



Taking on the world's toughest energy challenges.™

Advancing vehicle fuel efficiency

LSU 2009 Conference on Alternative Energy Issues

Dan Schuessler
Baton Rouge Chemical Plant Manager
April 22, 2009

You might be wondering...



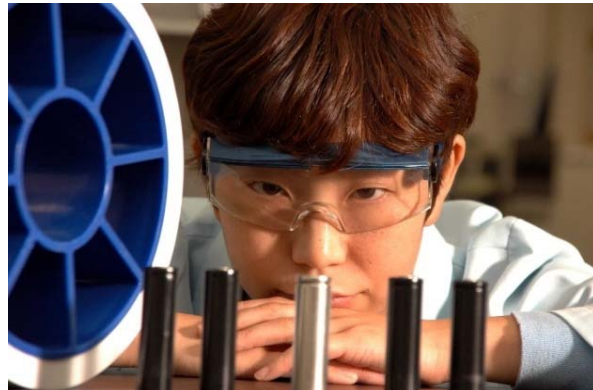
- Employing 14,000 scientists and engineers around the world, technology is fundamental to solving the challenges of our day
- To the tune of \$1 billion per year, we consistently invest in innovation
- We drive research efforts in both breakthrough concepts and evolutionary improvements that enhance performance across our business
- We seek to maximize the contributions we make to economic growth, environmental protection and social well-being over the long run



Taking on the world's toughest energy challenges.™

Our latest technology

ExxonMobil has developed new film technologies for lithium-ion batteries with the potential to improve the energy efficiency and affordability of next generation hybrid and electric vehicles.

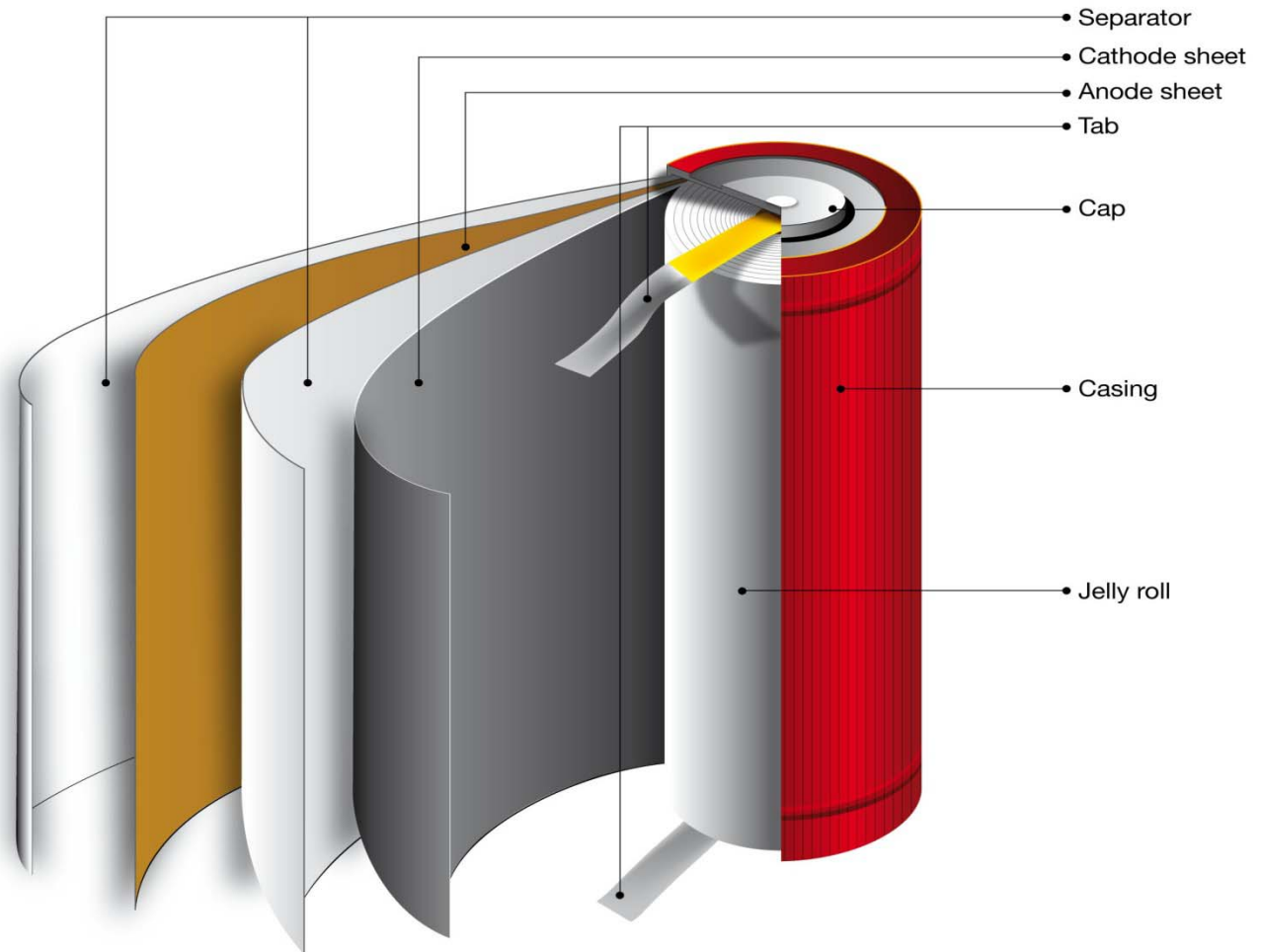


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Separators are critical to battery performance

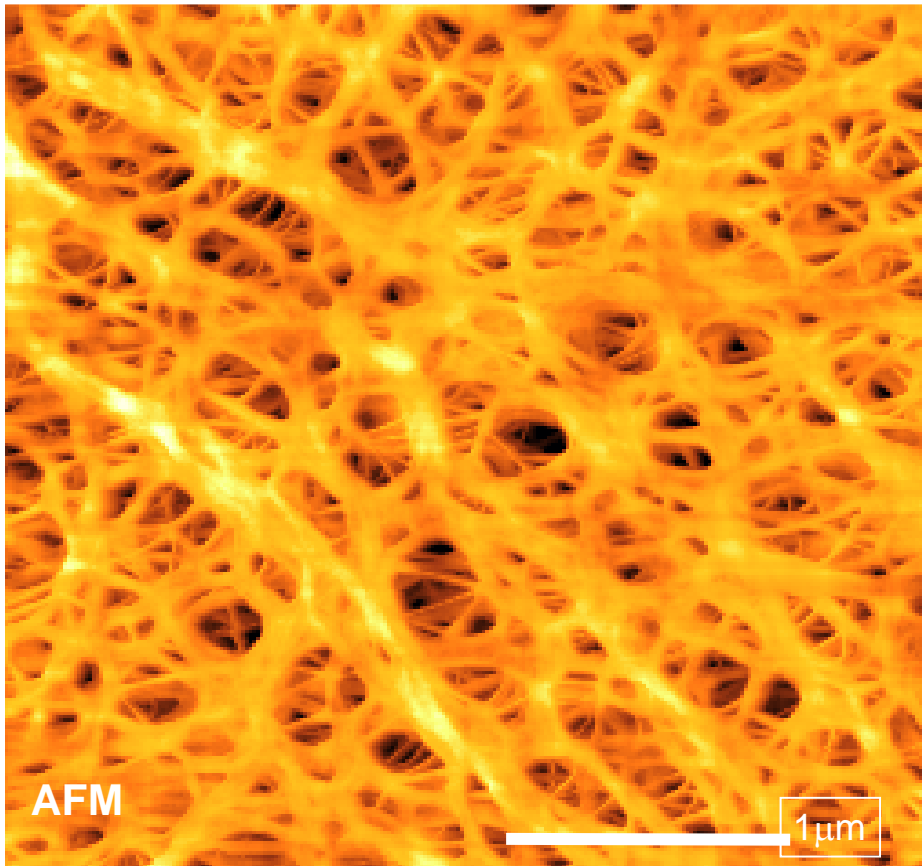
ExxonMobil has improved the thermal performance (safety) of one of the battery's most vital components – the separator.



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A closer look at ExxonMobil's battery separator film



Special Features:

Uniform

Highly porous

Flexible

Excellent strength

Long life

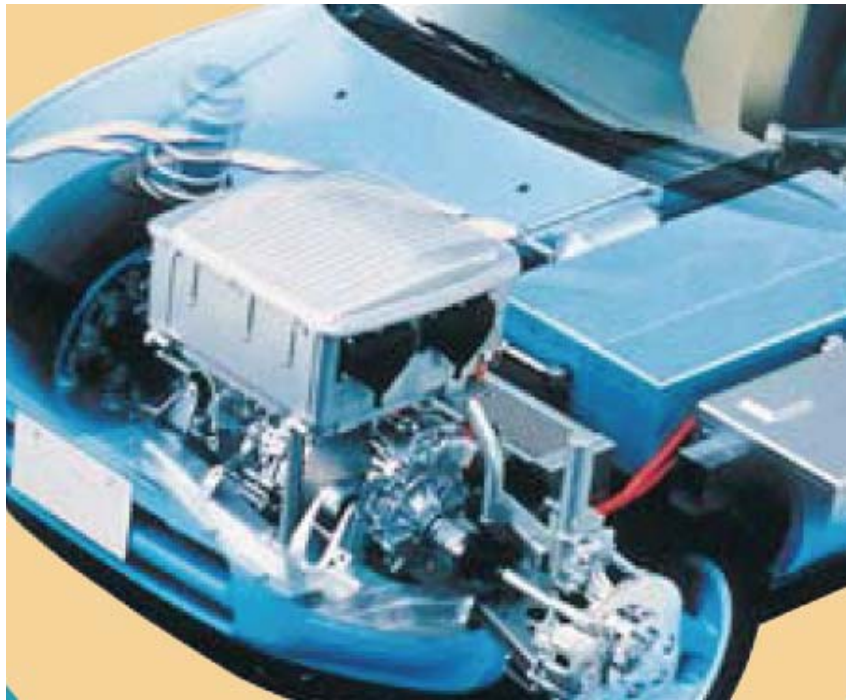
Tailored transitions

ExxonMobil

Taking on the world's toughest energy challenges.™

Helping power next generation hybrid and electric vehicles

our revolutionary new technology makes the battery better.



- ✓ Safety margins
- ✓ Capacity
- ✓ Increased power
- ✓ Design flexibility
- ✓ Quality consistency
- ✓ Durability

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Taking on the world's toughest energy challenges.™

Helping power next generation hybrid and electric vehicles

and the next generation of hybrids possible.

- ✓ Smaller and lighter-weight batteries
- ✓ Increased fuel efficiency of hybrids
- ✓ Improved car design flexibility



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other ExxonMobil technologies already on the road

Tire innerliners



Advanced motor oils

High-performance plastics and elastomers



10% Weight Reduction –
6.6% Fuel Economy

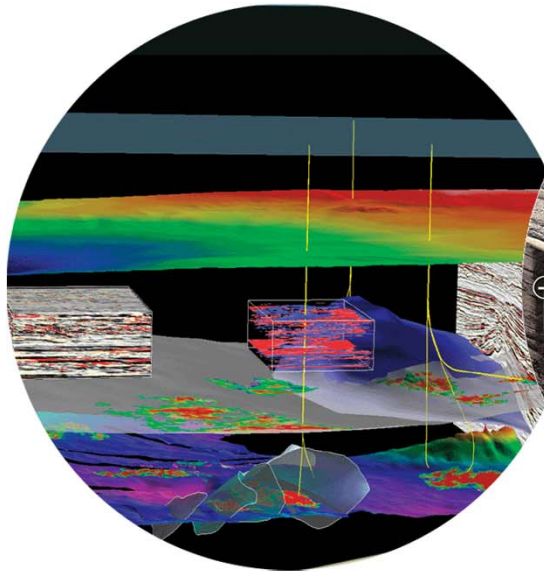
And more on the way...

Advanced fuels and engine technologies, such as Homogeneous Charge Compression Ignition and on-board hydrogen reformer

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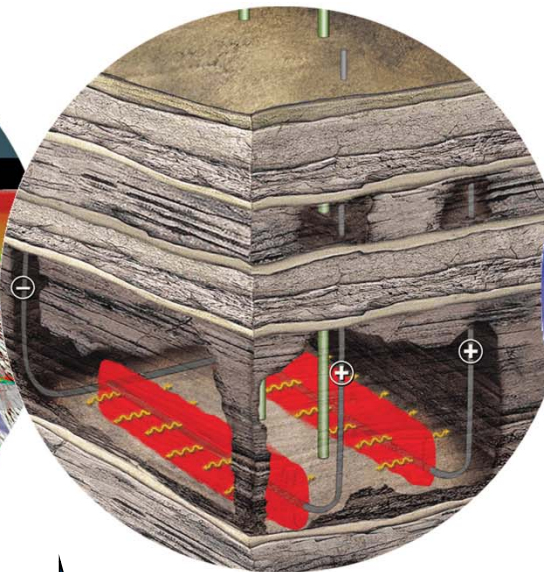
breakthrough upstream technology



identified opportunities

Next-Generation Seismic Imaging

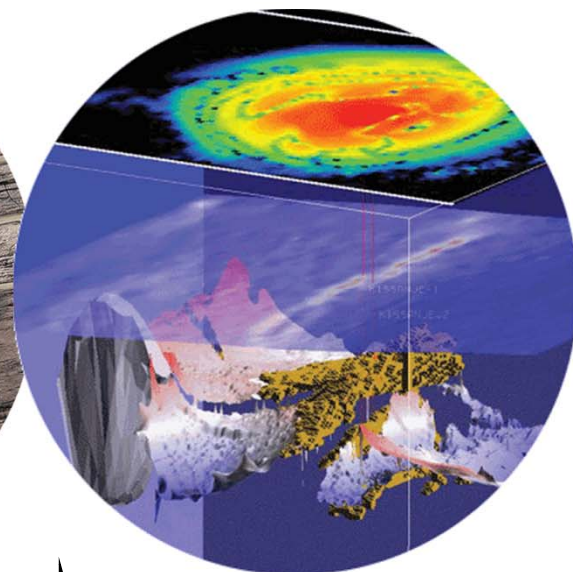
Rapid Reservoir Performance Prediction



evaluation

Economic Recovery from Thin Bitumen Reservoirs

Shale Oil Recovery



commercial success

Unlocking Tight Gas (MZST)

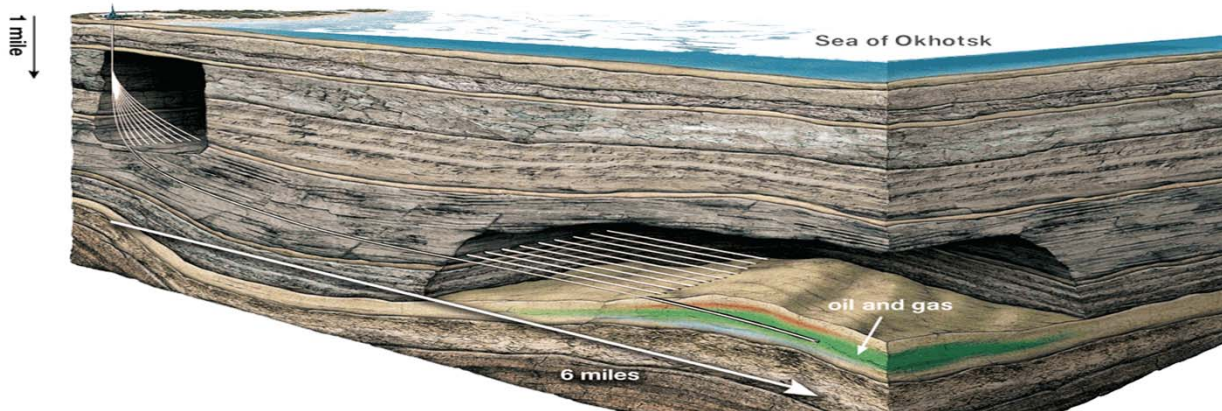
Advanced Hydrocarbon Detection (R³MSM)

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delivering new supplies

- breakthrough technologies can help meet rising global energy demand and minimize environmental footprint
- key ExxonMobil technologies include:
 - directional drilling
 - seismic mapping
 - floating production, storage and offloading vessel (FPSO)
 - Multi-Zone Stimulation Technology (MZST)
 - Remote Reservoir Resistivity Mapping (R3M)



**Sakhalin-1
development
(Russia)**

economies of scale – LNG tankers



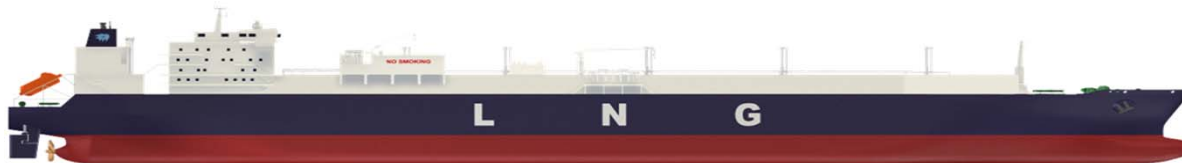
128,000 m³ conventional (~1976)



145,000 m³ conventional (~1995)



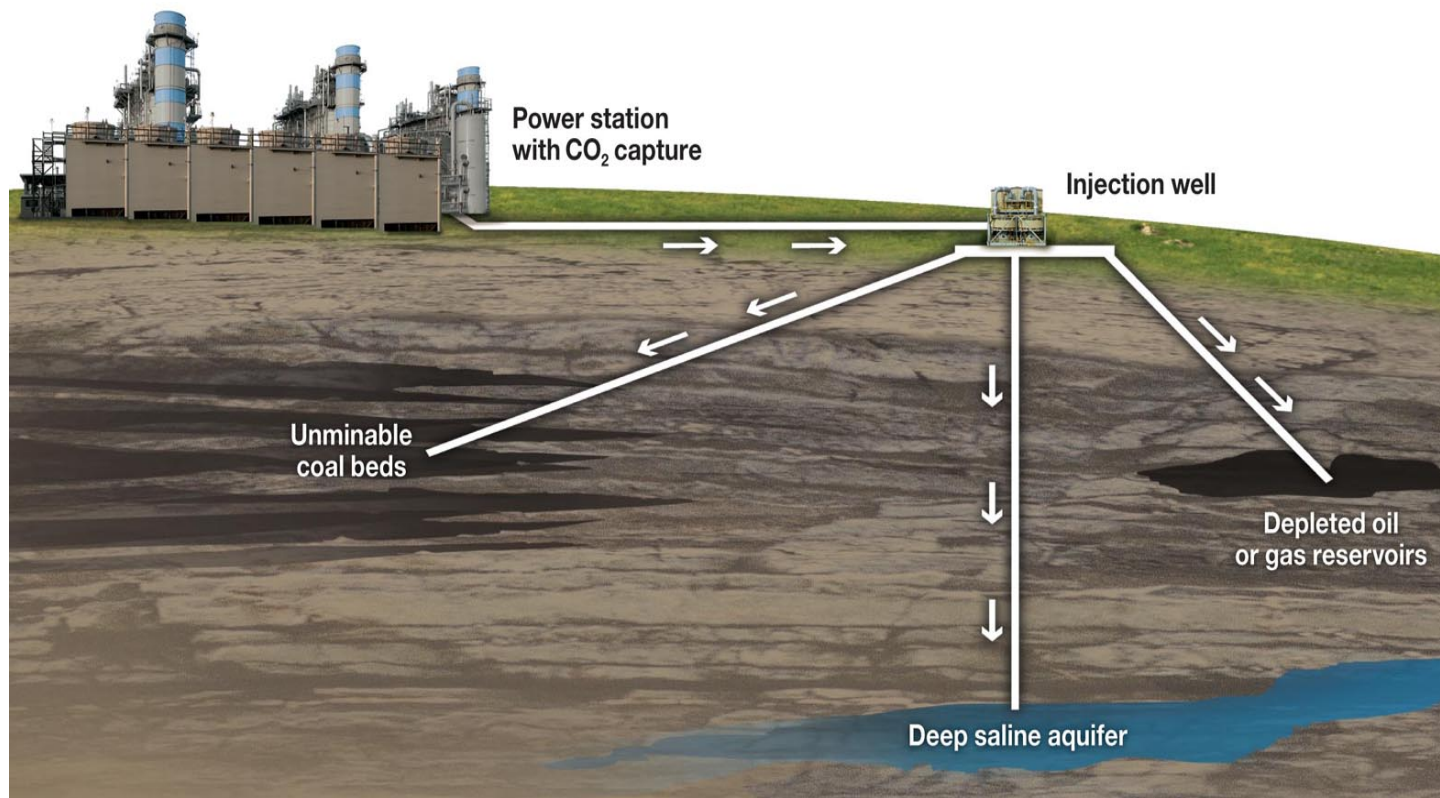
210,000 m³ Q-Flex (2007)



260,000 m³ Q-Max (2008)



capturing and storing CO₂



making vehicles more efficient

- efficiency and technological developments in vehicles are critical
- we are developing vehicle technologies to improve fuel economy and reduce emissions



advanced technologies for conventional vehicles



breakthrough technologies

advanced vehicles

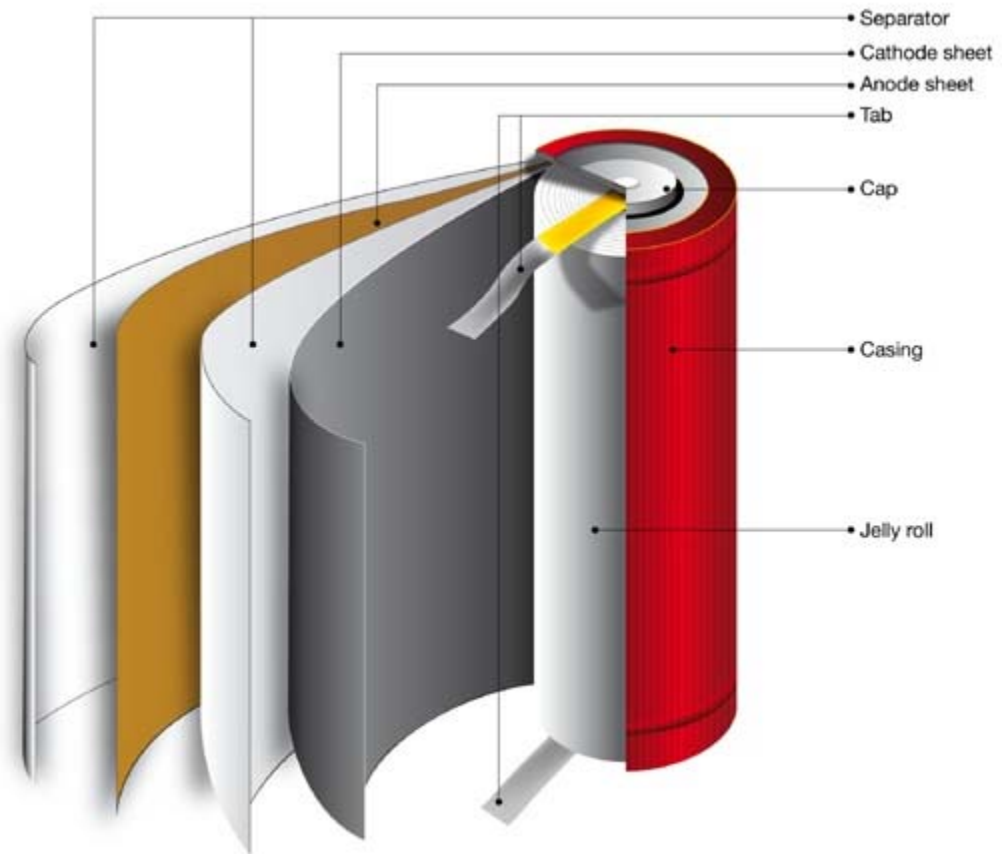


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enhanced lithium ion batteries

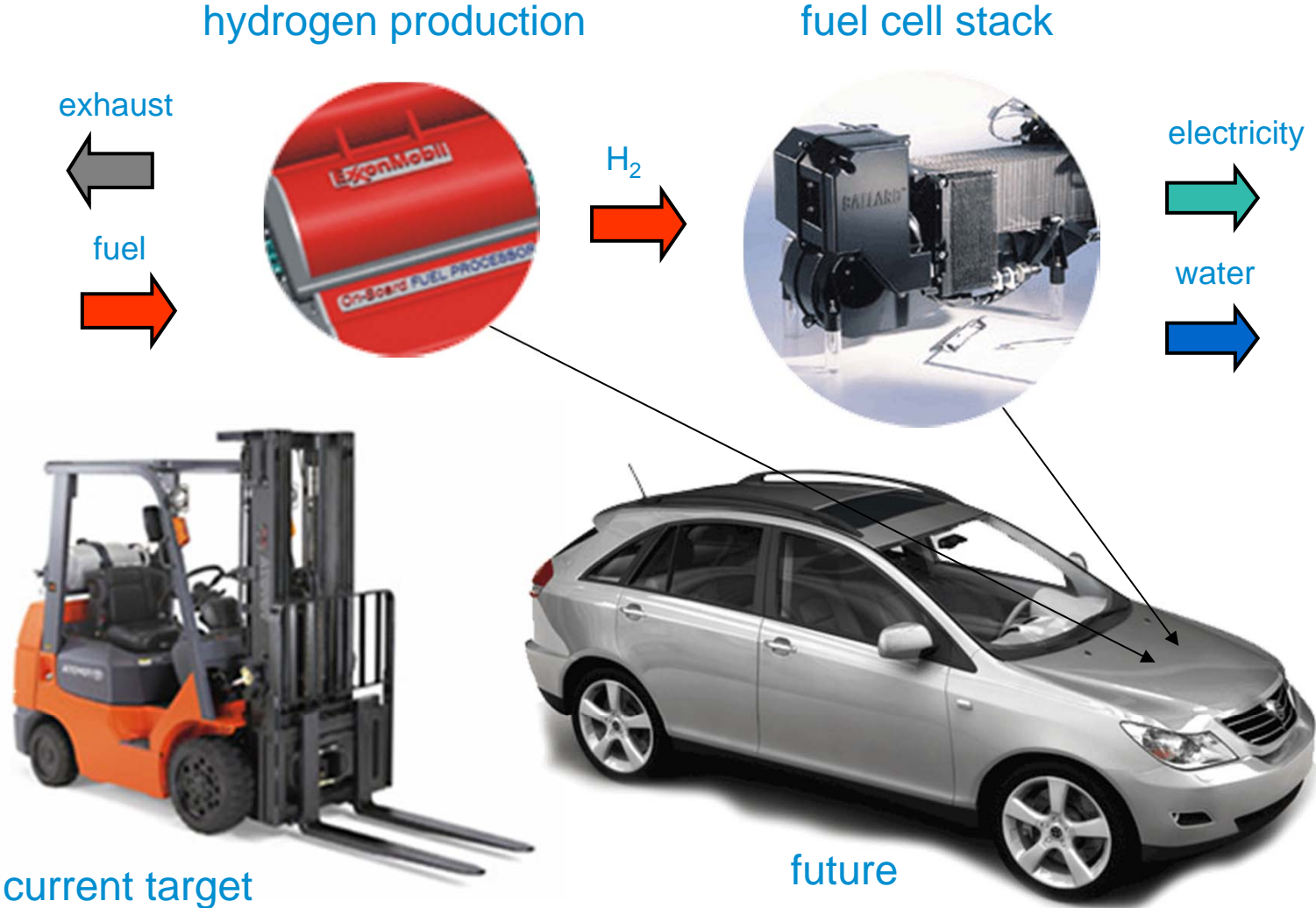
- ExxonMobil Chemical has developed new separator film for lithium-ion batteries
- may be more cost-effective than current batteries, potentially resulting in more drivers opting for hybrid vehicles
- improves safety, reliability and power of batteries for hybrid vehicles



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on-board hydrogen reformer



reinventing your wheels

- *Exxpro™*: ExxonMobil Chemical's new tire lining technology
- enables lighter, more durable tires
- maintains proper air pressure longer than conventional tires
- helps save fuel, creating fewer emissions



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energy efficiency – one quart at a time

- Mobil 1 AFE: Lower-viscosity synthetic motor oil launched in April
- can improve fuel economy by up to 2 percent versus most common motor oils
- builds on ExxonMobil's 30-year tradition of protecting against engine wear



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Global Climate & Energy Project

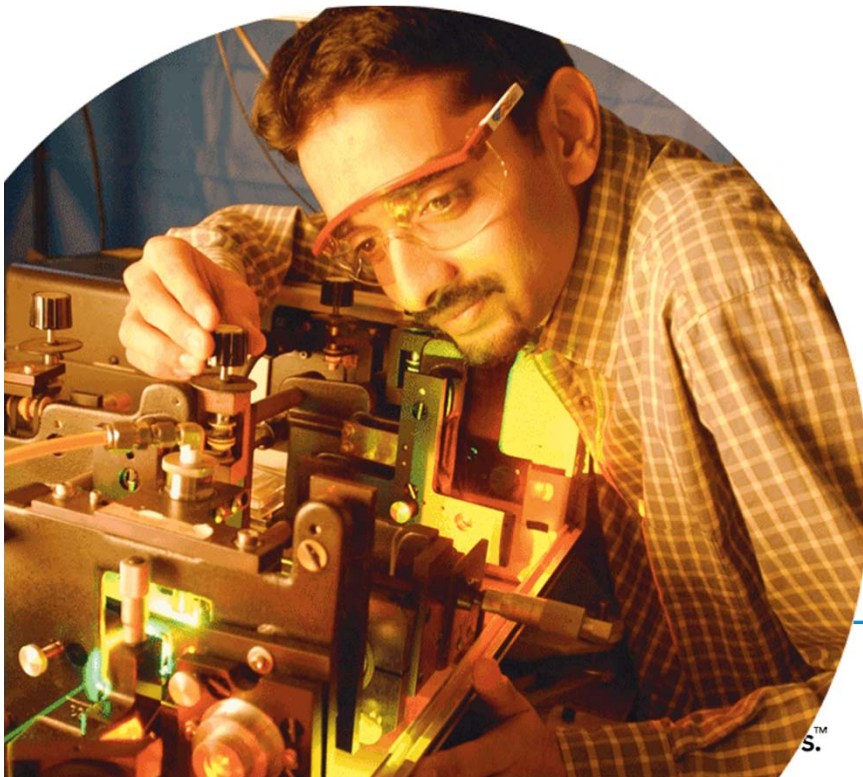
- an unprecedented alliance of scientists and companies over a 10-year period
- focus on creating commercially viable low emissions technologies
- projects at Stanford and in Europe, USA, Japan, Australia



Global Climate & Energy Project
STANFORD UNIVERSITY

research projects include:

- designing and fabricating **solar cells** with the goal of developing efficient and low-cost options to convert **solar energy** into **electricity**
- exploring the science underlying the operation of **fuel cells**
- approaches to the **capture**, **separation** and **storage** of carbon dioxide **emissions**



Thanks!

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