BIOFUEL	WHAT'S IT COST? (per gallon, summer 2007)	HOW MUCH ARE WE MAKING? (gallons of expected U.S. production, 2007)	HOW MUCH CAN WE MAKE? (gallons, capacity under construction)	HOW MUCH LAND WOULD IT TAKE to replace 5% of U.S. gasoline consumption?	WHAT'S GOOD ABOUT IT?	WHAT'S BAD ABOUT IT?	WHO'S BACKING IT?	HOW MUCH WOULD IT REDUCE GLOBAL WARMING? (percentage of greenhouse gases compared with petroleum)
GASOLINE & PETROLEUM DIESEL (for comparison)	$3.08 (gasoline); $2.79 (diesel)	136 billion (gasoline); 63 billion (diesel) (refinery yield)	143 billion (gasoline); 67 billion (diesel) (figures are 2012 estimates)	In 2006, the United States consumed 142 billion gallons of gasoline and 49 billion gallons of diesel	Large supplies (for the moment). Massive industrial infrastructure in place.	Releases ancient carbon into the atmosphere, causing warming of the planet. Nonrenewable. Domestic production degrades wildlands; foreign production harms national security. Diesel soot is a major pollutant.	The major oil companies, OPEC, and the Bush administration	Leading cause of global warming
CORN ETHANOL	E85 (85% ethanol, the most common U.S. blend): $2.10; E100 (pure ethanol): $2.48	5.7 billion (note: all ethanols yield about a third less power than gasoline)	11.4 billion	117 million acres (roughly the size of Oregon and Idaho combined)	It's homegrown, so it promotes energy independence. Politically popular, some infrastructure already in place.	Corn production can degrade soil, requires intensive fertilization, and encourages use of genetically modified varieties.	Agriculture giants Archer Daniels Midland and Monsanto; corn farmers; political candidates looking for Midwest votes; and the U.S. government, which subsidizes it at the rate of 51 cents per gallon	Figures vary widely depending on how the mill producing it is fueled: If biomass, the reduction is 54%; if natural gas, 22%; if coal, there is a 4% increase over gasoline. Average improvement is about 15%.
SUGARCANE ETHANOL	Roughly $1 in Brazil; not available in the United States, partly due to a tariff of 54 cents per gallon	4.2 billion in Brazil	No known plans to produce in the United States	41 million acres (the size of Wisconsin)	Most energy efficient of all the biofuels. Can be grown on marginal soils in a tropical climate.	Smoke from cane burned after harvest creates pollution and health hazards.	No effective lobby in this country (corn producers are very eager to keep it out of the U.S. market)	56%
CELLULOSIC ETHANOL (from switchgrass, slash, and agricultural byproducts)	Not commercially available	Test production only	Unknown	If switchgrass, 35 million acres (the size of New York); if logging slash, 39 million acres (the size of New York and Connecticut combined)	Major greenhouse-gas reductions, plus some grasses can actually remove CO_2 from the atmosphere and store it in the ground.	Wide-scale utilization could displace native plants and wildlife habitat.	Many environmentalists; President George W. Bush, who promoted it in his 2006 State of the Union address; and Waste Management, Royal Dutch Shell, Dupont, and Goldman Sachs	90.9%
SOYBEAN BIODIESEL	B20 (20% biodiesel, common blend): $2.53; B99/100 : $3.31	292 million (estimate) (note: all diesels are 20–30% more fuel efficient than gasoline)	1.4 billion (the same facilities make biodiesel from soybeans and cooking grease)	138 million acres (the size of Arizona and Colorado combined)	Biodiesel burns more cleanly than petroleum diesel, producing only half as much soot and 60–90% less of other air pollutants. Soybean oil is otherwise underutilized, as soybeans are grown primarily for meal.	Clearing of forests for planting could increase CO_2 and decrease biodiversity. Combustion produces dangerous soot (although only half as much as petroleum diesel) and 10% more nitrogen oxide.	Europe, where it is the dominant biofuel	59.7%
COOKING GREASE BIODIESEL	Grease is a cheaper source than soybeans, but soybean production is subsidized so the price is essentially the same	52 million (estimate)	1.4 billion (the same facilities make biodiesel from soybeans and cooking grease)	Lots of greasy spoons	Recycles a material that would otherwise be discarded.	Combustion produces dangerous soot (although only half as much as petroleum diesel) and 10% more nitrogen oxide.	Favorite of do-it-yourselfers, some of whom collect and refine cooking grease into fuel	75.6%
ALGAE BIODIESEL (experimental process using algae grown in large greenhouses)	Not commercially available	Test production only	Unknown	353,000 acres (about half the size of Yosemite National Park)	Algae can use CO_2 as food, so the process can recycle up to 80% of CO_2 from power plants. Doesn't require arable land.	Well suited to desert areas, but large farms could reduce wild habitat. Requires significant amount of water, although water can be recycled.	GreenFuel Technologies, Algae BioFuels, and Solix Biofuels	Figure not available

ILLUSTRATIONS BY PETER HOEY