BIG MOVE 4

Big Move Four: Renewable Energy Generation

Renewable energy generation makes a significant contribution to GHG reduction. It can take many forms, but all shifts to renewable energy require drastic changes that are challenging to scale up to meet current energy demand. However, when done in tandem with energy efficiency measures, renewable energy can meet much of Regina's energy needs while decreasing emissions.

Case Study: Cowessess First Nation

Cowessess First Nation, located 150 kilometres east of Regina, has been generating local renewable energy since 2013 and continues to expand its renewable energy assets. The community's first major project was a 800 kW wind project.[3] They won a 1 MW power purchase agreement with SaskPower through a competitive RFP process and also installed batteries to store energy to be used as needed. The second project, completed in 2018, was a 400 kW ground-mount solar installation. The project maxed out the power purchase agreement with SaskPower and leverages existing battery-based storage capability[4].

In 2021, Cowessess installed more than 800 solar panels with a capacity of 321 kW on five community buildings. The energy generated is expected to decrease annual energy costs by $20,000. Local labour was used to construct the solar panels[5].

In 2021, Cowessess and partner Renewable Energy Systems signed an additional 200 MW power purchase agreement with SaskPower. They are planning to install 40 wind turbines across 20,000 acres, which will produce enough energy to power 100,000 homes[6].

[3] Cowessess First Nation Energizes Their Community and The Grid - Industry West (industrywestmagazine.com)
[4] Cowessess First Nation Power Purchase Agreement | Profiles | Government of Saskatchewan
[5] Cowessess unveils new solar project, aiming to become greenest First Nation in Canada | CBC News
[6] Cowessess unveils new solar project, aiming to become greenest First Nation in Canada | CBC News

REGINA

Big Move Four: Renewable Energy Generation Actions

ACTION	GREENHOUSE GAS (GHG) IMPACT	CO-BENEFITS	COST	IMPLEMENTATION MECHANISMS	TIMING
4.1 Maximize rooftop solar on new buildings		Equity: Low Employment: Low Cost Effectiveness: High	$$$$$	Program: Develop solar PV programs for all building sectors.	Start: Immediately Completion: Ongoing
4.2 Maximize rooftop solar on existing buildings		Equity: Low Employment: Low Cost Effectiveness: High	$$$$$	Program: Develop solar PV programs for all building sectors. Leading by example: add solar PV to municipal buildings.	Start: Immediately Completion: 2035
4.3 Meet energy needs through local energy generation: solar PV		Equity: Low Employment: High Cost Effectiveness: High	$$$$$	Infrastructure: Create solar farms.	Start: 2025 Completion: 2035
4.4 Meet energy needs through local energy generation: wind farms		Equity: Low Employment: Low Cost Effectiveness: High	$$$$$	Infrastructure: Create wind farms.	Start: 2025 Completion: 2035
4.5 Meet energy needs through local energy generation: geothermal heating at University of Regina		Equity: Low Employment: Low Cost Effectiveness: Medium	$$$$$	Initiative: Work with the University of Regina to determine support and collaboration opportunities.	Start: 2025 Completion: 2030

GHG IMPACT

Low: <1,000 ktCO2e
Medium: 1,000 – 2,000 ktCO2e
High: >2,000 ktCO2e

CO-BENEFITS

EQUITY –
Enabler: No discernible direct effect, but positive outcomes may occur in concert with other actions
Low: May favour certain groups or create greater disparity
Medium: More likely to be implemented fairly, but existing powerful groups may still be at an advantage
High: Contributes to enhanced equity

EMPLOYMENT –
Enabler: Enables employment
Low: 0 – 5 person years of employment per $million invested
Medium: 5 – 10 person years of employment per $million invested **High:** >10 person years of employment per $million invested

COST EFFECTIVENESS –
Low: This action will have a net cost
Medium: This action will break even
High: This action will have a net return/benefit.

COST

$$$$$ <$1 million
$$$$$ $1 million – $100 million
$$$$$ $100 million – $500 million
$$$$$ $500 million – $1 billion
$$$$$ >$1 billion