

THE PROBLEM

Current Gas-to-Liquids Processes
Are Much Too Costly

- **Extremely inefficient and non-selective**
- **Require a huge economy of scale**
- **Requires massive capital investment ... \$20 billion!**

LONGSTANDING ISSUE AND CHALLENGE FOR MAJOR
PETROCHEMICAL COMPANIES AND REFINERIES



THE SOLUTION

KPT Process Selectively and Economically Makes High Octane Gasoline from Natural Gas Liquids (NGL)

- Ethylene from ethane cracking is reacted with propane and butane to produce branched, high octane C5 to C12 gasoline
- Novel catalyst costs less than 1 cent per pound of product produced
- Projected capital cost for a plant producing 400 million pounds annually is \$52 million giving an estimated payback of less than two years

OFFERS DISRUPTIVE SOLUTION TO
LONGSTANDING INDUSTRY PROBLEM



THE MARKET

High Volumes, High Demand, High Octane
... Much Needed

- **Almost 144 billion gallons of gasoline consumed in US in 2017**
- **Almost 20 billion gallons of high value, high octane alkylates ... like those produced by KPT Process ... made each year**
- **Growing need for high octane gasoline and additives**

ONE OF LARGEST MARKETS IN PETROCHEMICAL INDUSTRY



THE ASK

Development of Disruptive Technology for Large, Important Market Requires Partners and Support

- **KPT is seeking commercial or investor partners**
- **KPT open to various potential funding, investor and partner scenarios**
- **Need \$100M for next stage of development ... Continuous process scoping and definition**
- **Estimate \$500M for optimization, piloting and product evaluation**



The Reward

Disruptive Technology to High Octane Gasoline

- Provides new lucrative alternative to high octane gasoline
- Provides large alternative market for stranded shale ethane and NGLs with significantly lower capital requirement than polyethylene
- Provides significant economic development opportunity for shale gas producing states
- Provides KPT and partners significant revenues from technology licenses and royalties

