

# CLEAN RESOURCES

## ADVANCED HYDROCARBONS

INNOVATIVE HYDROCARBON PRODUCTS - BITUMEN BEYOND COMBUSTION

### FUNDING DETAILS

## Construction of 300MT/Year Commercial Demonstration ASAC Plant

AdvEn has developed a proprietary method and manufacturing process to produce high-performance activated carbon, trademarked "ASAC" (AdvEn Super Activated Carbon), from refinery residues and asphaltenes generated in bitumen partial upgrading. Alberta's rich bitumen resources are used as an excellent carbon precursor to manufacture cleantech products beyond combustion. Compared globally to its similar products, ASAC delivers record-breaking performance characteristics coupled with key cost competitiveness. It has many applications – which includes building energy storage devices. In the current project, AdvEn will expand an existing pilot plant into a commercial demonstration plant with a capacity of 300 tonnes/year.



#### RECIPIENT:

AdvEn  
Industries Inc.



#### PARTNERS:



#### TOTAL BUDGET:

\$13,791,880



#### AI FUNDING:

\$3,600,000

TIER



#### PROJECT DATES:

APR 2020 –  
DEC 2022



#### PROJECT TRL:

Start: 8  
End: 9



## APPLICATION

ASAC provides a material technology platform that enables numerous proven or emerging downstream products for industrial and consumer uses. For example, similar products have been or can be made into an integral component in building energy storage devices such as batteries and supercapacitors; filtration for agriculture, biochemical, pharmaceutical and medical applications; gas storage – including hydrogen and carbon dioxide capture; and cosmetics. In addition, multiple new applications are expected to be developed by downstream entrepreneurs.

# ALBERTA INNOVATES CLEAN RESOURCES

## ADVANCED HYDROCARBONS

### INNOVATIVE HYDROCARBON PRODUCTS – BITUMEN BEYOND COMBUSTION

## PROJECT GOALS

Overall project goals involve overcoming the remaining technical challenges related to the ASAC production process and de-risk the scale-up of that process prior to full commercial production. They include:

- Construction and commissioning of a 300-tonne per year demonstration plant;
- Demonstration of consistent production from the facility;
- Demonstration of consistent quality at large volume production;
- Optimization of the manufacturing process.

## BENEFITS TO ALBERTA

AdvEn's ASAC technology will greatly contribute to the clean resources initiative being pursued by Alberta government. Examples of this contribution are listed below:

- Repurpose hydrocarbons/bitumen away from the usual combustion consumption, eliminating associated downstream GHG emissions.
- Convert hydrocarbon residues into superior performing advanced materials for the energy storage industry, facilitating its broader adoption and greater utilization (batteries and supercapacitors).
- ASAC production generates greatly reduced indirect GHG emission. Its total energy consumption is 1/10<sup>th</sup> of the current commercial processes and its total GHG emission is 1/3<sup>rd</sup>.
- ASAC uses lower production temperatures and eliminates hazardous chemicals (e.g., strong acids/bases) that are typically used in all other AC manufacturing processes.



**6 New  
Products/Services**



**35 Project Jobs**



**80 Future Jobs**



**Zero project  
emission reductions**



**Enables market  
emission reductions**

## CURRENT STATUS

**JUN 2021**

Final engineering design is nearly complete and initial equipment procurement is underway.