



**Clean Coal Refining Corporation**

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**Direct Coal Hydrogenation**

**Indiana**



## The Company

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- The Merle Family has been in the Coal industry for 6 generations.
- Clean Coal Refining Corporation was created in 2006 to explore the best options for bringing coal into the 21<sup>st</sup> century.



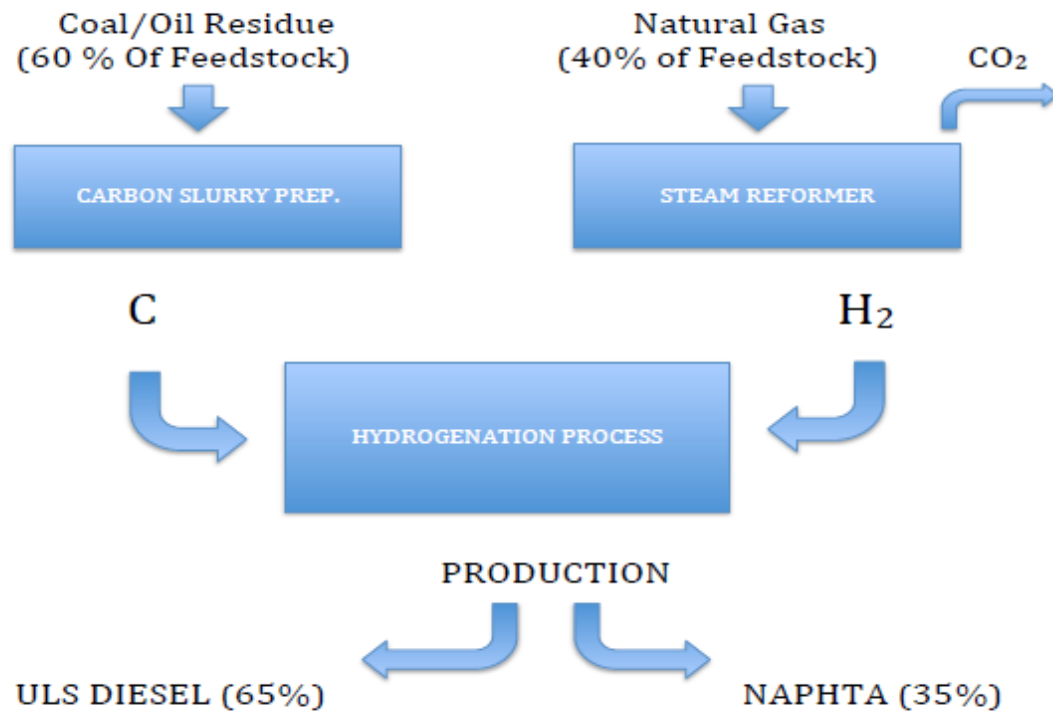
## The Opportunity and strategy

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- We are located in Western Indiana
- The DCH process produces readily marketable fuel (ULSD) and Naphtha.
- Feedstocks are Coal and Hydrogen (from natural gas)
- The production cost is \$48 per barrel
- Should coal prices become too high for profitability, facility is readily convertible to work with other feedstocks

# Background

- **Direct Coal Hydrogenation (DCH) or Direct Coal Fusion (DCF) project – Indiana**



4.79 Million Barrels per year  
<10 ppm Sulfur in Diesel ( ULSD is <15 ppmw)

2.45 Million Barrels per year



## Technology and Key Features

- About 4,800 metric tons per day of coal will be converted every day into 21,700 barrels of ultra-clean liquid hydrocarbon products.
- The DCH Project Key Features are:

Design Capacity	21,700 Barrels per Standard Day (BPSD).
Output	4.79 Million Barrels of Ultra Low Sulfur Diesel (ULSD) (66%) and 2.45 Million Barrels of Naphtha (34%) per year
Coal Feed Rate:	1.76 MM tons/year
Profitability	Competitive with a crude oil refinery as long as crude oil remains above \$48/Barrel
Timing	Begin construction early 2015, first barrel produced: 2018
Capital Expenditure	\$1.415 Billion
Direct Jobs Created	300



## The Environment

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- The DCH process itself is Carbon neutral because it does not involve combustion or gasification of Coal
- DCH takes advantage of the Natural Gas revolution since 48% of the feedstock is hydrogen from natural gas.
- The coal used has high sulfur content, while the Diesel produced is ULSD.
- All byproducts are marketable



In Memoriam

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- **James F. McAvoy Direct Carbon Hydrogenation Project**





Thank You

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