CAAFI Biennial General Meeting

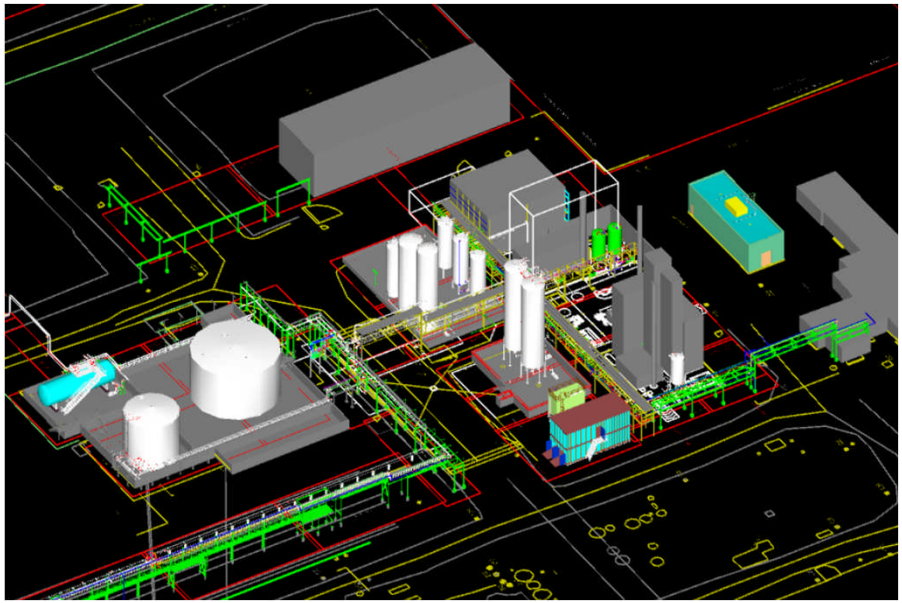
June 2, 2022

Overview of FORGE LTH Process

FORGE HYDROCARBONS

FORGE Technology Overview

Technology: FORGE's Lipid-to-Hydrocarbon (LTH) technology offers a low-cost, low-GHG and high-yield approach to produce drop-in renewable fuels that are indistinguishable from petroleum-based fuels. Unlike other renewable diesel technologies, the LTH process does not require hydrogen nor sensitive catalysts, which allows for the ability to utilize lower cost, 'dirty' feedstocks without extensive pre-processing.
Core Advantage: Hydrocarbon profile that is highly suited to be converted into SAF
Markets: Compliance mandates (California LCFS, Cdn. CFR), Renewable Diesel / Sustainable Aviation Fuel
Planned Off-take: World Energy BIOX; Shell (ROFO); Canadian gov't fleets



Business Model	Build-own-operate (BOO)
Pilot Updates	Meets CGSB and ASTM standard specifications for renewable diesel Large variety of feedstock tested (clean/dirty/virgin) Equipment selection / process trials
Patent Status	Awarded

UNIVERSITY OF ALBERTA

Shell Ventures

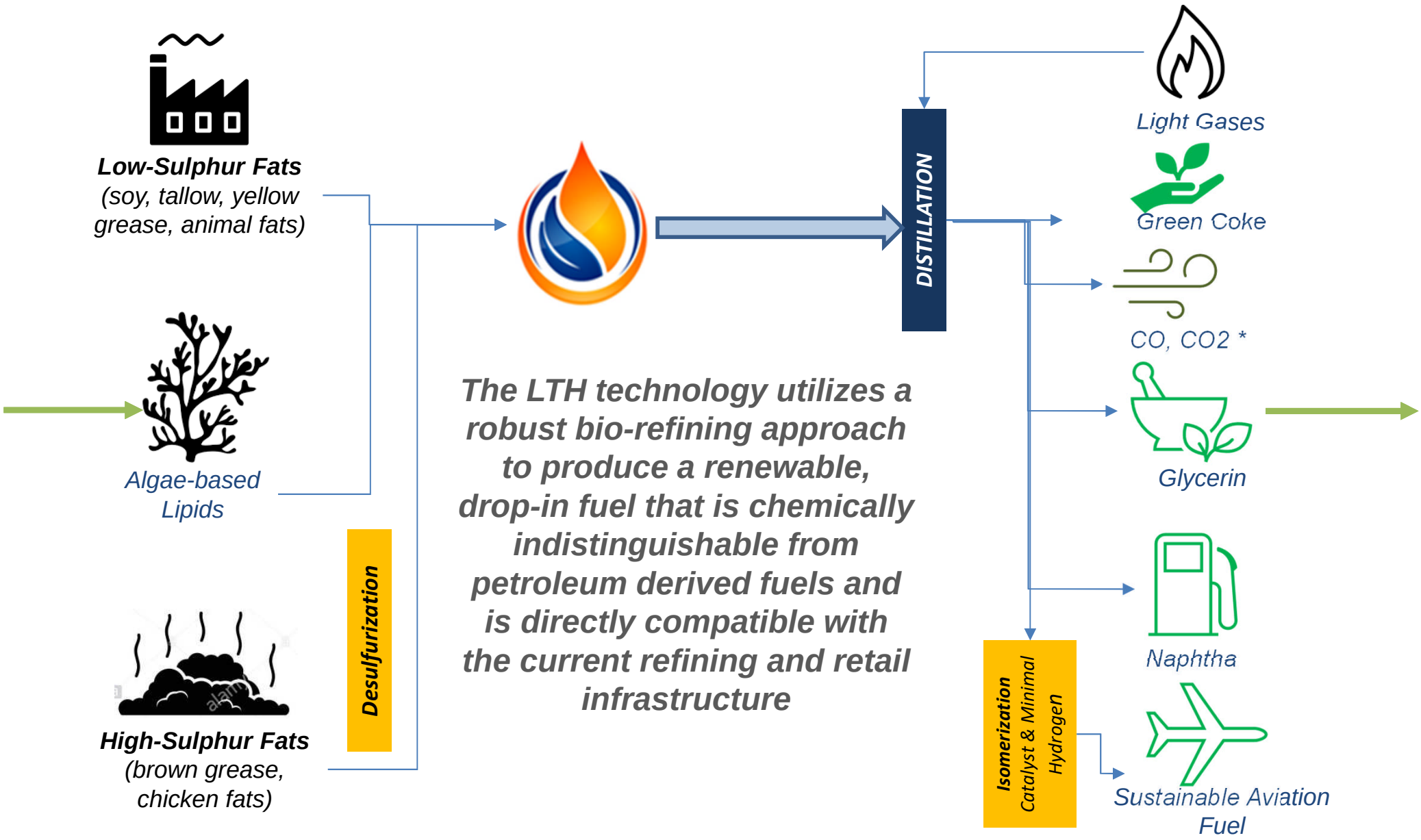
REG Renewable Energy Group

LOCKHEED MARTIN

VALENT LOW-CARBON TECHNOLOGIES

CFFI VENTURES INC.

FORGE Lipids-to-Hydrocarbon (LTH) Technology Process



*Any CO2 produced from the process is considered biogenic since it is produced from organic waste materials and is not included in the GHG footprint

LTH Technology: Four Distinct Advantages

1

Competitive Performance Without Catalysts or Hydrogen

The LTH technology offers a cost-effective “drop-in” fungible renewable fuel that meets/ exceeds petroleum standards, requiring no special infrastructure or additional processing

2

Simpler, Less Capital Intensive Process

The LTH process is simpler than its competitors because it doesn’t use catalysts or H2, allowing for a reduced capital intensity compared to HVO. This enables smaller plants, better matched to local waste oil supply chain.

3

Lower Carbon Intensity and Input Cost

FORGE can utilize a range of ‘dirty’, high fatty acid, waste feedstocks which have lower costs, lower carbon intensities and greater societal acceptance than cleaner feedstocks required for current commercial processes

4

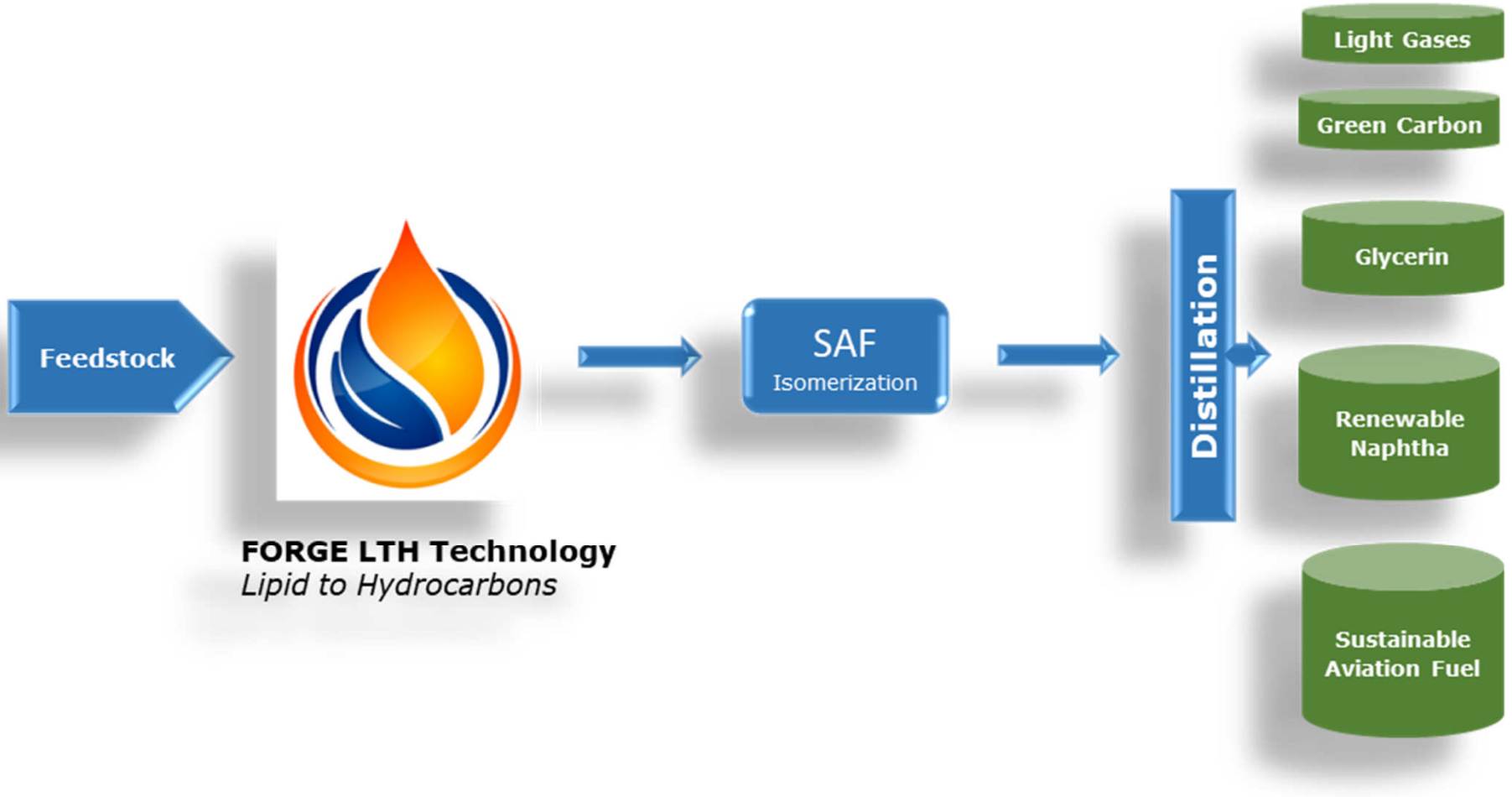
Unique Hydrocarbon Profile

FORGE technology produces renewable diesel with a hydrocarbon profile that is highly suitable to be isomerized into SAF – resulting in higher Yields, higher quality SAF at lower cost.

FORGE Sustainable Aviation Fuel

FORGE HYDROCARBONS

FORGE Hydrocarbons SAF Process Overview



FORGE SAF offers benefits over other SAF fuels

Utilization of Waste Feedstock

- Ability to use lower Quality feedstocks that competing SAF technologies such as HEFA would be limited in using or require very expensive pre-treatment

Up to ~80% Emission Reductions

- FORGE has a CI that is up to ~80% less than conventional fossil fuel diesel depending on feedstock used

'Drop-in Ready' Fuel

- FORGE SAF fuel is chemically indistinguishable from petroleum-based jet. Some SAF technologies such as ATJ do not meet the D7566 Extended Table 1 distillation range requirements

Enhanced Performance

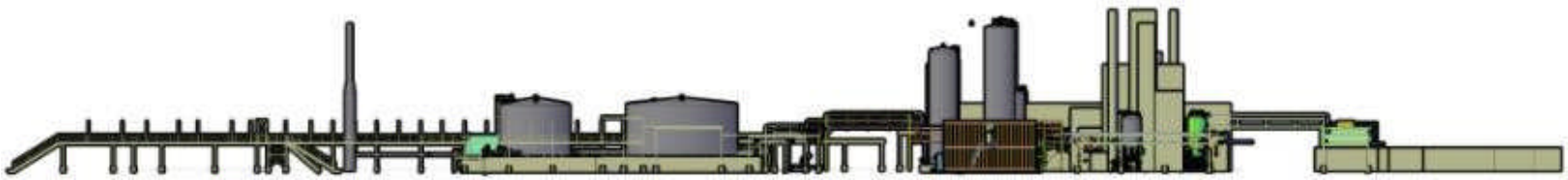
- FORGE SAF as seen in the Sky's the Limit COA is excellent quality

Analytical Results for FORGE SAF

TESTS	UNITS	ASTM METHODS		SPECIFICATIONS		Results
ASTM D7566 - Table 1 (Required)						
Acid Number	mg KOH/g	ASTM	D3242	Max.	0.1	0.004
Aromatics	% volume	ASTM	D1319	Max.	25	<5.0
Mercaptan Sulphur	% mass	ASTM	D3227	Max.	0.003	<0.0003
Total Sulphur Content	% mass	ASTM	D4294	Max.	0.3	3.0
Distillation Temperature:		ASTM	D86			
10% Recovered	°C			Max.	205	176.4
50% Recovered	°C				Report	226.4
90% Recovered	°C				Report	274.6
Final Boiling Point	°C			Max.	300	284.8
Distillation Residue	% volume			Max.	1.5	1.2
Distillation Loss	% volume			Max.	1.5	0.4
Flash Point	°C	ASTM	D56	Min.	38	46.0
Density @ 15°C	kg/m3	ASTM	D4052		775 - 840	781.2
Freezing Point	°C	ASTM	D6972	Max.	-40 (Jet A) / -47 (Jet A-1)	-54.5
Viscosity @ -20°C	mm^2/s	ASTM	D445	Max.	8	6.250
Net Heat of Combustion	MJ/kg	ASTM	D4809	Min.	42.8	43.996
Smoke Point	mm	ASTM	D1322	Min.	25	42.6
Copper Strip, 2 hrs @ 100°C	---	ASTM	D130	Max.	No. 1	1A
Filter Pressure Drop, 2.5hrs @ 260°C	mm Hg	ASTM	D3241	Max.	25	0
Tube Rating:						
Annex A1 VTR	Color Code	ASTM	D3241	<	3	1
or						
Annex A2 ITR or Annex A3 ETR	nm avg	ASTM	D3241	Max.	85	13
Existent Gum	mg/100 mL	ASTM	D381	Max.	7	<1
Microseparometer:						
without electrical conductivity additive	Rating	ASTM	D3948	Min.	85	95

Sources: Kearney Energy Transition Institute; US Energy Information Administration

FORGE Team and Project Status



FORGE HYDROCARBONS

FORGE Commercialization Timeline

First Commercial Plant in Sombra Ontario

- FORGE is constructing a 28 Mil L/yr commercial plant in 2022
- Agreement is in place with World Energy to procure feedstock and broker produced fuels
- FORGE plans to pursue a global build-own-operate replicable roll-out strategy on its own and with partners
- SAF Module for Sombra RD plant

Sombra SAF Module (~2025)

▪ ***SAF module addition***

Commercial Plant Roll-Out (2024+)

- ▪ Modular build and expansion opportunities
- ▪ 2x new plants per year

Commercial Plant (2024)

- ▪ Scaling up to commercial RD plant with 28 million L/yr capacity
- ▪ FID Q4 2022, and commissioning/ramp up in Q4 2023
- ▪ Commercial Plant Roll-out (2024)
- ▪ EPA Pathway Approval/Registration

Pilot Plant

- ✓ 200,000 L/yr demonstration plant in Edmonton, AB
- ✓ Design and purchasing complete
- ✓ Commissioning effective Q1 2014

Initial Technology Demonstration

- ✓ 1L custom fabricated continuous reactor system
- ✓ Commissioned and upgraded

Proof of Concept

- ✓ Micro-tubular reactor in continuous mode
- ✓ IP Protection Filings

✓ **Completed**

FORGE Strategic Partners

- **Shell – strategic partner and investor an aligned vision to decarbonization**
- **REG – strategic partner, biodiesel and traditional HDRD production with goals for SAF production**
- **World Energy – marketing and sales agreement, only SAF producer in North America**
- **University of Alberta – ongoing R&D, next generation technologies**
- ***Valent Low-Carbon Technologies ecosystem*:**
  - **FORGE – RD and SAF**
  - **Nu:ionic – green hydrogen**
  - **Mara Renewables Corp. – algal oil**
  - **Katal - novel drop-in nano emulsion fuel enhancer**
  - **Auterra – desulphurization technology**

FORGE Management Team

Tim Haig Founder, CEO	• 25 years of experience in the field of strategic business development with an emphasis on environmental technologies and engineering. Co-founded BIOX Corporation in 2000 and took the company from a laboratory experiment to a publicly traded company on the TSX
Lisa Bruce FORGE CFO	• Senior finance executive with 15 years of financial management experience in financial reporting, financial budgeting and forecasting, financial analysis and cash and treasury management. Strong expertise in systems and process implementations
Neil Van Knotsenburg VP Projects	• 30 years of experience in large scale industrial and process construction and engineering projects with companies like Xerox Corporation and Pittsburgh Paints. experience in Research, Development and Commercialization of renewable fuels technologies. Early developer of Canada's first and largest production biodiesel facilities.
Carla Brenner Engineering Manager, Projects	• 20 years of experience in project management, process development and equipment design both in commercial ethanol and pilot plants for agriculture product development • Contributed to research in biodegradable plastics and renewable chemical production.
Nak Paik, VP Operations	• Over 30 years of engineering and project management experience • Nearly 20 years of experience in the development, commercialization, and operations of renewable fuels technologies at BIOX Corporation and World Energy LLC
David Bressler Inventor and Scientific Advisor	• 60 peer-reviewed journals and carries out research in industrial application of chemical, thermal, and biological systems for the conversion of conventional agricultural products to biofuels. Inventor of the Lipid-to-Hydrocarbon (LTH) technology
Karlis Vasarais Valent EVP	• 15 years of cleantech commercialization program management and strategic financing experience with StormFisher Biogas ($30m biogas plant) and GreenMantra Technologies ($20m plastics upcycling chemistry) and Imtex Membranes ($20m petrochemical membranes).