

EXELUS

HIGH-OCTANE FUEL FROM REFINERY EXHAUST GAS

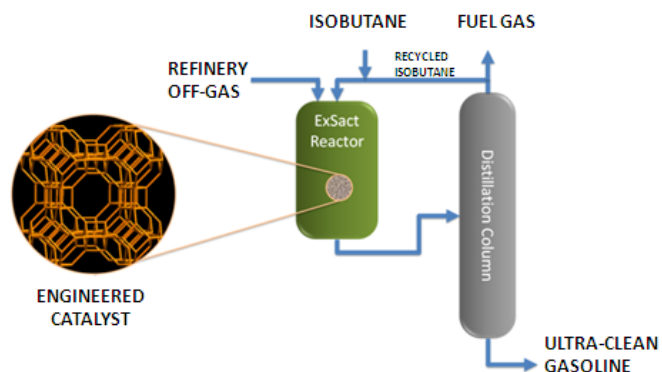
PROJECT TITLE:	Upgrading Refinery Off-Gas to High-Octane Alkylate		
ORGANIZATION:	Exelus, Inc.	LOCATION:	Livingston, NJ
PROGRAM:	FOA1	ARPA-E AWARD:	\$1,000,000
TECH TOPIC:	Traditional Power Generation	PROJECT TERM:	12/1/09 – 11/30/11
WEBSITE:	www.exelusinc.com		

CRITICAL NEED

Oil refining is the most efficient chemical conversion industry. However, the scale of refining in the U.S. means that small inefficiencies equate to massive losses of potential fuel. One source of loss is the olefin content of oil refinery exhaust. Olefins are carbon-based compounds that can serve as fuel components once separated from the exhaust. This separation process is difficult and expensive, so olefin is often burned up in a reactor and wasted. This inefficient practice adds greenhouse gases to the atmosphere and wastes a valuable fuel product.

PROJECT INNOVATION + ADVANTAGES

Exelus is developing a method to convert olefins from oil refinery exhaust gas into alkylate, a clean-burning, high-octane component of gasoline. Traditionally, olefins must be separated from exhaust before they can be converted into another source of useful fuel. Exelus' process uses catalysts that convert the olefin to alkylate without first separating it from the exhaust. The ability to turn up to 50% of exhaust directly into gasoline blends could result in an additional 46 million gallons of gasoline in the U.S. each year.



IMPACT

If successful, Exelus' project would result in a reduction in the carbon intensity of oil refining and an improved yield of motor fuel from each barrel of oil.

- **SECURITY:** Improving the efficiency of the fuel production process limits waste and reduces our dependence on foreign oil.
- **ENVIRONMENT:** Wasting the olefin content of refinery exhaust represents an avoidable addition of greenhouse gases to the atmosphere. Using olefin as a gasoline additive adds to our fuel supply without further harming the environment.
- **ECONOMY:** Advances in fuel production efficiency increases our fuel supply, which ultimately reduces the price of fuel for consumers and businesses.
- **JOBS:** An increased fuel supply strengthens the position of businesses throughout the petroleum supply industry, providing improved job security for current employees and more opportunities for growth as a result.

CONTACTS

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