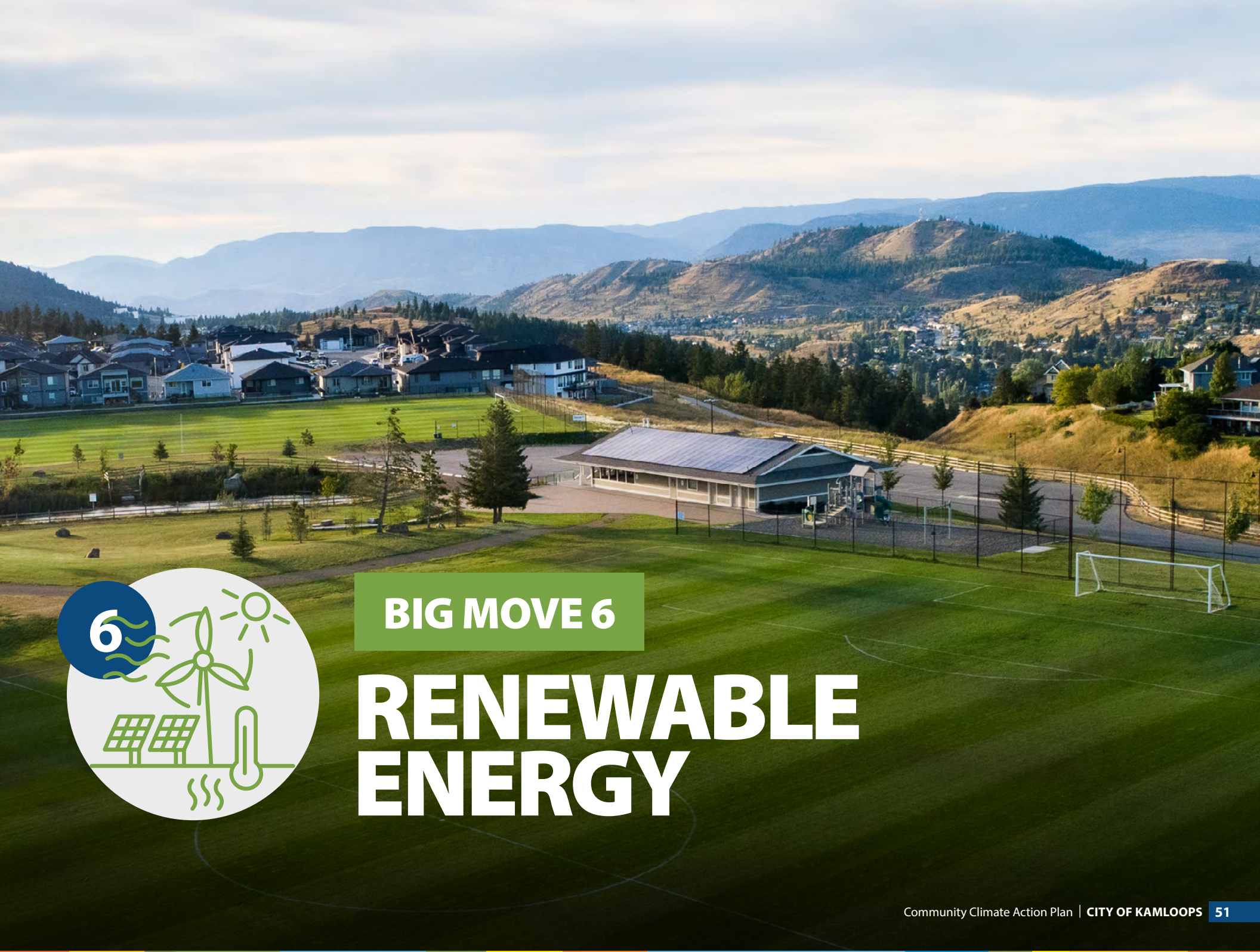


BIG MOVE 6

RENEWABLE ENERGY

BIG MOVE 6:

RENEWABLE ENERGY

The use of energy derived from fossil fuels, such as natural gas and gasoline, is a major contributor to the climate crisis. In contrast, renewable energy sources such as wind, hydropower, geoexchange/geothermal, and solar have far fewer GHG emissions associated with their production.

In Kamloops, the grid supply from BC Hydro is 97% hydroelectricity; however, locally produced renewable energy can offer resilience to disruptions and help to offset the small amount of carbon in grid electricity to achieve net-zero emissions. Waste heat can also be captured from sewer lines, industrial processes, and energy-intensive buildings (e.g. laboratories and data centres) and used to heat nearby buildings, which offsets fossil fuel consumption.

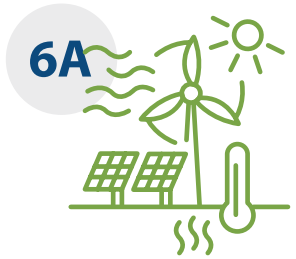
This Big Move supports increasing the local use and generation of renewable energy along with research and development for low-carbon technologies. Developing decentralized energy sources to support a flexible and efficient grid is expected to become more important as electricity demands increase due to the installation of heat pumps in buildings and the switch to EVs. Increasing local renewable energy generation and storage can also buffer peak demands and make the grid more resilient. Working to develop local industry capacity in the clean energy sector creates green jobs that support the transition to a low-carbon economy.

CO-BENEFITS

- Green Economy and Innovation
- Ecosystem Preservation
- Enhanced Resilience

TARGET

To increase the generation and use of local, low-carbon, renewable energy sources.



6A - Residential and Neighbourhood Scale Energy

GOAL:

To support the development of low-carbon, renewable energy systems at building and neighbourhood scales.

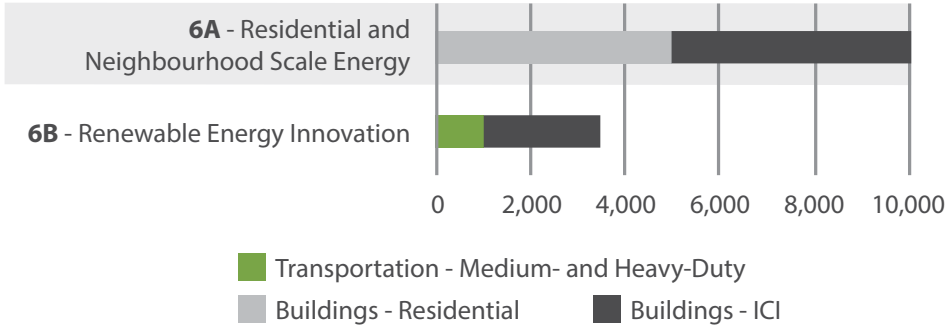
ECONOMIC CONSIDERATIONS:

- The cost of local energy is a key driver of the cost competitiveness of solar generation.[i] Electricity rates in BC are currently among the lowest in North America,[ii] which makes the economics of solar generation challenging. However, as solar installation costs continue to decline and utility rates continue to increase, the financial viability of solar power will improve.
- The economics of solar generation is also influenced by project location, size, energy rate structures (e.g. "time of day" pricing), and the availability of rebate programs. A relatively cost-effective option in Kamloops is solar pool heating, which can displace natural gas pool heater usage and reduce energy bills.
- Incentives, bulk purchasing, and financing programs will reduce economic barriers to purchasing renewable energy technologies.

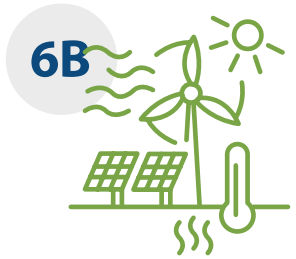
ACTIONS:

- ❑ Promote opportunities for on-site renewable energy generation at building scale (e.g. solar PV/thermal systems and geoexchange).
- ❑ Explore incentives, bulk purchase programs and financing models (e.g. PACE) to support the adoption of renewable energy technologies.
- ❑ Support not-for-profit or cooperative renewable energy initiatives (e.g. a community solar garden).
- ❑ Explore opportunities for incorporating low-carbon energy distribution at neighbourhood scale (e.g. district energy system).

PROJECTED ANNUAL GHG REDUCTIONS BY 2050:



10,000 tCO_2e
(High)



6B - Renewable Energy Innovation

GOAL:

To position Kamloops as a clean energy research, technology, and manufacturing hub to support BC's low-carbon transition.

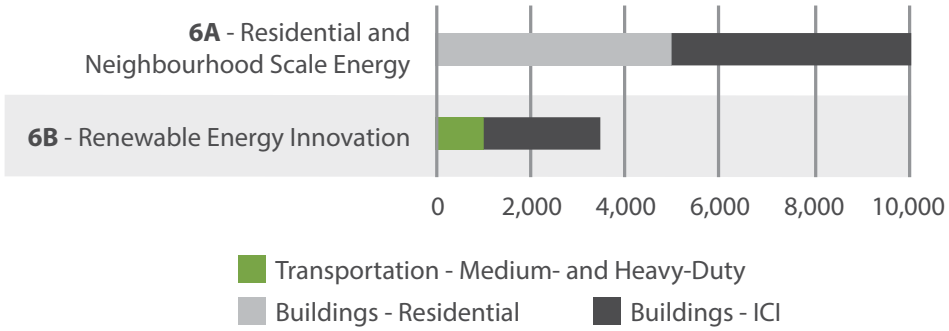
ECONOMIC CONSIDERATIONS:

- Increasing resilience reduces the costs related to energy network disruptions.
- Supporting local industry capacity in the clean energy sector will create new green jobs and economic activity, positioning Kamloops to leverage these emerging trends:
  - In 2018, clean energy technology accounted for 1.7% of Canada's GDP, and employed 120,650 people.[iii]
  - From 2015–2019, Canadian companies invested $9.2 billion in renewable energy technologies, including wind, solar, and biofuel.
  - The Government of BC is committed to making residential natural gas consumption cleaner by putting a minimum requirement of 15% to come from renewable gas by 2030[iv], which will require significant investment in biofuel production.

ACTIONS:

- ❑ Investigate waste-to-energy opportunities from organic waste or other available feedstock.
- ❑ Support research, start-ups, and technology innovation (e.g. flexible smart grid technology and electric vehicle [EV] battery reuse/recycling).

PROJECTED ANNUAL GHG REDUCTIONS BY 2050:



3,500 tCO_2e
(Moderate)

TOTAL BIG MOVE 6

PROJECTED ANNUAL EMISSIONS REDUCTIONS

(tCO_2e) BY 2050, BY SECTOR

The emissions reductions from residential- and neighbourhood-scale energy are expected to be achieved through residential buildings and some institutional, commercial, and industrial (ICI) buildings adopting renewable energy technologies. Renewable energy innovation could generate renewable energy fuels for medium- and heavy-duty transportation, which is important for addressing these emissions in the short term as there are anticipated delays in electrification technologies for heavy-duty vehicles. Smart grid technology could also address emissions from ICI buildings by reducing electrical loads and potential for gas peaking.

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[i] "The Economics of Solar Power in Canada," Canada Energy Regulator, last modified September 29,2020, https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/electricity/report/solar-power-economics/index.html.

[ii] "Comparison of Electricity Prices in Major North American Cities," Hydro Quebec, Q3 2020, http://www.hydroquebec.com/data/documents-donnees/pdf/comparison-electricity-prices.pdf.

[iii] "Energy and the economy," Government of Canada, last modified October 6, 2020, https://www.nrcan.gc.ca/science-data/data-analysis/energy-data-analysis/energy-facts/energy-and-economy/20062.

[iv] "Clean BC," Province of British Colombia, last modified March 2019, https://blog.gov.bc.ca/app/uploads/sites/436/2019/02/CleanBC_Full_Report_Updated_Mar2019.pdf.