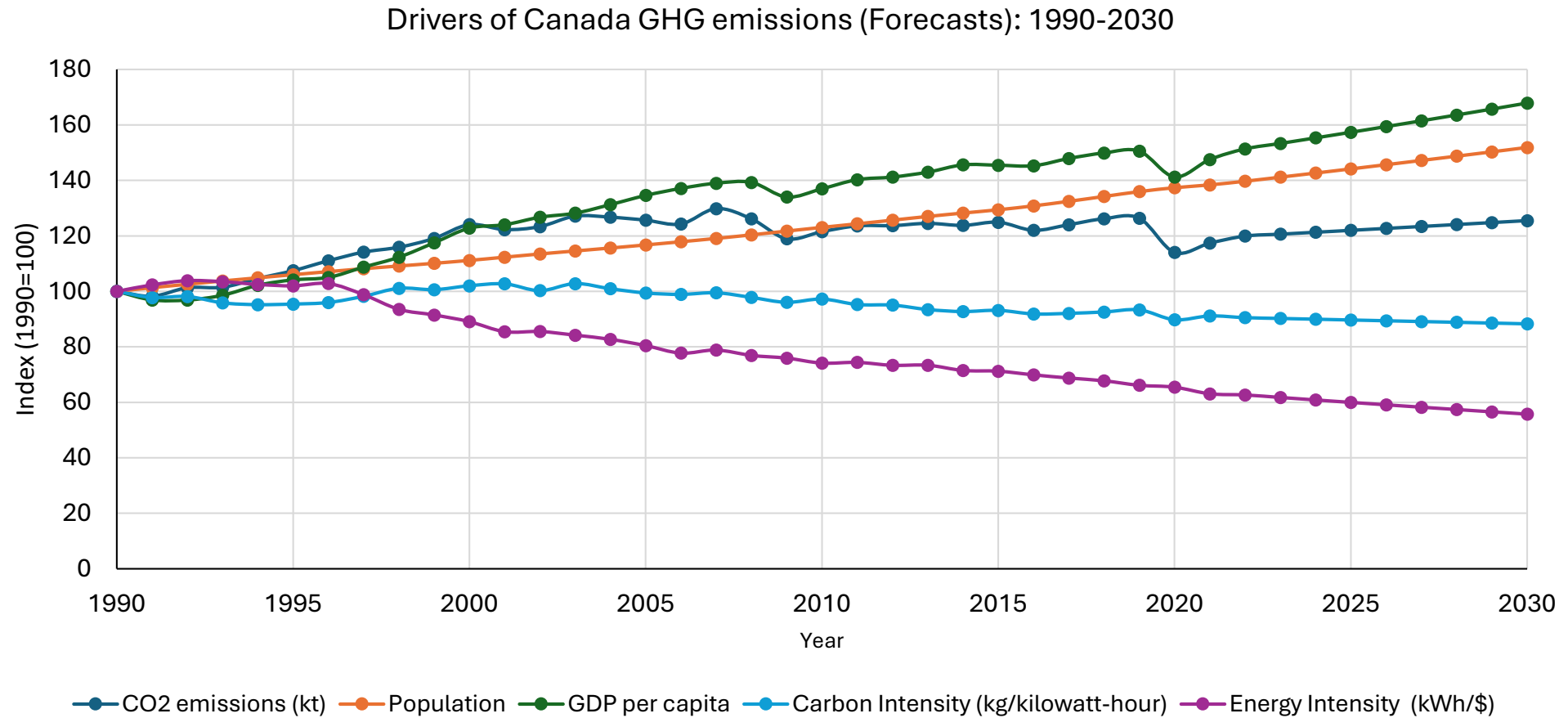
Techniques: Statistical analysis, Kaya Identity calculations for CO₂ emissions from 1990-2022 and projections to 2030.

Focus on energy use intensity (EUI) per capita and per unit of GDP and investment.

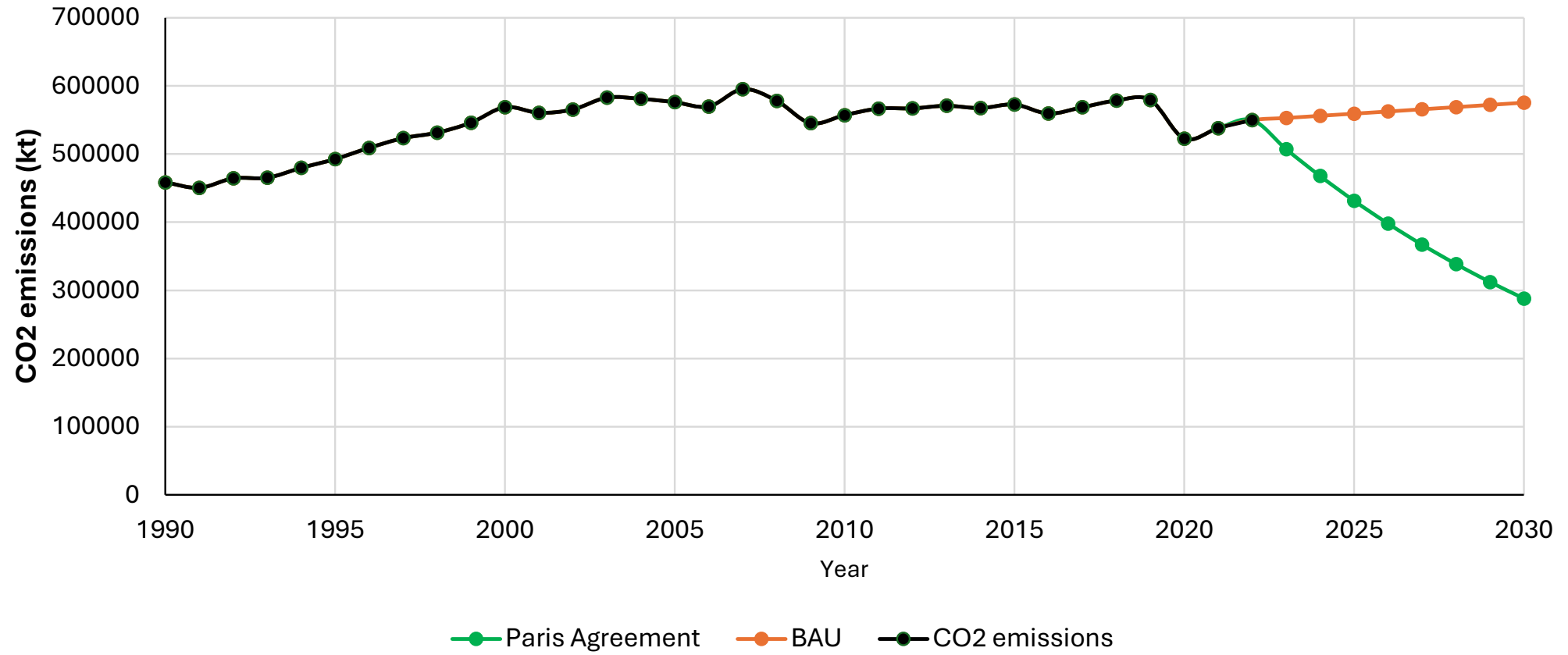


Findings

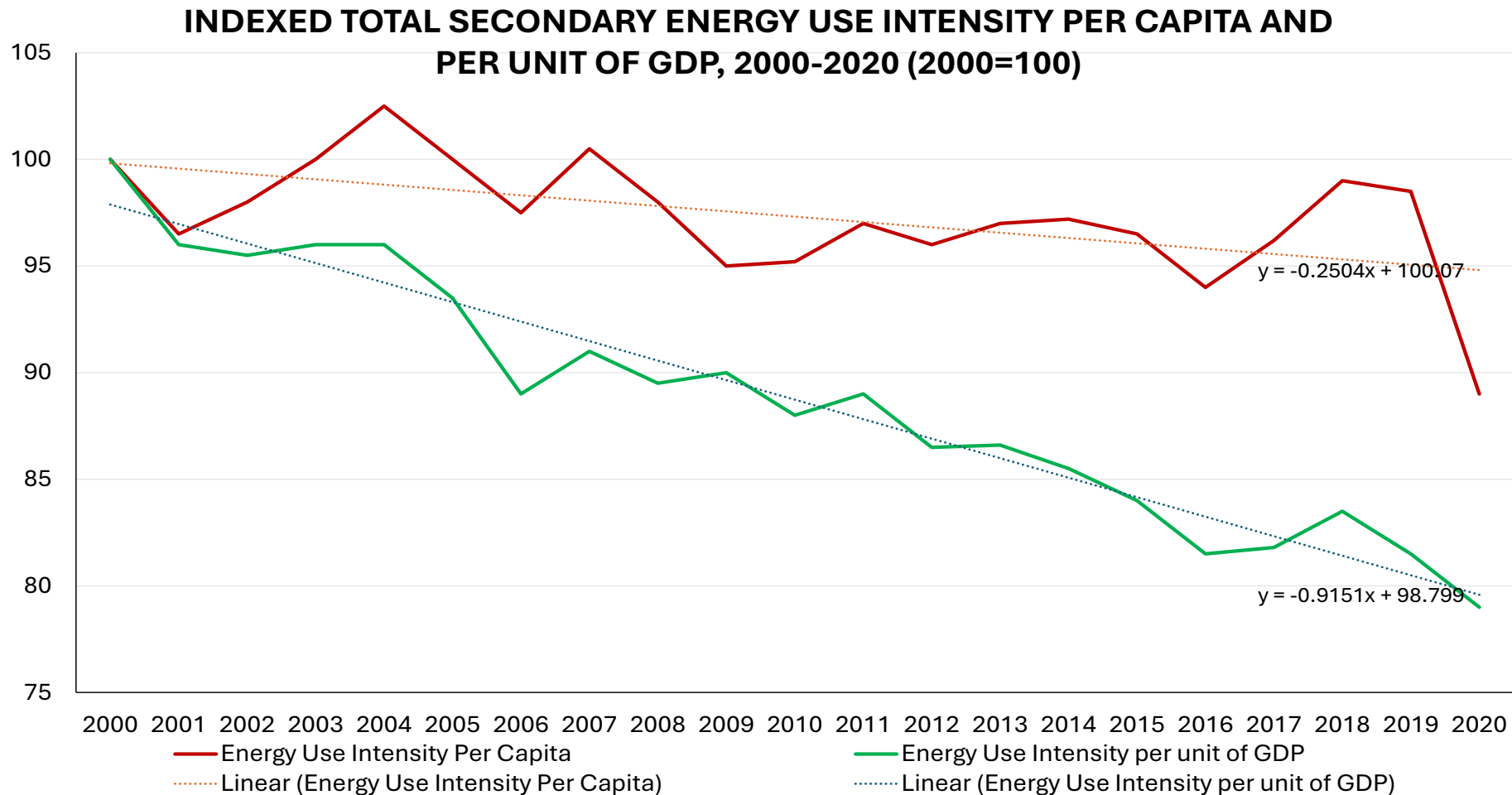
Kaya Analysis



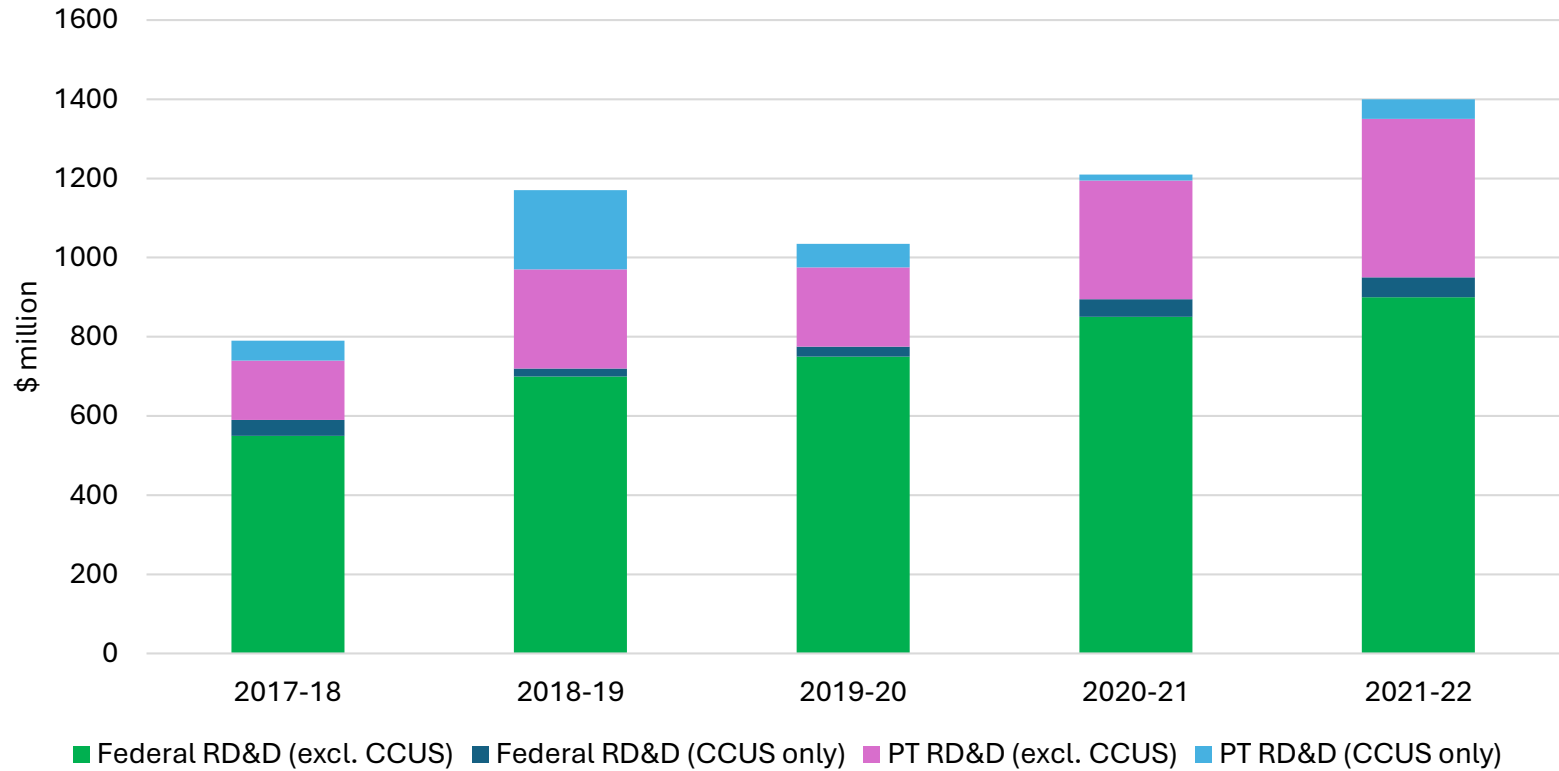
Canada CO2 Emissions Forecast (kt CO2 eq)



Investment and (Energy Use Intensity) EUI Trends in Canada

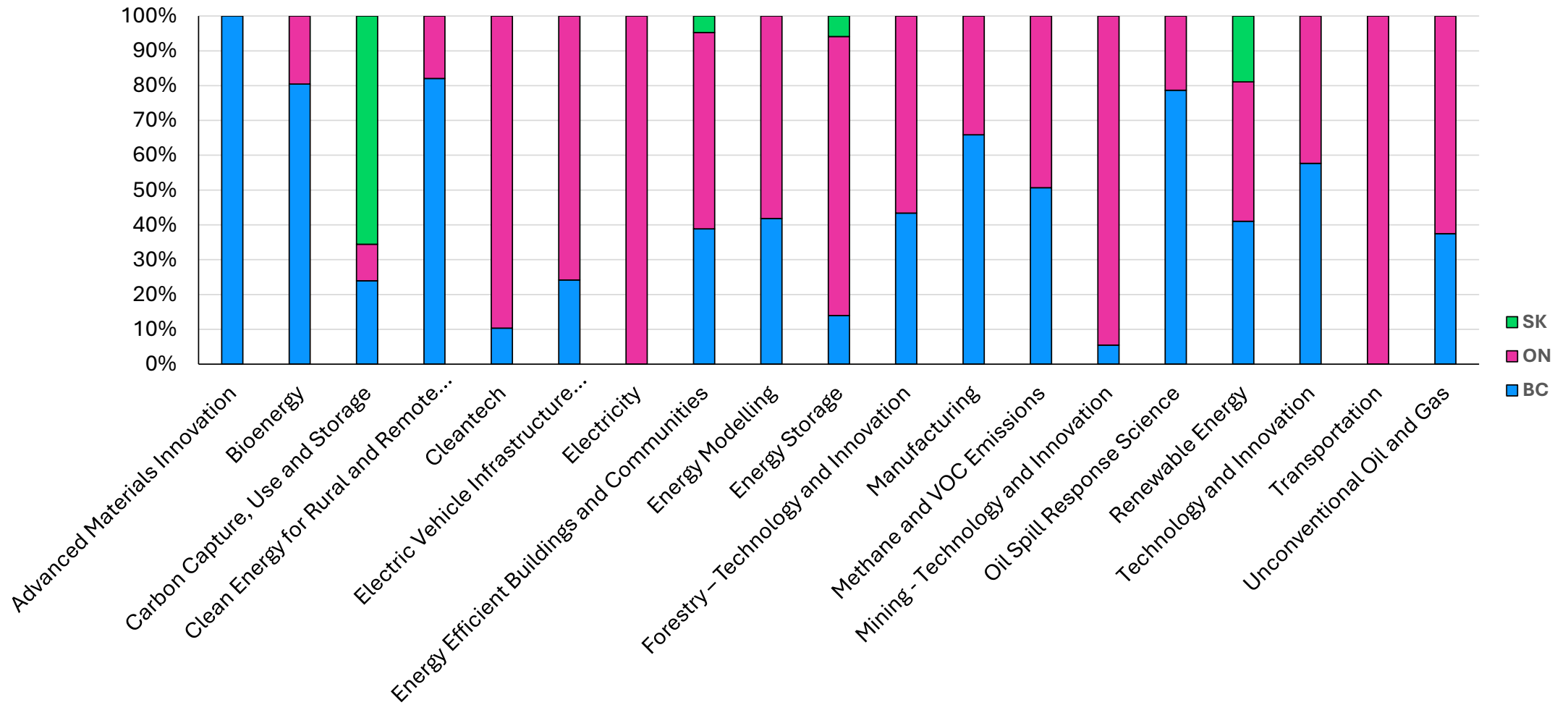


Fundings



RD&D=research, development, and demonstration
CCUS=carbon capture, utilization and storage
PT=provincial/territorial

Provincial Fundings



Provincial Investment Analysis

- BC: Significant investments in clean energy for rural and remote communities.
- SK: High investment in Carbon Capture Use and Storage, but lower in other areas.
- ON: Major investments in technology, innovation, and efficient housing plans.

Efficiency Ranking

Rank	Province	Programs (40 points)	Enabling (16 points)	Buildings (19.5 points)	Transport (17.25 points)	Industry (7 points)	Total (100 points)
1	BC	15	13	10	13	5	55
2	NS	21	13	4	7	5	50
3	QC	12	9	5	15	6	48
4	PE	20	4	8	8	4	39
5	ON	10	12	12	6	5	39
6	YT	18	6	5	7	0	35
7	NB	10	9	2	9	4	34
8	MB	11	9	4	7	4	29
9	AB	2	7	3	3	4	19
10	NL	7	5	3	3	1	17
11	SK	1	9	3	3	1	16

Policy Recommendations



Increase RD&D
Investments



Strategies
focusing on
specific regions



Diverse Funding
Mechanisms



Public Awareness
and Education



Building Code
Updates

Policies (local)



Bank lending (e.g. credit lines and guarantees)



Information programmes and technical capacity development (Monitoring, technical assistance, capacity building)



Energy and environmental outcomes (Net energy savings or consumption changes)

Conclusion

- Investments in RD&D significantly improve energy efficiency.
- Disparities in provincial investments impact overall rankings and effectiveness.
- Future Research: Comparative analysis, socio-cultural factors, and decarbonization strategies for existing buildings.

By adopting recommended policies and pursuing further research, local governments can improve the effectiveness and sustainability of energy efficiency programs, contributing to national and global climate goals.