



## EXECUTIVE SUMMARY OF GTL PROJECT FOR OMAN

[www.extiel.com](http://www.extiel.com)

### Production of Specialty Chemicals out of Natural Gas

EXTIEL (pronounced X-T-L), stands for X-To-Liquids where “X” represents virtually any carbonaceous feed material. Extiel Holdings, LLC, (XTL) has developed a modular, fully integrated and scalable production platform with a capacity of 2000 BPD (93,000MTPY) that catalytically convert low cost natural gas into **high value synthesized, food grade, biodegradable, solvents, Group IV Alternative (G4A) lube oils, waxes and “low carbon” commercial grade hydrogen** all of which are in increasing demand in an environmentally conscious marketplace. The process is known as Gas to Liquids or GTL.

### Prices of Finished Products

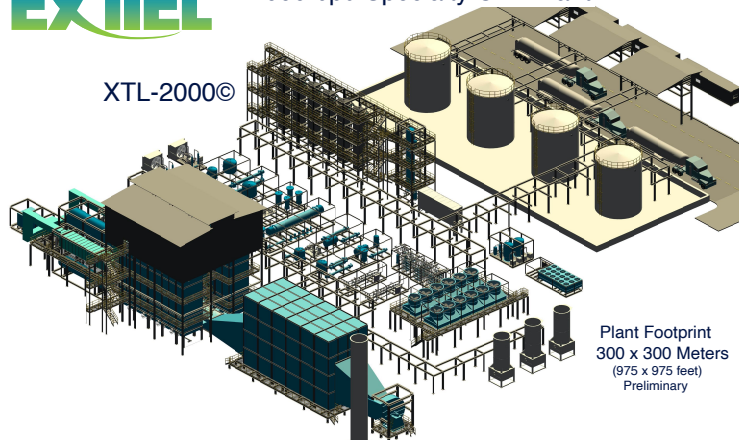
Instead of producing commodity chemicals such as transportation fuels, ammonia, urea or methanol (all produced from natural gas), Extiel is focused on creating specialty performance chemicals that sell for \$200 - \$400/bbl (\$1400 to \$2800 per metric ton), are in short supply, high demand and offer excellent margins. Demand for these products is growing 10% to 15% annually. Currently, 100% of these Specialty GTL Performance Chemicals are imported from Qatar, South Africa and Malaysia.

### Modular Design Based on Well Proven Process

Our XTL-2000© plant processes 22,000 mscf/day (~204 million Nm<sup>3</sup>/year) of natural gas producing 2,000 BBL/day (93,000MTPY) of Specialty GTL Products while generating an EBITDA of ~\$170M-\$190M annually *not* including hydrogen export. At this rate, the capital investment of ~\$490M (US Gulf Coast basis) is returned in 30-34 months of operation (based on EBITDA). If suitable high-volume hydrogen consumers can be acquired, ~\$50M in additional capital is required to install the hydrogen purification and compression equipment and ROI is shortened considerably.



2000 bpd Specialty GTL Plant



Plant Footprint  
300 x 300 Meters  
(975 x 975 feet)  
Preliminary



### **What makes Extiel unique?**

- Expandable and repeatable business model with a Specialty Product slate not bound by crude oil-derived “transportation fuels” pricing
- Proprietary catalyst and innovative process design facilitate production of higher value (longer chain) ultra-pure synthetic molecules
- Turn-key package – single point of responsibility for design, permitting, construction, plant operations, product sales
- Modular, tightly integrated, prefabricated construction for rapid, low cost “in field” installation
- Scalable with multi-train capability, cookie-cutter approach for addition of incremental capacity to meet growing market demand
- Agile deployment options – near sources of economically stranded gas, near product end users, in economically advantageous jurisdictions, remote/infrastructure poor locations
- Low capital requirements, fast deployment and minimal gas requirements compared to “mega-plant” approach of other GTL companies like Shell and Sasol
- Our first XTL-2000 plant has a projected TIC of \$490M – subsequent plants are expected to cost significantly less due to efficiencies and absence of the first plant’s “one-time” costs.

### **Natural Gas in Oman**

The Sultanate is the biggest oil producer in the Middle East outside the Organization of the Petroleum Exporting Countries (OPEC) with the crude oil and condensates production of about one million barrels of oil per day.

The planned projects such as Rabab - Harweel, the biggest project executed by PDO in terms of capital costs and the Yibal-Khuff project among others would allow the growth of natural gas and liquefied natural gas production at a moderate rate at Block 6 in central and southern part of the Sultanate.

The Khazzan Gas field has secured the targeted production capacity of one billion cubic feet of natural gas a day and 35,000 barrels of condensates per day.

The memorandums of understanding signed between the Government of Oman and Total and Shell pointed to the Sultanate’s need for diversification and expansion of the use of gas and methods of export.

Thus, the availability of abundant, low-cost natural gas in Oman has created tremendous investment opportunities in the natural gas to chemicals space. Instead of producing commodity chemicals such as transportation fuels, ammonia, urea or methanol (all produced from natural gas), Extiel is focused on creating specialty performance chemicals that sell for \$200 - \$400/bbl (\$1400 to \$2800 per metric ton). Such chemicals are in short supply, high demand and offer excellent margins. Demand



for these products is growing 10% to 15% annually. Currently, 100% of these Specialty GTL Performance Chemicals are imported from Qatar, South Africa and Malaysia.

### **Extiel's Business Model**

Extiel is a design, build, own and operate (DBOO) company, a vertically integrated manufacturer of Specialty GTL Performance Chemicals utilizing a distributed manufacturing model to ensure long term reliability of supply to end users. Each GTL project site has its own financial structure; a special purpose entity with equity sharing among capital providers who receive preferred distributions until agreed return hurdles are met. Extiel has developed a fully integrated specialty chemicals platform (turnkey production facility from feedstock conditioning through product handling), that catalytically converts low cost hydrocarbon streams such as natural gas, associated gas, biogas and NGL into high value, synthesized, non-toxic, biodegradable, ecologically friendly high performance solvents, lube oils, and waxes that meet or exceed the performance of the toxic petroleum-derived products they replace.

In addition to performance chemical products, Extiel's plants produce pure "low carbon" hydrogen to meet the growing demand from fuel cell vehicles, off-grid power plants and numerous industrial applications. The rapid adoption of hydrogen fuel cell forklifts supplied by Yale/Hyster and Plug Power is revolutionizing material handling in large distribution and manufacturing centers, creating significant new H<sub>2</sub> demand. Hydrogen can be economically trucked within a 300-mile radius or sold "over the fence" via pipeline. When selecting a location for a GTL plant, Extiel looks for a major local hydrogen consumer or multiple smaller users.

Currently we have progressed several project sites to the point of negotiations with funders. Of special note are sites in Kentucky, Texas, Louisiana, northwestern Pennsylvania, eastern Pennsylvania, West Virginia and Wyoming.

### **Profit Margin on Natural Gas**

Due to the boom in natural gas discoveries and production, the price of natural gas in the US is expected to stay below \$3.25/mcf (\$120 per thousand cubic meters) for many years to come. In many places, the cost of gas is even lower. Each 1000 standard cubic feet (mscf) of gas that is "processed" though the GTL plant is converted to Specialty GTL solvent, lube, wax, and low carbon hydrogen valued at \$33/mcf. The total processing cost *including gas*, water, power, labor, catalysts, consumables, royalties and marketing expenses is \$12.00 leaving a net profit of \$21.00 for each mscf of natural gas the plant processes. This is greater than a six-fold increase in value over the base price of natural gas, after considering operating costs.

### **Economics of One Modular Train of XTL-2000 without Hydrogen Sales**

One XTL-2000© plant processes 22 mmscfd (~204 million Nm<sup>3</sup>/year) of natural gas producing 2,000 BBL/day (93,000MTPY) of Specialty GTL Products while generating an EBITDA of ~\$156M annually not including hydrogen export with a 50-50 mix of long-



term contracts and market offtake. At this rate, the capital investment of ~\$490M (US Gulf Coast basis) is returned in 36 to 40 months of operation, depending on the mix of long-term take-or-pay offtakes and market transactions (based on EBITDA).

Imperial Units							
Plant Platform	GTL Output BPD	Hydrogen Output mscfd	Natural Gas Processed, mscfd	Opex \$/mscf Processed	Revenue \$/mscf Processed	EBITDA \$/per mscf	EBITDA
XTL-2000 Without H2 Export	2,000	0.00	22,000	\$ 9.79	\$ 30.32	\$ 20.53	\$ 156,588,247
Metric Units							
Plant Platform	GTL Output MTPY	Hydrogen MTPY	Natural Gas Processed, Million Nm3/yr	Opex \$/1000Nm3 Processed	Revenue \$/1000Nm3 Processed	EBITDA \$/1000Nm3 Processed	EBITDA
XTL-2000 Without H2 Export	92,975	0.00	204.4	\$ 365.56	\$ 1,131.78	\$ 766.22	\$ 156,588,247

**Figure #2:** XTL-2000 Economics without Hydrogen Sales

### Economics of One Modular Train of XTL-2000 with Hydrogen Sales

Hydrogen is a valuable byproduct of Extiel's GTL process. If a local consumer of hydrogen can be developed, each XTL-2000 can generate an additional revenue stream of \$55M annually by exporting 30,000 mscfd (25,000 MTPY) of hydrogen at a price of \$7.00/mscf (\$2.50/kg). If such a hydrogen buyer is not available, the excess hydrogen is consumed internally as fuel, resulting in lower consumption of natural gas per unit of liquid product. The XTL-2000© in hydrogen export mode processes 30 mmscfd (~280 Million Nm3 per year) of natural gas resulting in an annual EBITDA of ~\$211M. At this rate, the capital investment of ~\$540M is returned in 28 to 32 months of operation, depending on the mix of long-term take-or-pay offtakes and market transactions (based on EBITDA).

Imperial Units							
Plant Platform	GTL Output BPD	Hydrogen Output mscfd	Natural Gas Processed, mscfd	Opex \$/mscf Processed	Revenue \$/mscf Processed	EBITDA \$/per mscf	EBITDA
XTL-2000 With H2 Export	2,000	30,000	30,400	\$ 8.81	\$ 28.85	\$ 20.04	\$ 211,241,053
Metric Units							
Plant Platform	GTL Output MTPY	Hydrogen MTPY	Natural Gas Processed, Million Nm3/yr	Opex \$/1000Nm3 Processed	Revenue \$/1000Nm3 Processed	EBITDA \$/1000Nm3 Processed	EBITDA
XTL-2000 With H2 Export	92,975	25,049	282.4	\$ 328.87	\$ 1,076.91	\$ 748.04	\$ 211,241,053

The hydrogen export option requires additional capital equipment for purification to commercial standards, compression, storage and loading of the purified hydrogen



adding ~\$50M to the capital cost. This equipment can be added to the plant at a later date after the plant is operational. This additional capital expense should not be undertaken if a local hydrogen user is not immediately available. It is possible that a hydrogen consumer can be developed through the addition of processing units within an existing refinery (hydrocrackers and hydrotreaters) or construction of a nitric acid, ammonia, or fertilizer plant, or other process that can utilize hydrogen.

### **Project Financing**

The Omani side would propose options of financing one or multiple modular trains XTL-2000 for GTL production. Projects of this nature are typically funded through a combination of debt and equity. Project equity investors will enjoy an initial preferred position, depending upon how the capital stack is arranged. Typically, the investor preferentially receives 90% of distributable funds (after OpEx, debt service and reserves) until their investment is returned plus an IRR of 6%. After this capital and preferred return period, distributions are split between the investor and XTL. The resulting IRR for the equity investor is near 30%.

### **The First Stage to Finance This Project**

The first stage of financing requires to complete the Front End Engineering and Design (FEED) and Detailed Design (DD) with permitting, all supply contracts, sale contracts for the selected site, the engineering survey of the site, logistics, the engineering and design of oil processing unit, which will be using GTL hydrogen, and preparation of the paperwork for bank and private financing. The first stage of financing will require ~\$30 million and the work will take about 8-12 months. After the completion of this work the project of the XTL-2000 plant for the site selected jointly with the Omani partner will be ready for banks and investors for financing.

The initial investor who puts ~\$30 million will be paid back upon closing of the financing and will take a preferential position to make the required 20% of the equity investment so that the bank could give the 80% as a loan. By our preliminary estimates the equity investor of 20% in the required CapEx will be fully paid back in the course of the first year of the plant operation. Then the profit distribution will be split 50/50 with Extiel after paying the bank debt. The further financing of the XTL-2000 plants in Oman will be an easy task with a successful plant operating.

Extiel is ready to meet the potential investor at its headquarters in Houston, Texas, or any other place, for introduction and discussion of a joint venture in Oman.

2311 Cedar Springs Road #350 Dallas, Texas 75201 USA (1) 214.922.9033 [INFO@Extiel.com](mailto:INFO@Extiel.com)