

Unica Ethanol Summit

Global Agenda for Biofuels!

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ALGENOL
BIOFUELS
Harnessing the sun to fuel the world

ENSYN

Who We Are

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CENTRO DE TECNOLOGIA CANAVIEIRA

AMYRIS

GranBio

AMERICAN
PROCESS

Syntroleum

DU PONT

REP REVE
RENEWABLES

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UOP
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EMERSON

SundropFuels

coskata

DynamicFuels™

SynGest

Sapphire
Energy™

EndicottBiofuels

BETASEED

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NESTE OIL

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MADE IN THE USA

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A joint venture between BP and DuPont

Demand will continue to grow: China's desire to reach 'energy parity' will alone have a massive effect, not including other developing nations



U.S.

Population: 308 MM
GDP per capita: \$47,100
Oil use: 19.2 MBD
Oil use (per 1,000): 62 bpd



Poland

Population: 38 MM
GDP per capita: \$18,800
Oil use: 0.55 MBD
Oil use (per 1,000): 15 bpd



China

Population: 1,330 MM
GDP per capita: \$7,500
Oil use: 8.3 MBD
Oil use (per 1,000): 6.2 bpd

- If China aspires to be as "energy rich" as the U.S. by 2030, it will add **78.5 MBD**
- If China aspires to be half as "energy rich" as the U.S. by 2030, it will add **35.1 MBD**
- If China *only* aspires to be as "energy rich" as Poland* by 2030, it will still need to add **12.7 MBD** (and still be the largest consumer of oil in the world)
- *When you factor in the significant demand growth from India, Russia, Brazil, and the Middle East, the effect will be highly disruptive to the world oil markets*

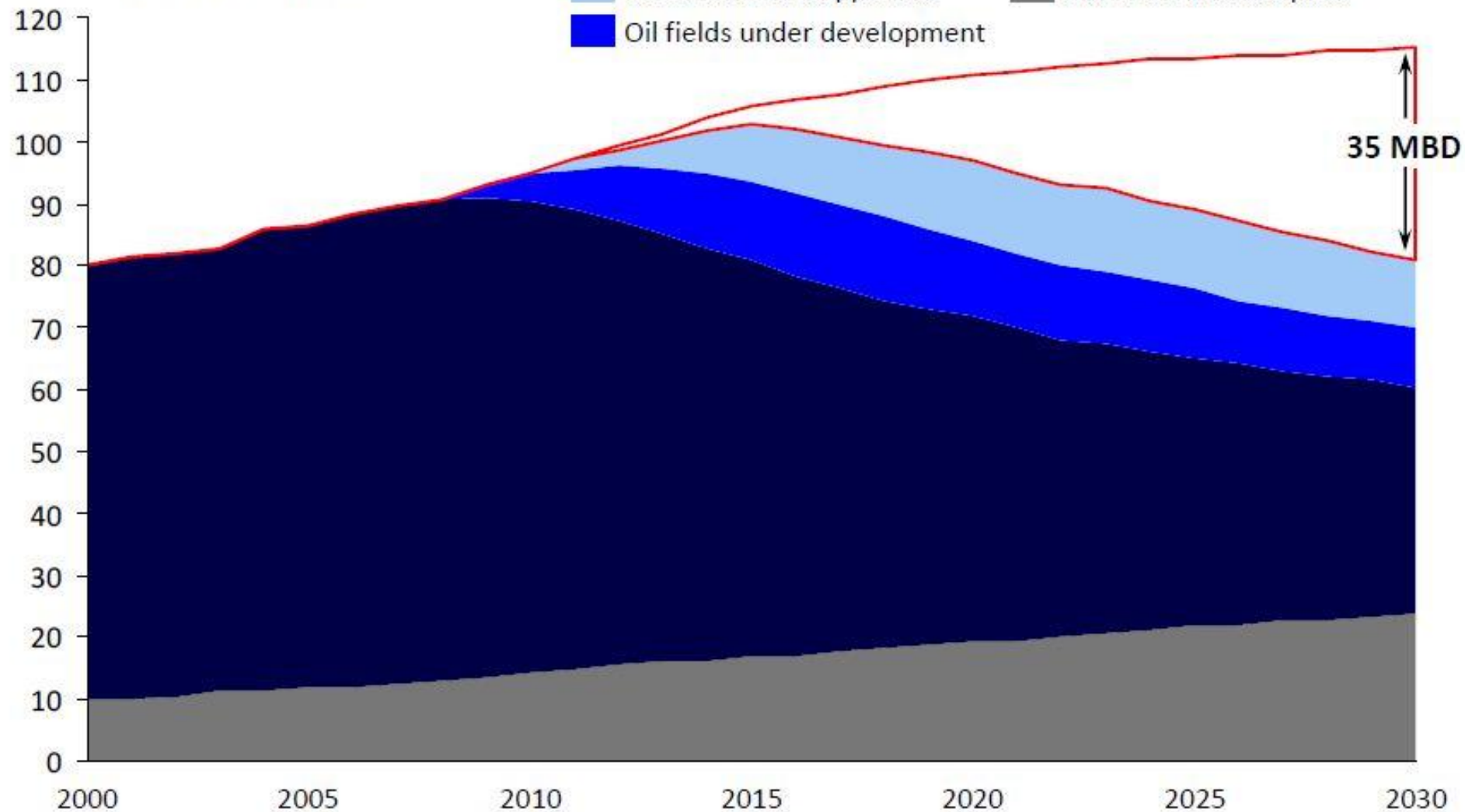
* Poland has the lowest energy use per capita of any country with a GDP per capita greater than \$10,000

Note: Assumes population of China only grows to 1.4 billion by 2030

CERA estimates that by 2030, the world will demand 35 million barrels per day of liquids from unidentified sources—an “oil gap” that must be filled

Global oil supply outlook (as of 2009)

Million barrels per day (MBD)



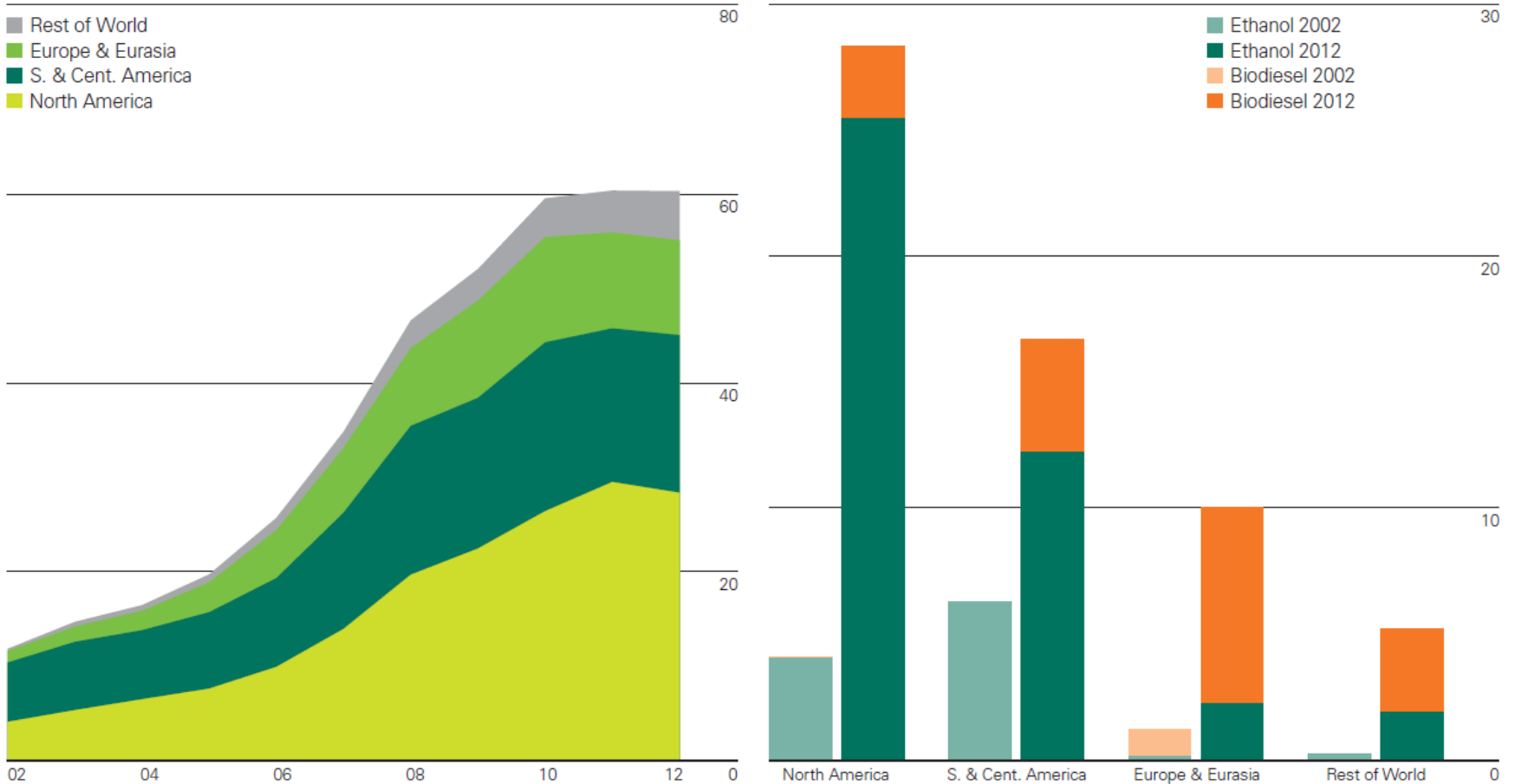
* Includes extra heavy oil, coal-to-liquids, gas-to-liquids, natural gas liquids, ethanol, biodiesel

Source: Cambridge Energy Research Associates "The Future of Global Oil Supply", 2009

World biofuels production

Million tonnes oil equivalent

- Rest of World
- Europe & Eurasia
- S. & Cent. America
- North America



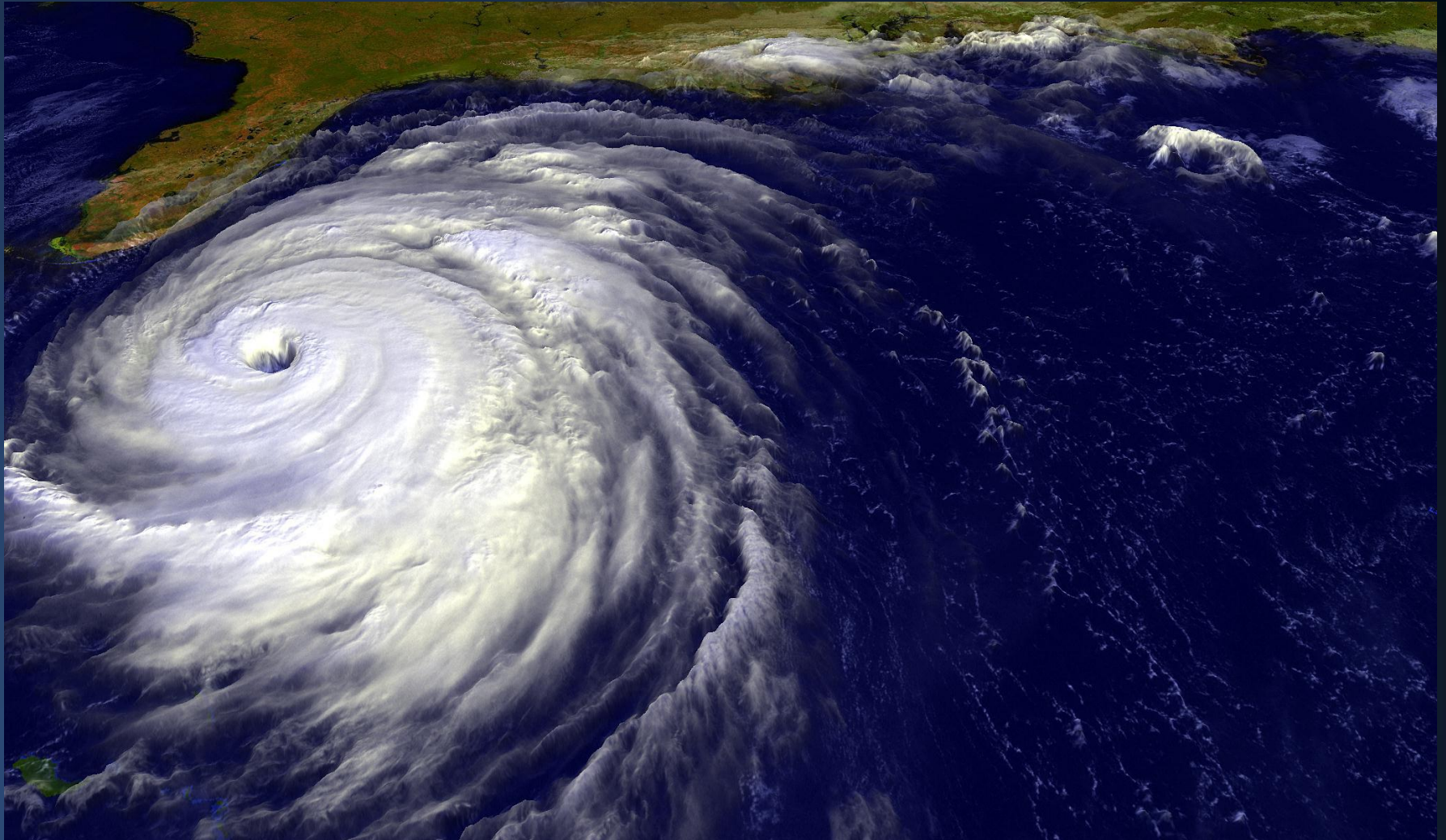
World biofuels production declined by 0.4% in 2012, the first decline since 2000. Increased output in South America and Asia Pacific was outweighed by declines in North America and Europe. Global ethanol output declined by 1.7%, the second straight annual decline. Biodiesel production grew by 2.7% and has doubled in the last five years and now makes up 31% of total biofuel supply.

Source: BP Statistical Review of World Energy, June 2013



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Climate Change



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Advanced Biofuels at work: Great Green Fleet



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Thank you Let's Work Together



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