

ADVANCING NEW TECHNOLOGIES TO BENEFIT THE ECONOMY



With support of a provincially funded research and innovation agency, a few local businesses in northern Alberta have been able to advance new technologies and ideas that benefit the economy, environment, and quality of life for residents and communities in Alberta's north.

These innovations are making contributions in agriculture and forestry, clean energy, and the oil sands, providing sector-specific solutions for environmental and bioeconomy issues.

PROJECT:

ADVANCING LOCAL INNOVATIONS IN NORTHERN ALBERTA

Alberta Innovates is supporting research, innovation, and entrepreneurship in a variety of sectors and markets, enabling companies develop and deliver solutions for challenges facing Albertans. They bring people and resources together to help businesses innovate new technology and steer new ideas.

Through its Technology Development Advisor (TDA) program, Alberta Innovates provides confidential, front-line business and technology development advice to small and medium-sized enterprises (SMEs) in technology or knowledge-based industries. The TDAs work in each local community along with Regional Innovation Network (RIN) partners to create an integrated, collaborative innovation system.

Recently, Alberta Innovates worked together with four northern Alberta clients to advance their new technology and approaches.

1. Trident Pumps - Athabasca
2. Futuro Lighting (Solar/Wind/Diesel Hybrid Light Towers) - Fort McMurray
3. Suma Grow (Microbial Fertilizer) - Fort McMurray
4. Oilsands Tailings Hydrocarbon Recovery Unit - Fort McMurray/Red Deer, and Oilsands Tailings Hydrocarbon Partial Heavy Oil Upgrading - Fort McMurray/Drayton Valley.

The innovations are in the field of liquid (water) pumping, alternative energy for lighting, microbial fertilizer, and hydrocarbon recovery and upgrading in the oil sands. Waiting for industry-penetration, these innovations have sector-wide potential for increasing work efficiency, reducing costs, and minimizing environmental pressure.



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Northern Trailblazers highlights stories of innovation and development in northern Alberta by showcasing initiatives, programs, and approaches undertaken by communities and businesses across the region.

THE NEW TECHNOLOGY AND IDEAS

The Trident Pump, a patented pump system, uses 1/6 of the fuel of its competitor, doing the same amount of work moving water. The pump system uses a disruptive technology in a compact 600 lb. package that can be mounted on an ATV for quick wildfire fighting deployment. Its competitor equivalent is 8,000 lbs. and requires equipment to mobilize. This innovation is waiting for industry penetration to help save operating costs for those who use liquid pumps.

Futuro Lighting has built and tested a light plant design that uses 95% less diesel fuel per year compared to what is being used right now. In the height of oil sands construction, there was approximately 3000 light plants being rented out. Once this design gains market penetration, it is likely to save 45 litres of fuel per day, for each Futuro Lighting unit rented on a per day basis.

SumaGrow microbial fertilizer infuses the earth with natural microbes that make the soil healthy, resulting in reduced growing times and increased yields. This will cut farmers' use of chemical fertilizers up to 50%. Similarly, there is a potential reclamation application for the oil sands tailings ponds at the end of their life cycle as the stripped soil could use an inducement of microbes to support plant and tree growth.

When implemented together, Oilsands Tailings Hydrocarbon's Recovery Unit and Partial Heavy Oil Upgrading technologies help recover cost between 30-60% of the 125,000 barrels of hydrocarbon that goes out to the various tailings ponds every day. Cost recovery is conservatively estimated at \$250 million per year for the oil sands industry.

