

Energy strategies... Building codes... Integrated resource management plans.... Critical minerals policies?

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October 18, 2023

We have an opportunity to think about energy



How we use energy is going a significant transformation.



The resources we need to support our energy addition are changing.



How are we responding to the challenges this reality poses?

Public input



Provincial stakeholders

- Manitoba Hydro
- Provincial Departments (Energy, Mines)
- Indigenous Consultation

Federal Stakeholders

- Natural Resources Canada
- Impact Assessment Agency

Indigenous Governments

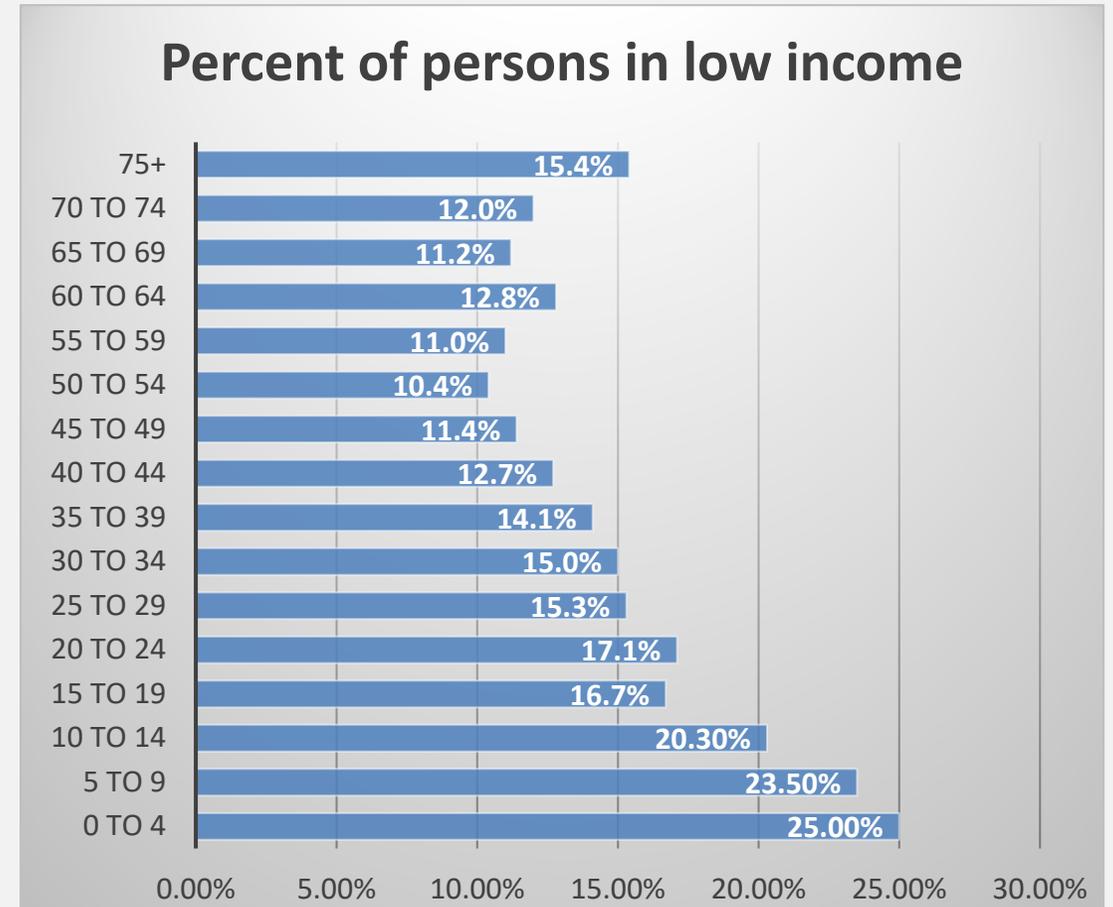
- Regional Governments (AMC, SCO, MMF)
- First Nations governments



What is Happening in Manitoba?

Manitoba	1,342,153 (2021)
Winnipeg (CMA)	834,678 (62.2%)
Brandon (CA)	54,268 (4.0%)
Winkler (CA)	32,655 (2.4%)
Steinbach (CA)	17,806 (1.3%)
Portage la Prairie (CA)	13,270 (1.0%)
Thompson (CA)	13,035 (1.0%)
Morden	9,929 (0.7%)
Selkirk	9,761 (0.7%)
Dauphin	8,034(0.6%)
The Pas	7,302 (0.5%)
Norway House	5,390 (0.4%)
Flin Flon	4,722 (0.4%)

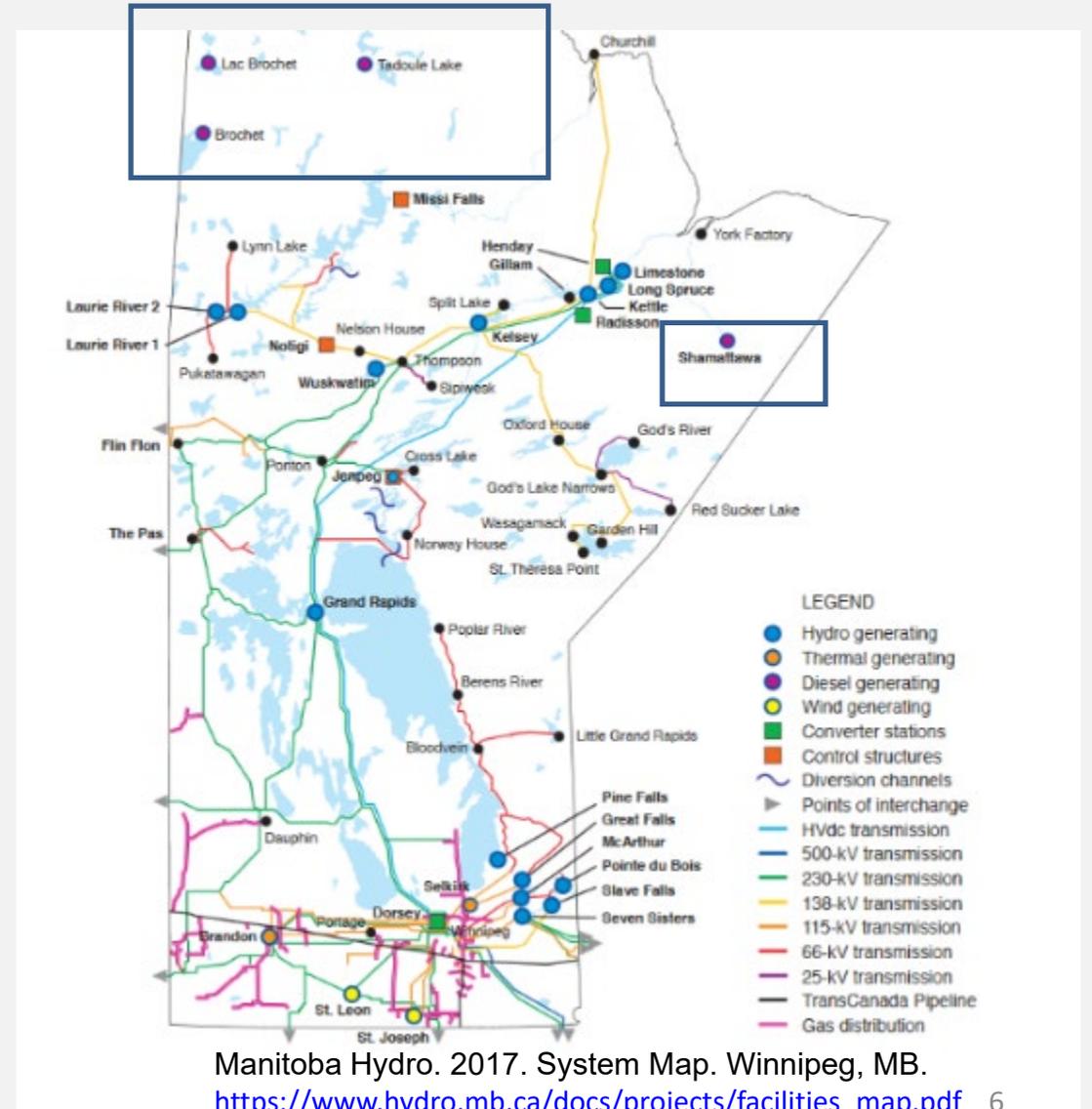
Statistics Canada. 2022.Ottawa, Ontario. Data products, 2021 Census Profile.

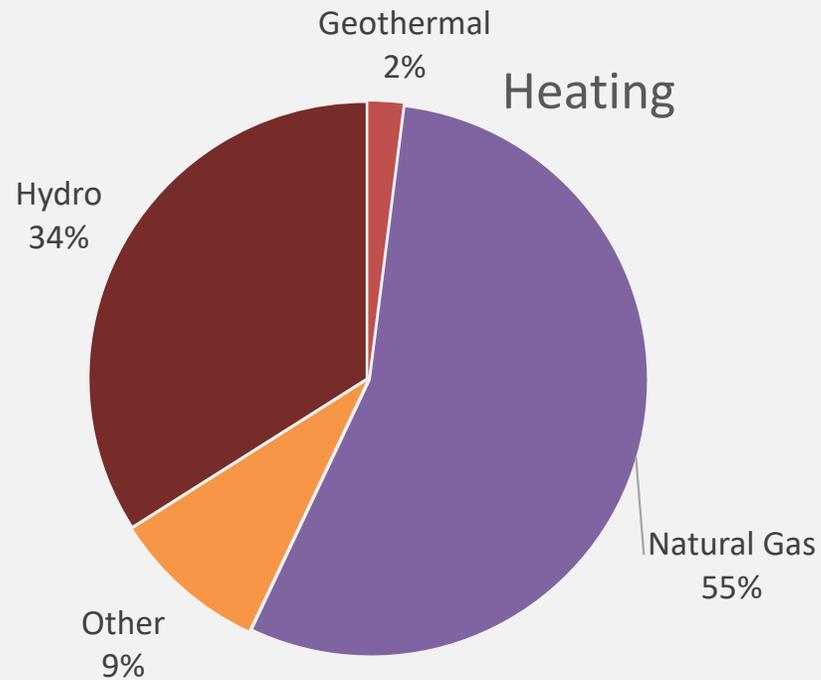
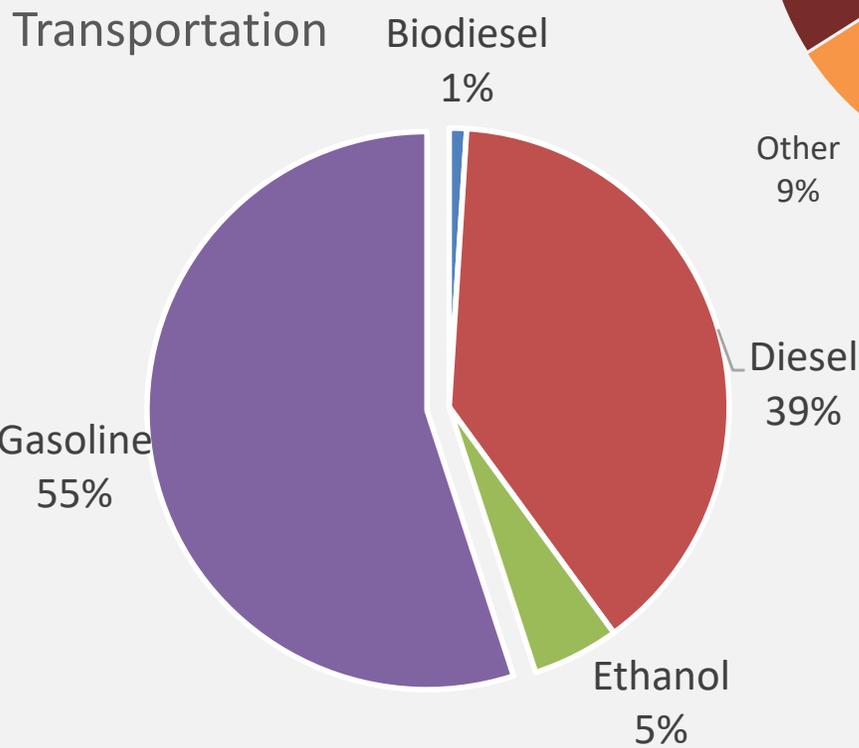
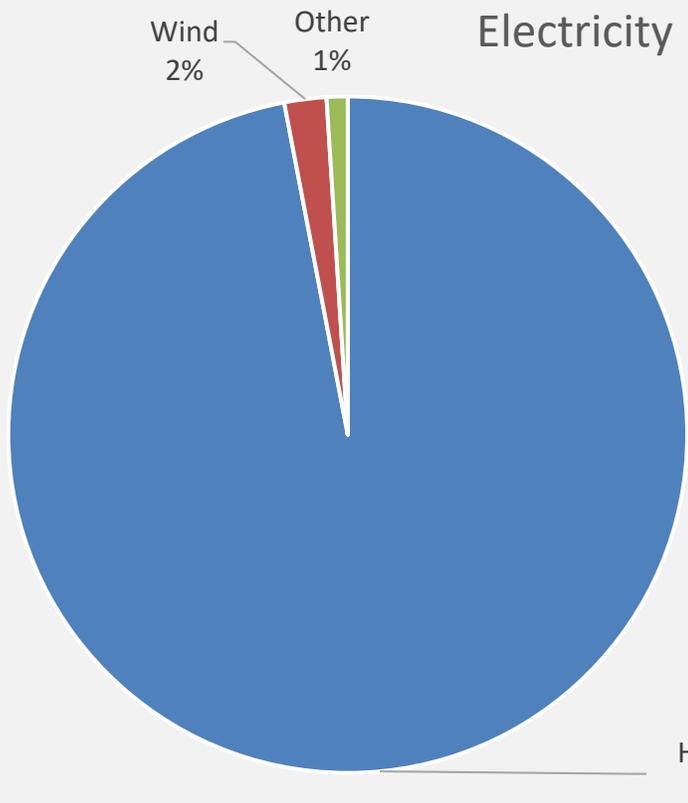


Statistics Canada. 2017. *Focus on Geography Series, 2016 Census*. Statistics Canada Catalogue no. 98-404-X2016001. Ottawa, Ontario. Data products, 2016 Census.

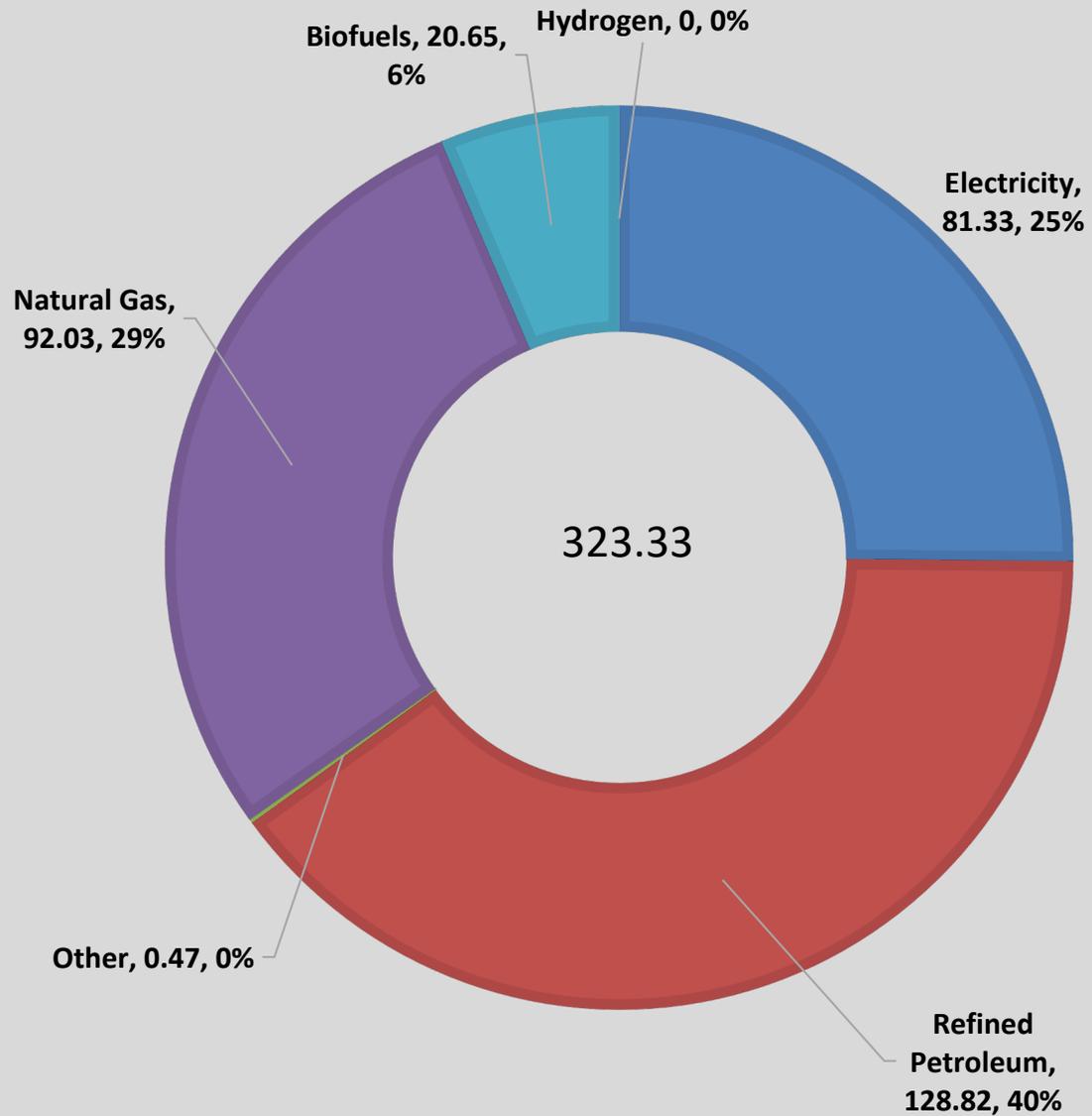
A Quick Picture of Energy

- Hydroelectricity
- Off Grid Communities
- Natural Gas System
- Wind
- Other
 - Propane
 - Transportation

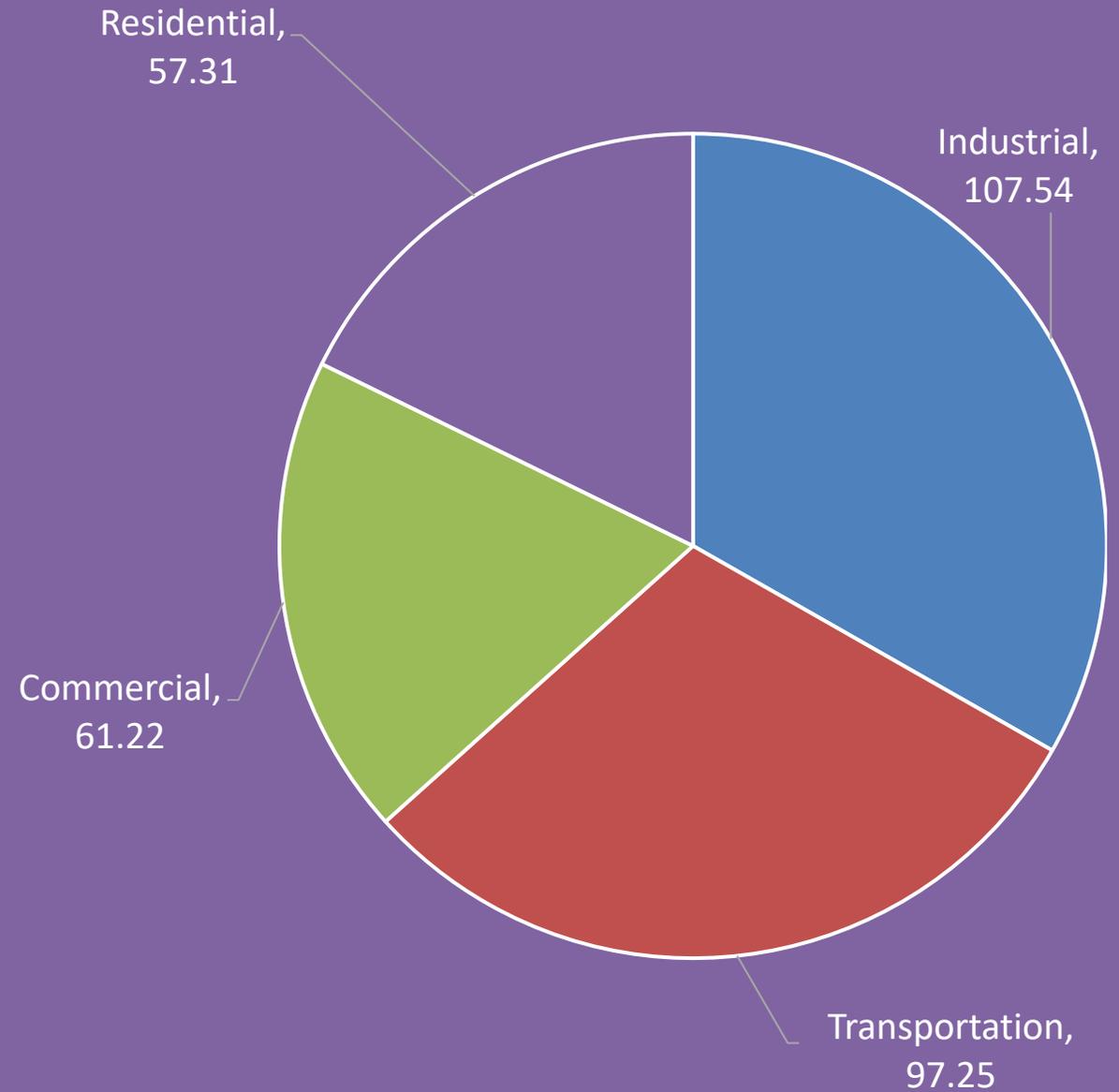




END USE 2022 (PETAJOULES)



END USE 2022 (PETAJOULES)



An extra consideration: Peak Demand

CAPACITY

Maximum generator output (MW)

Maximum number of people that can get on the bus at any one time

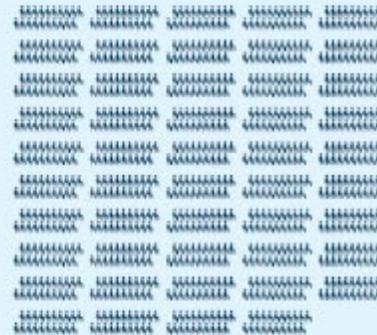


5 buses with 20 seats = 100 riders

ENERGY

Electricity produced in time period (MWh)

How many people are transported in a day



Riders per day: 1,000 riders

PEAK DEMAND

Greatest hourly electricity use (MW)

The highest number of passengers at a given point in the day



Peak ridership: 75 in morning rush hour

Source: Manitoba Hydro (2023, July) 2023 Integrated Resource Plan. Winnipeg, MB,
<https://www.hydro.mb.ca/corporate/planning/>

Canadian Electricity
Regulations
Fall 2023



2x delayed
Efficiency
Manitoba
Hearings
(Fall 2024)



Dunksy (public)
Report
Released with the
Provincial Energy
Strategy



Dunksy Full
Report
(NOT
PUBLIC)
Fall 2022.



Provincial Energy
Strategy
Manitoba's energy roadmap
(July 28, 2023)



Integrated Resource
Management Plan
Manitoba Hydro's (draft)
plan released June 2023



Bill 36
Changes to the Manitoba Hydro Act & the
Public Utilities Board Act (passed Fall
2022)

Building a Green Prairie
Economy Act

PUB rate hearings
Manitoba Hydro, Centra Gas
Superior Propane, Diesel
Communities



Critical Minerals
Strategy
July 25, 2023



Building A
Green Economy

Canadian
Electricity
Regulations

Efficiency
Manitoba

Building Codes

Dunsky
Report(s)

Critical Minerals
Strategy

GETTING TO NET
ZERO

Energy Strategy

Public Utilities
Board
• Bill 36
• GRA
• IRP (?)

Integrated
Resource Plan

Chronological Review of Policies

Delayed Efficiency Manitoba Hearings (Summer 2021, Summer 2022, Spring 2023)

- Legislated requirement
 - Annual electricity savings of 1.5%
 - Annual natural gas savings of 0.75%
- Last annual report 2022

Bill C-36 (Fall 2022)

- Limited the power of the PUB
 - Manitoba Hydro's rate applications;
 - Integrated Resource Plan

Chronological Review of Policies

PUB Rate Hearing (Spring 2023)

- Potential last GRA for 3 years (re: Bill 36)
- Some consideration of Supply/Demand planning

Integrated Resource Plan (June 2023)

- Manitoba-hydro led planning process
- Decision to focus on expanding natural gas system

Snapshot from IRP

	1	2	3	4
	SCENARIO 1: Slow decarbonization & slow decentralization	SCENARIO 2: Modest decarbonization & modest decentralization	SCENARIO 3: Steady decarbonization & modest decentralization	SCENARIO 4: Accelerated decarbonization & steady decentralization
 Economic growth	●	●●	●●	●●●
 Decarbonization policy	●	●●	●●●	●●●●
 Electric vehicles	●	●●	●●●	●●●●
 Natural gas changes	●	●●	●●●	●●●●
 Customer self-generation	●	●●	●●	●●●

● represents amount of change

Figure 6.3 – 2023 IRP scenarios and key input pace of change

Summary of observations from selected sensitivity results

As stated earlier, the select sensitivities highlighted in the preceding pages provided additional observations that contributed to development of the 2023 IRP road map. Those additional observations are:

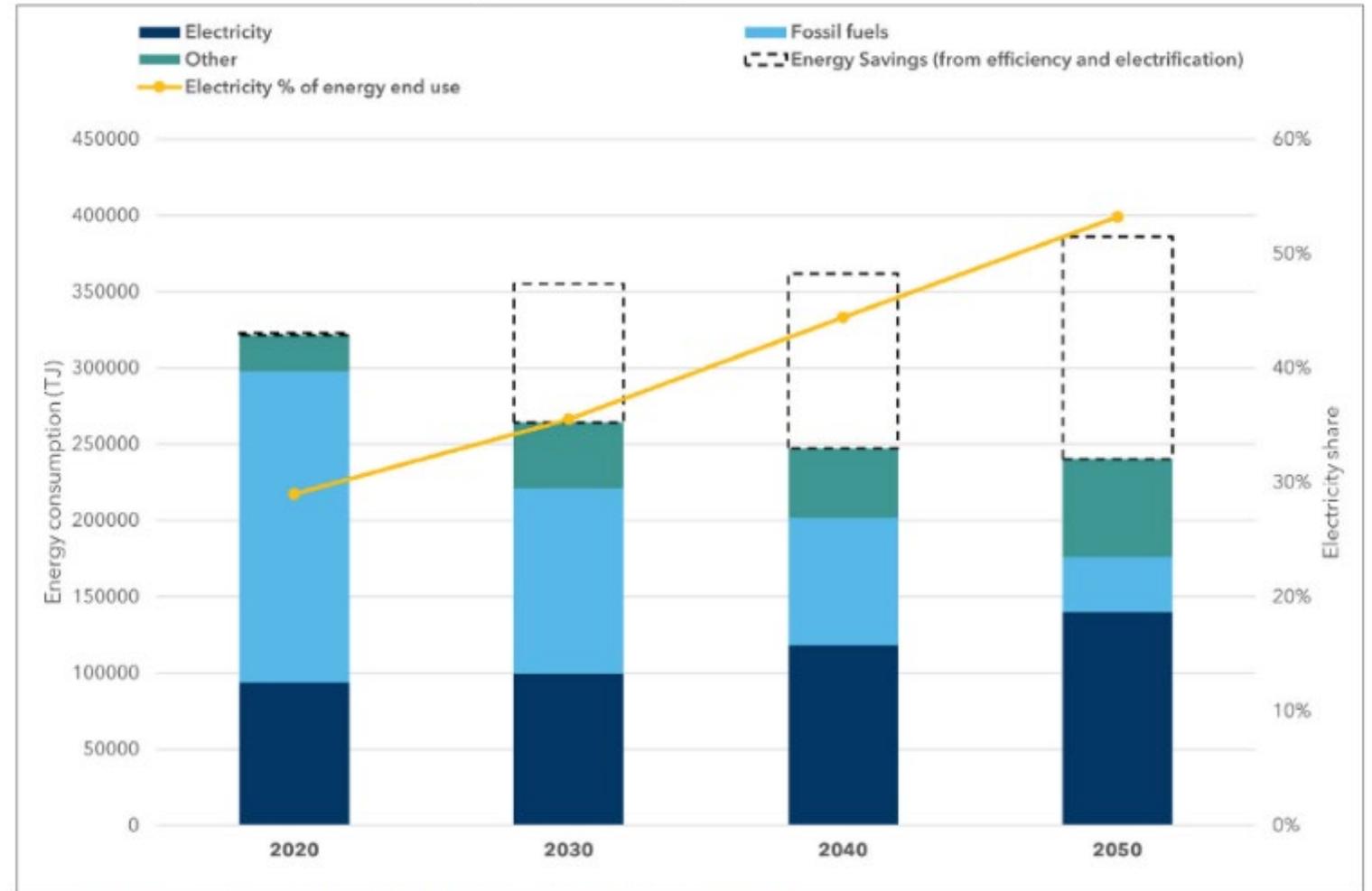
-  No new natural gas generation significantly increases cost and reliance on technologies that are less mature;
-  Demand response is cost effective for delaying or reducing the need for new capacity resources;
-  Dual fuel programs have potential to reduce emissions at lower overall cost;
-  Ground source heat pumps performance varies widely and was not found to be cost-effective on average;
-  Limiting thermal generation reduces emissions but increases costs;
-  Energy efficiency's cost effectiveness is dependent on program and requires closer analysis; and,
-  Carbon capture increases use of thermal generation and net system costs;
-  Solar is not as cost-effective as other resources available in Manitoba.

Source: Manitoba Hydro (2023, July) 2023 Integrated Resource Plan. Winnipeg, MB, <https://www.hydro.mb.ca/corporate/planning/>

Dunsky Report

Part II

Figure 5. Electricity's share of the energy system will grow substantially, but total energy use - and likely bills - will fall as Manitobans switch to more efficient, electric-powered technologies.



Source: Dunsky modelling from Draft Phase 1 Energy Policy Framework, 2023

Source: Dunsky Energy & Climate (2023, July 27) An Electricity Roadmap for Manitoba: Beyond Net Zero

Manitoba's Energy Road Map (July 28, 2023)

1. Modernize energy governance and infrastructure
2. Attract investment & jobs with companies with environmental goals
3. Keep residential rates affordable
4. Position Manitoba as a low-carbon leader

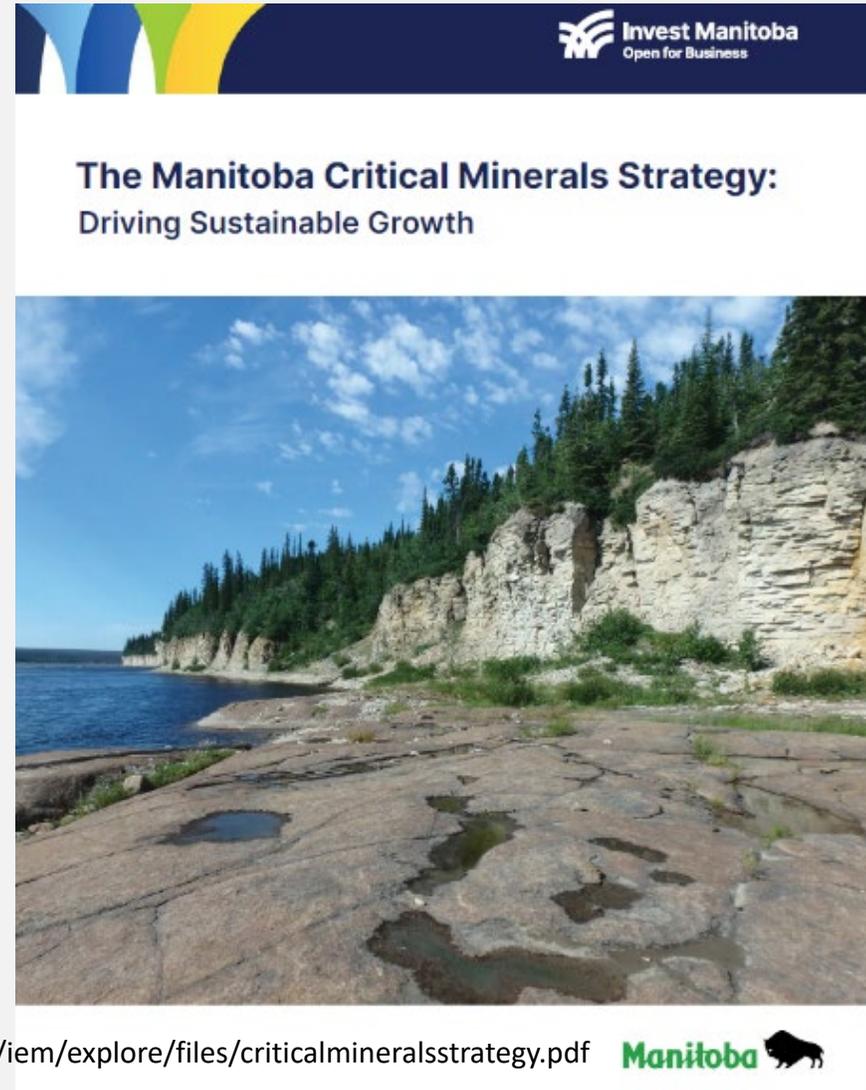


https://www.gov.mb.ca/jec/files/mb_energy_roadmap.pdf

Chronological Review of Policies

Critical Mineral Strategy (July 2023)

- Critical minerals bonanza
 - Lithium, copper, nickel, silica
 - +14 more
- Communicate competitive advantage
- Advance Indigenous involvement
- Improve geoscience information
- Streamline approval
- Support value-added activities
- Training



Canadian Electricity Regulation (comments due November 2, 2023)

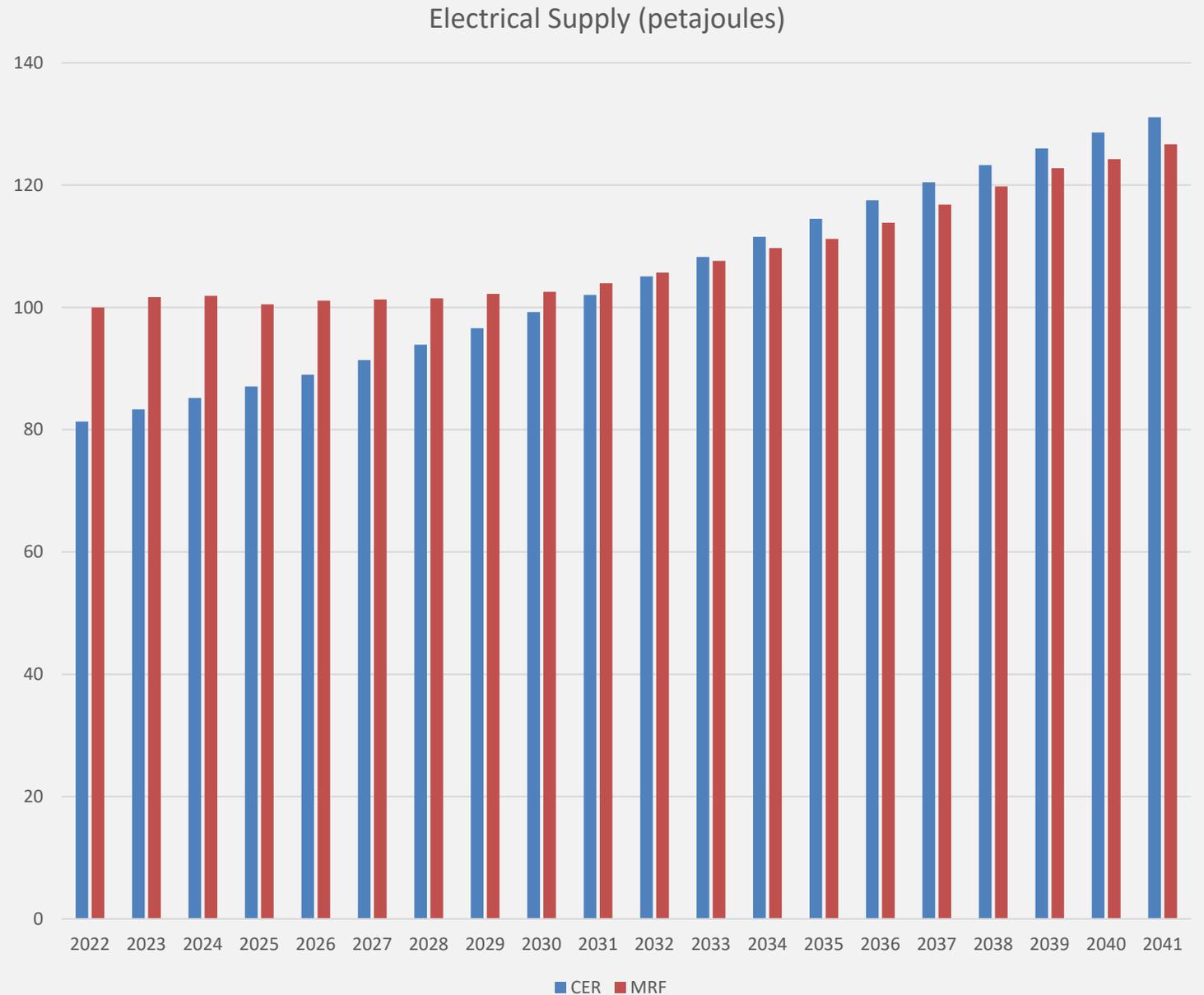
<https://www.canadagazette.gc.ca/rp-pr/p1/2023/2023-08-19/html/reg1-eng.html>

Electrical Supply

Two of the (at least) four electrical supply models informing energy planning.

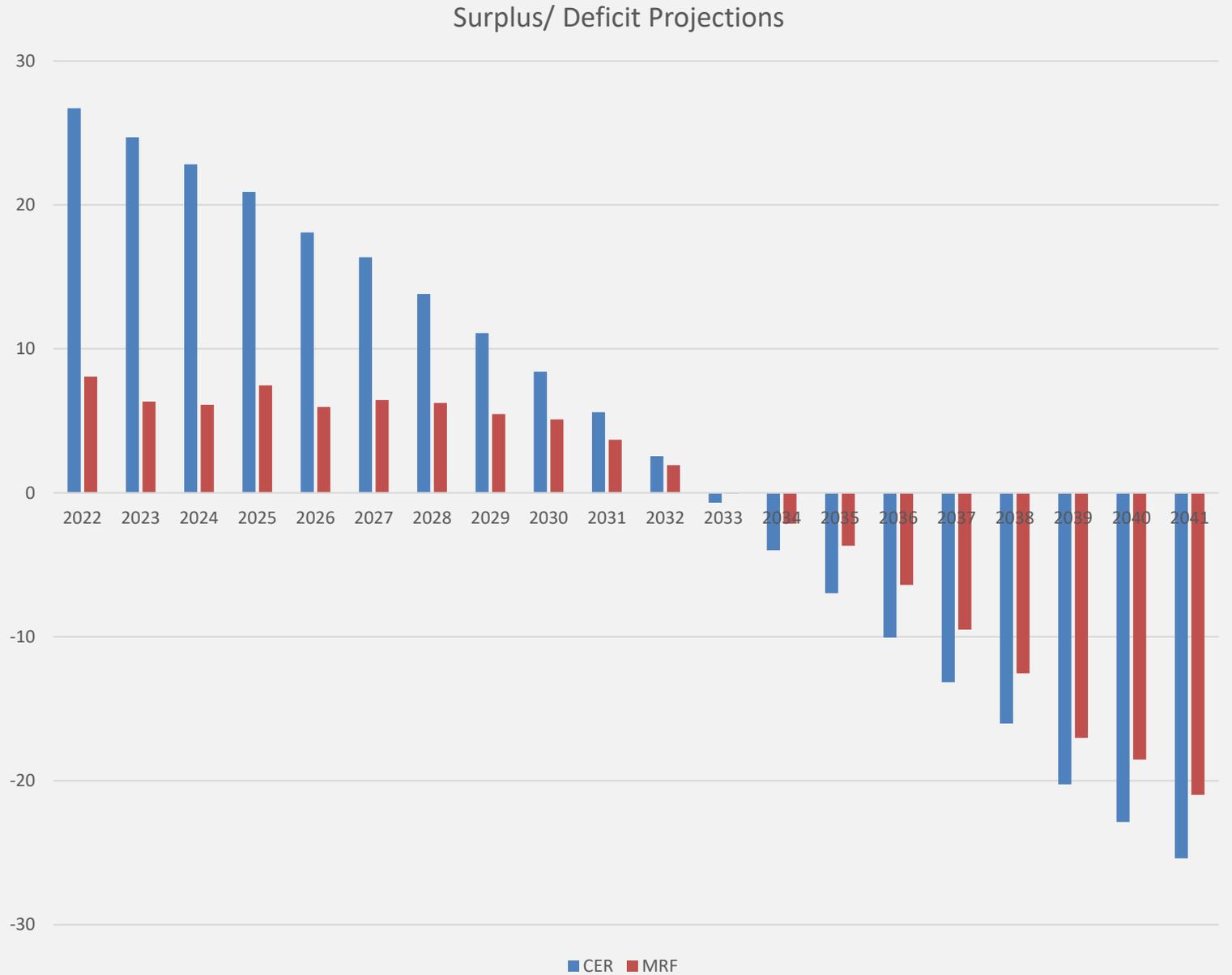
Canadian Energy Regulator (CER) vs MRF (Manitoba Hydro response to an information request in the latest Public Utilities Board rate hearings)

Supply goes up (particularly with the end of firm contracts) – by 26 to 50 petajoules



Surplus/ Deficit Projections

By 2041 – 20 to 25 petajoule deficiency.

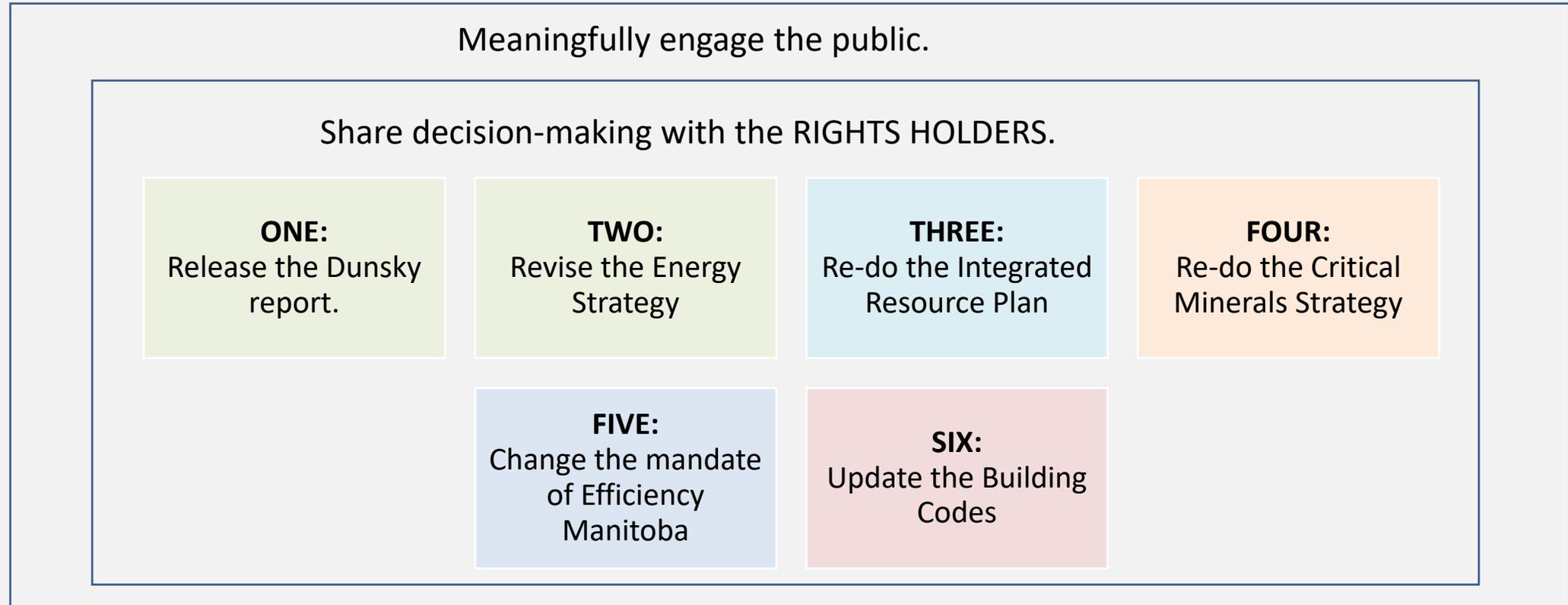


Opportunities



- Reconsider role of solar
- Build local capacity
 - Geothermal
 - Local available resources
 - Waste
 - Agricultural bi-products
 - Burned forest biofuels
- Increase wind
- **Expand efficiency** (now, and for future builds)
- Change our approach to transportation

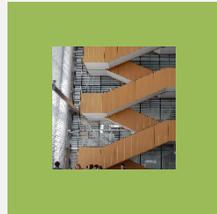
What should happen next



Lessons



Policy change
comes before the
storm



The enabling
policies come
from many
different
departments



The information
is often quite
siload



Innovative
solutions are in
play. These need
to be fostered in
the plans