

Western States Petroleum Association

# Challenges to Energy Adequacy in the Low Carbon World



FTA Pacific Region  
Catherine Reheis-Boyd  
Western States Petroleum Association  
April 29, 2008

# Western States Petroleum Association

## Energy Independence and Security Act (EISA) of 2007

- Requires fuel producers to use at least 36 billion gallons of biofuel in 2022; 9 billion gallons in 2008; 11.1 billion gallons in 2009
- Sets a national fuel economy standard of 35 miles per gallon by 2020
- Promotes President's "Twenty-in-Ten" program: reduce gasoline usage in U.S. by 20 percent in the next 10 years



# Western States Petroleum Association

## California: AB 32

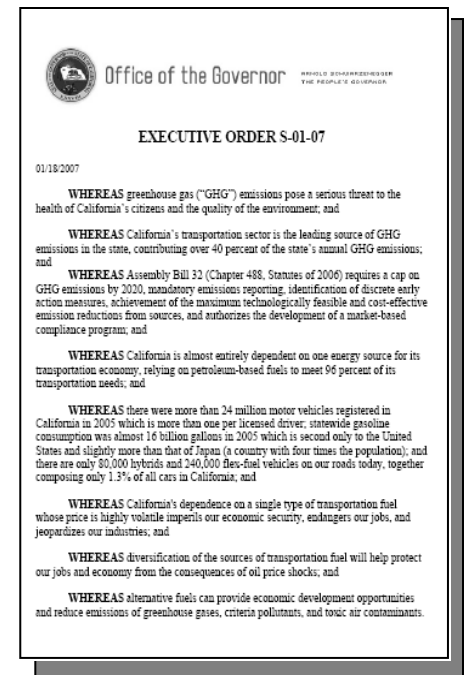
- Directs CA Air Resources Board to develop regulations to reduce
  - ✓ Statewide GHG emissions to 2000 levels by 2010
  - ✓ 1990 levels by 2020 – a 25 percent reduction
  - ✓ 80 percent by 2050
- Budget of \$36 million and 126 new CARB positions
- Early actions selected for quick start to implementation – LCFS is the primary early action relating to fuels



# Western States Petroleum Association

## Governor's Low Carbon Fuel Standard (LCFS)

- Reduce “carbon intensity” of transportation fuel sold in California by 10 percent by 2020
- Expected to replace 20 percent of California on-road gasoline consumption
- CARB listed LCFS as a “discrete early action” under AB 32 on June 30, 2007
- Applies to all refiners, blenders, producers or importers of transportation fuels
- May be met through market-based methods
- Requires a full fuel cycle analysis



# Western States Petroleum Association

## AB32/LCFS promises

- Creating jobs
- Providing new capital and economic opportunity
- Retaining business - however, some concerned state is not focused on potential impact of program on local economies and employment
- Making certain program will achieve environmental goals without jeopardizing economy



## GHG – Life Cycle Analysis

- Life Cycle Analysis is the key element of the LCFS
  - ✓ It determines the 'score' for each fuel
- UC Study uses certain LCA figures to build feasibility scenarios
  - ✓ Uncertainty and significant scientific debate on LCA
  - ✓ Recent land use change research, ensuing debate raise questions about LCA of some current biofuels
- LCA is a critical factor in setting scope, reduction targets, and compliance timelines
- CARB must resolve basic LCA questions to make sound recommendations on scope, target, & timeline

# Western States Petroleum Association

Emerging data, science recommend thoughtful, cautious approach to climate change strategies

The land conversions (to grow food crops for ethanol) pump out 17 to 423 times more carbon than the annual savings from replacing fossil fuels with the biofuels

*University of Minnesota Regents Professor of Ecology David Tilman and Joe Fargione of the Nature Conservancy, February 2008*

Use of U.S. croplands for biofuels increases greenhouse gases through emissions from land use change

*Timothy Searchinger, Princeton University, et al. January 2008*

Land use changes required to increase ethanol production could produce 2.4 to 6 times the carbon emissions of conventional gasoline

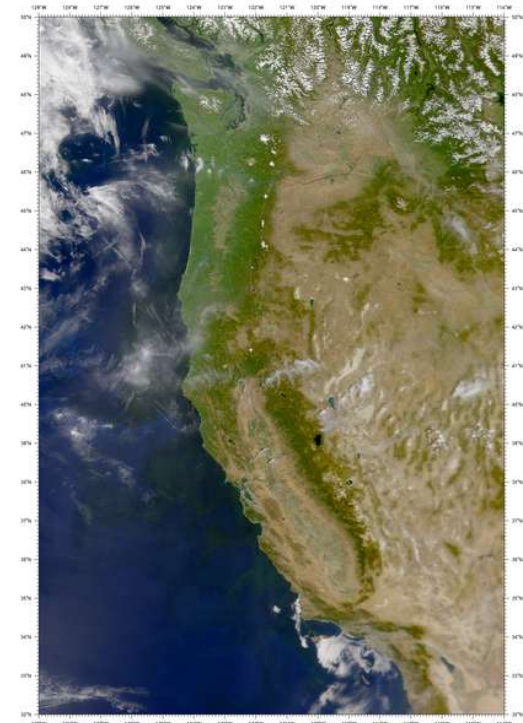
*Michael O'Hare, Professor, Goldman School of Public Policy, University of California, Berkeley, January 2008*



# Western States Petroleum Association

## Western Regional Climate Action Initiative - WCI

- Launched Feb. 2007; focused on develop regional cap and trade market program
- Members: Arizona, British Columbia, California, Manitoba, Montana, New Mexico, Oregon, Utah, Washington
- Sets goal of reducing GHG emissions 15 percent below 2005 levels by 2020
- Creates Climate Registry with multiple states, numerous tribes and Canadian provinces



# Western States Petroleum Association

## WSPA view of WCI program scope

- Support broad market approach to achieve emissions at lowest cost
- Minimize leakage
- Avoid political negative economic impact
- Support linkage to federal program
- Assess policy impact on availability of adequate, reliable, affordable energy supply
- Looking at impacts of transportation fuels inside the cap and trade (double regulation, fuel rationing, curtail supplies)
- Support inclusion of path for offsets
- Support minimizing use of auctions or mitigation fees

# Western States Petroleum Association

## Benefits of cap and trade

- Ensures achievement of emission targets at least cost
- Provides unparalleled flexibility to adjust to changing environmental goals
- Provides a breadth of regulatory coverage unachievable through source or technology-specific regulations
- Reduces administrative costs of meeting environmental goals
- Provides industry flexibility to respond to evolving economic and technological conditions, thereby reducing costs while meeting environmental goals
- Provides flexibility to shift efforts across issues to reduce emissions where costs are lowest
- Contributes to significant cost savings



# Western States Petroleum Association

## Broad markets = reduced costs, greater effectiveness

New study predicts a cap and trade program limited to the U.S. will:

- Result in a \$1 trillion market by 2020
- Establish a market price of \$40 per ton for CO<sub>2</sub>e
- Increase electricity costs 20%, gasoline costs 12% and natural gas costs 10%

Allowing credit trading with firms outside U.S. (e.g., China, India)

- Reduces carbon price to \$15 per ton
- Saves U.S. economy \$145 billion per year
- Limits increases to 7% for electricity, 4% for gasoline and 5% for natural gas

Source: New Carbon Finance: US Carbon Market valued at 1 trillion dollars by 2020, February 2008



## Where does LCFS fit in reducing GHG from driving?

An LCFS is one part of three elements of reducing transportation emissions

- Vehicle miles traveled (land use)
- Vehicle fuel efficiency (Pavley regulations)
- Fuel GHG intensity (LCFS)

# Western States Petroleum Association

## LCFS - program goals (Governor's EO & white paper)

- Reduce GHG intensity of California passenger vehicle fuels
- Drive innovation so the Low Carbon Fuels Standard will:
  - ✓ Contribute to lower carbon transportation sector
  - ✓ Sustain state economy
  - ✓ Ensure reliable fuel supplies

# Western States Petroleum Association

## LCFS done right

- Can drive technology innovation and product reliable supplies
- A transparent, technically sound rulemaking
- Fuel neutral
- Start simple and ramp up to meet 2020 goals
- Prevent leakage of emissions out of state
- Contains regular milestone reviews to assure program is on track
- Relies on markets and assures fair competition for at-risk investments



# Western States Petroleum Association

## LCFS done right (or not)

### LCFS done right

- Reduces GHG intensity of passenger vehicle fuels through performance standards
- Drives innovation
- Strengthens state economy
- Ensures reliable fuel supplies

### LCFS done wrong

- Fails to reduce GHG intensity
- Frustrates or fails to drive innovation
- Harms state economy
- Introduces uncertainty into state fuel supply
- Mandates specific fuels, processes, or technologies

## Principles for LCFS done right

- **Simplicity (reliability of fuel supplies and protection of economy)**
  - ✓ Start simple to begin with success, build over time
  - ✓ Start with passenger vehicle fuel pool
  - ✓ Technical feasibility and cost effectiveness
  - ✓ Avoid inconsistency with federal RFS and other fuel programs
- **Reducing GHG intensity**
  - ✓ Scientifically sound life-cycle analysis
  - ✓ Realistic defaults
  - ✓ Back-loaded compliance schedule
  - ✓ Regular milestones
    - Major program review in 2014-2015 timeframe
  - ✓ Avoid crude shuffling by treating crudes equally
- **Innovation**
  - ✓ Fuel neutral
  - ✓ Protection of investments made in reliance upon life cycle and default decisions made by CARB
  - ✓ Credit trading within and among various fuel types and providers
  - ✓ Fair competition between at-risk investments

# Western States Petroleum Association

## AB 32 & WCI GHG reduction implementation issues

- Inventory
- Mandatory reporting
- Mitigation fees and incentives
- Command and control for stationary sources
- Market mechanisms
- Allocation methods
- Phasing of implementation
- Offsets, banking, borrowing
- Leakage
- Energy supply and economic impacts
- Environmental justice/co-pollutant reduction benefits

# Western States Petroleum Association

## Principles to hold climate change initiatives accountable

- Keep it simple and flexible - business must be able to comply
- Market mechanisms are a big part of the answer – no “leakage”
- Regulatory certainty and credit for early actions are musts
- Cost-effectiveness must be built into the solutions
- Advanced technology is the key
- Reliable science-based modeling tools are essential – diminish uncertainty
- Clear milestones are imperative – to ensure we are on the right path
- Understand there is no silver bullet – competing vs complimentary policies
- Look for harmonization with other GHG reduction efforts
- Must deliver affordable, reliable fuels to consumers

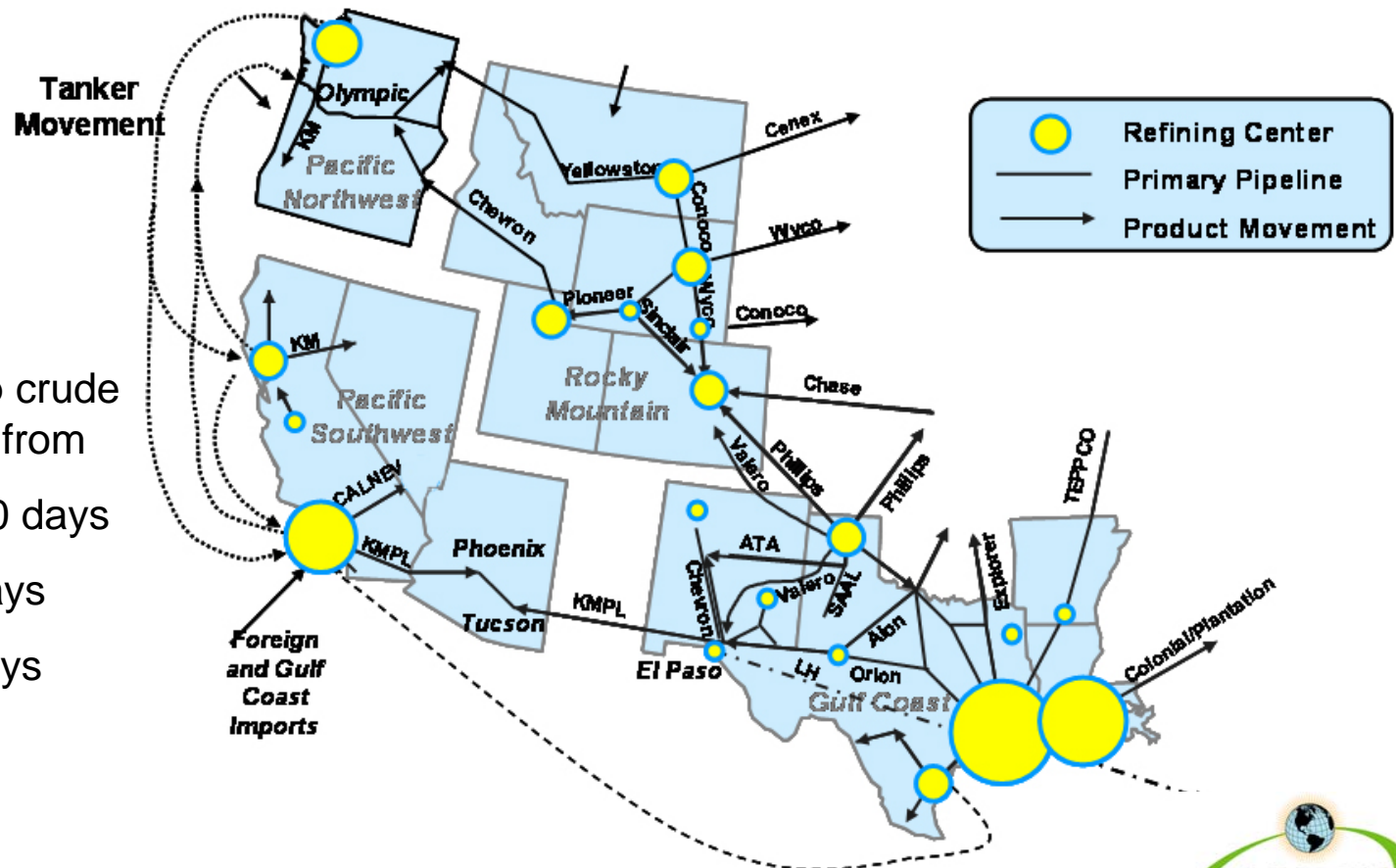


# Western States Petroleum Association

## The West Coast is a "Fuel Island"

Time required to ship crude oil or products to CA from

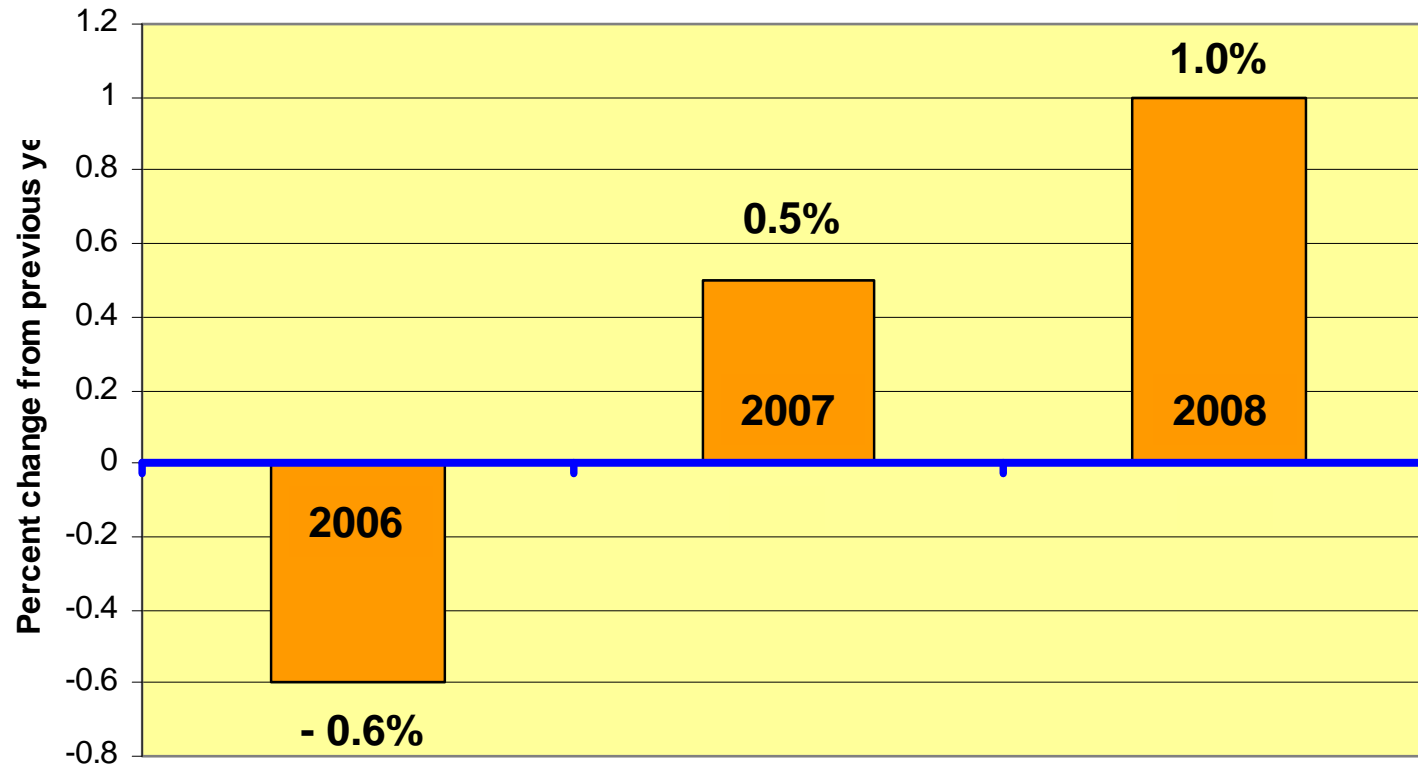
- Pacific NW: 8 to 10 days
- Gulf Coast: 14+ days
- Middle East: 40 days
- Far East: 40 days



# Western States Petroleum Association

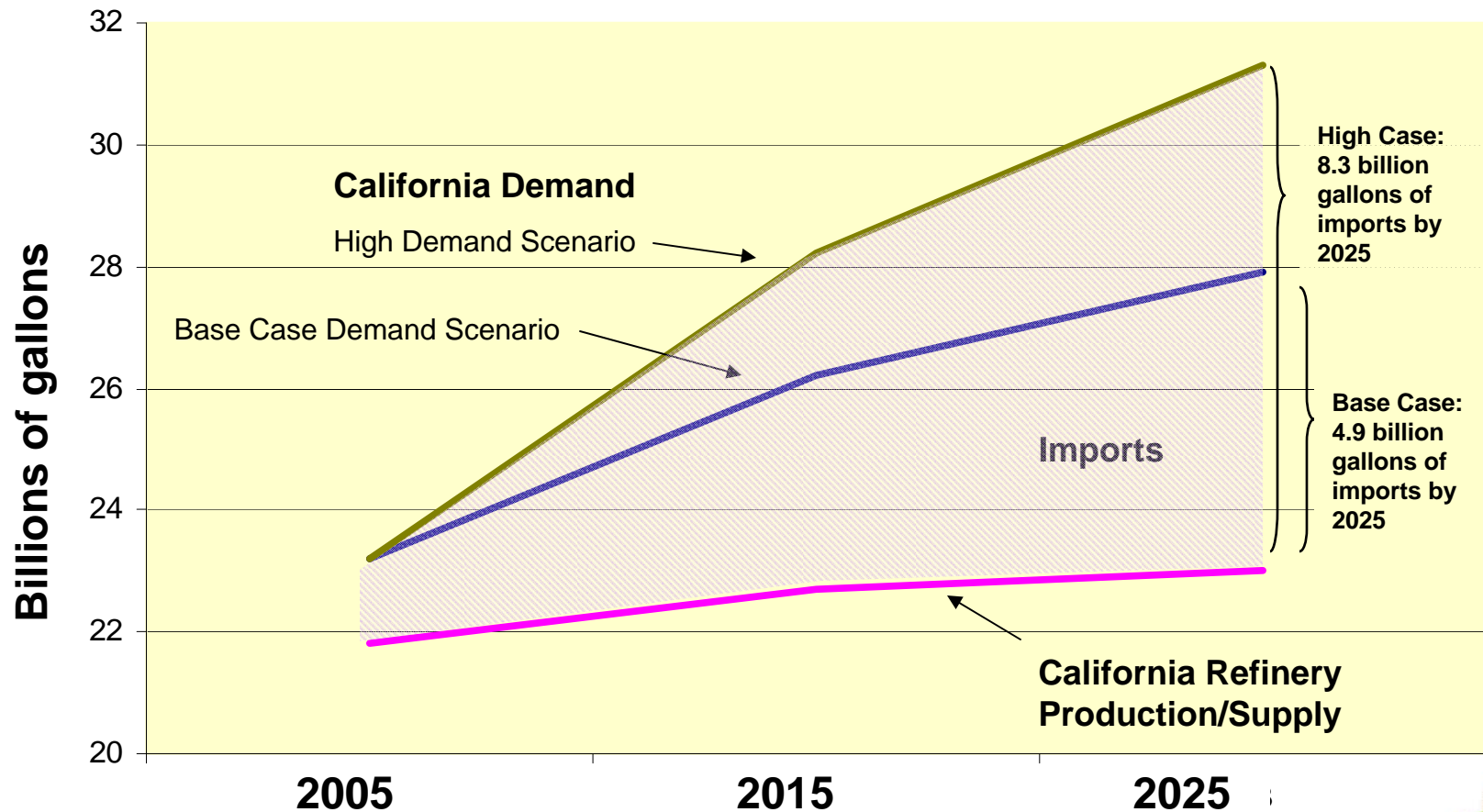
EIA forecast: US consumption will grow, production to decline; equals more imports

US petroleum products consumption growth



# Western States Petroleum Association

## CEC Import forecasts - gasoline, diesel, jet fuel



## Energy supply analysis and outlook

- Adequacy and reliability of future energy supplies with focus on transportation fuels
- Policy decisions impacting ability to produce and deliver to consumers supplies of transportation fuels adequate to meet demand projections
- Are public policy decisions jeopardizing the adequacy of present and future energy supplies?
- How much energy/transportation fuels will we need in 5, 12, 30 - 40 years?
- Where will the energy come from?



## Energy supply analysis and outlook (continued)

- How will refinery capacity limitations impact imports of supplies?
- What about infrastructure capacity and constraints?
- How will declining CA production of crude oil add to the challenge?
- How will climate change initiatives impact supply forecasts?
- How will biofuel mandates impact supplies?
- What impacts on transportation fuels market are reasonable to anticipate?
- The state may not have an adequate energy plan that addresses the disparity between rising consumer demand for energy and the ability to provide reliable energy supplies

## Solutions to region's supply/demand imbalance

- Continue research into alternative/renewable fuels, without mandates or subsidies
- New ways to produce unconventional and conventional forms of petroleum cleanly
- Streamline permit reviews; consolidate permitting for major energy, fuel infrastructure and climate change projects
- Eliminate duplicative, overlapping and conflicting regulations
- Encourage consumers to shop around, buy smart, drive wisely
- Encourage market-based incentive programs rather than command and control regulatory approaches

# Western States Petroleum Association

## What are WSPA members doing?

- Dedicating financial and human resources to ensure that alternative/renewable sources of energy will become growing part of world energy mix
- Developing new or cleaner ways to generate electricity
- Investing in alternative/renewable fuels and R&D
  - ✓ Solar, Wind, Geothermal
  - ✓ Hydrogen
  - ✓ Ethanol
  - ✓ Biodiesel
  - ✓ Other biofuels
  - ✓ University Research



# Western States Petroleum Association

## Renewable and alternative energy

- California refiners blend 1 billion gallons of ethanol to gasoline per year
- BP donated \$500 million to UC Berkeley for biofuel research
- ConocoPhillips is converting animal fat to renewable diesel
- Chevron studying advanced technology to produce liquid transportation fuels from algae
- ExxonMobil has developed new battery technologies to improve the energy efficiency and affordability of next generation hybrid and electric vehicles
- Shell's wind farm near Palm Springs displaces 85,000 tons of carbon dioxide every year and meets the electricity needs of 11,000 households

