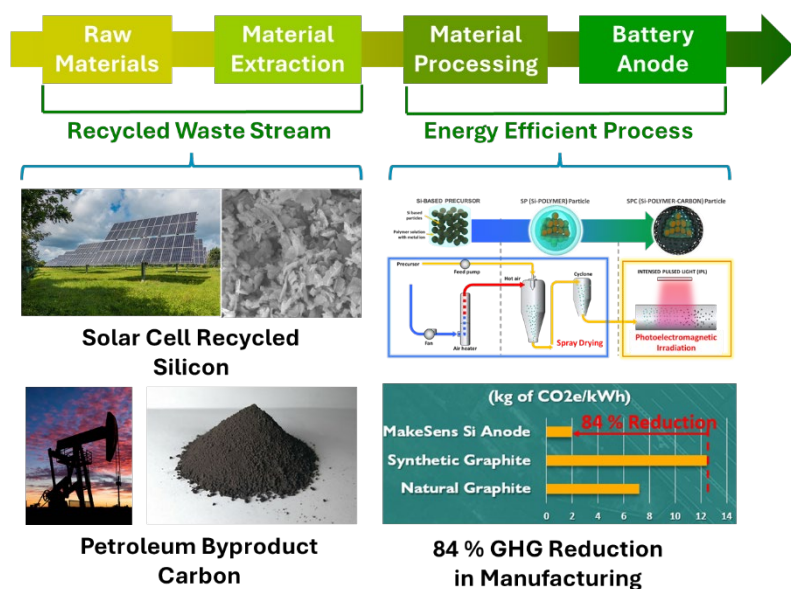


Application of Alberta Oilsands Bitumen and Asphaltene as Hard-Carbon for High-Performance Silicon-Anodes for Next-Generation Batteries

MakeSens is advancing silicon-based anode technology to meet the growing demand for high-performance batteries in the net-zero transition. By utilizing Alberta's abundant petroleum byproducts, the 18-month project explores bitumen and asphaltene as cost-effective precursors for silicon-carbon (Si/C) anode materials. It focuses on material identification, manufacturing optimization, and performance evaluation. Success will foster economic benefits, strengthen Alberta's battery supply chain position, and tap into a market projected at \$950 million USD by 2030 for Si/C anode materials.



RECIPIENT:
MakeSens Inc.



PARTNERS:
Vitzrocell Co. Ltd.



TOTAL BUDGET:
\$494,000



AI FUNDING:
\$200,000



PROJECT DATES:
MAR 2025 –
SEP 2026



PROJECT TRL:
Start: 3
End: 7

APPLICATION

- Electric vehicles
- E-bikes
- Drones / Unmanned aerial vehicles
- Portable/wireless electronics



ALBERTA INNOVATES CLEAN ENERGY

ADVANCED HYDROCARBONS
BITUMEN ADVANCED MATERIALS

PROJECT GOALS

- Analyze Alberta Oilsands derivatives and select feedstock most suitable as feedstock for battery material carbon source.
- Develop extraction and separation processes to eliminate impurities and low carbon derivatives.
- Develop optimal manufacturing processes for dense and uniform coating on silicon-based battery anode materials.
- Test and verify the resulting technologies in a commercial battery via partner organization

BENEFITS TO ALBERTA

- Addition of economic value to the industrial byproduct materials, creating more jobs and wealth.
- Further strengthen Alberta's position in global battery supply chain by adding Alberta Oilsands derivatives as carbon source for advanced battery materials.
- Alberta could shift from being a hub for traditional energy to a leader in clean energy, enhancing interest in clean technology and battery industries.



**3 New
Products/Services**



**8 kT/yr Future GHGs
Reduced**



6 Project Jobs



40 Future Jobs



**3 Students
Trained**



2 Publications



2 Patents

CURRENT STATUS

APR 2025

Currently, the project has just initiated and MakeSens has started inquiring and gathering information for available Alberta Oilsands derivatives for the project.