Boom or bust?

The U.S. accounts for a fraction of the world population but uses a disproportionate amount of natural resources. As developing nations grow, can the world expect their consumption growth to track that of the U.S.? The top 45 countries in current population, plus Cuba and Israel, are represented on the graphic below.

How we fit in the planet

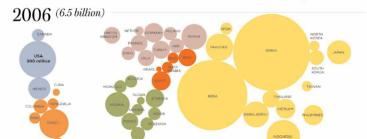
	Population, 2005	Carbon dioxide emissions, 2001 (Metric tons per capita)		Gross national income per capita, 2004 (in dollars)	Energy consumption per capita, 2001 (Kilogramns oil equivalent)	Annual paperboard and paper consumption (Pounds per capita, 2002)		
United States	United States 300 million	19.8	1,682	\$39,710	7,921	678		
World	6.5 billion	3.9	633	\$8,540	1.631	115		

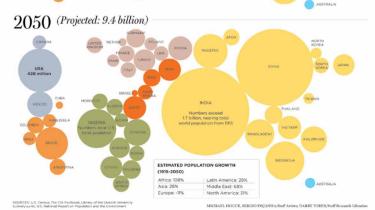
1915 (Estimated world population: 1.8 billion)



1967 (3.5 billion)







Focus less on warnings, more on prospects for the masses, says JOHN TIFRNEY

n 1968, the year after the U.S. population reached 200 million Limus Pauling, Jonas Salk and other scientific luminaries signed their names to a full-page advertisement. It pictured a beatific baby in diapers who was labeled, in large letters, "Threat to Peace."

"It is only being realistic," the scientists warned, "to say that skyrocketing population growth may doom the world we live in." They shared the concerns of Paul Ehrlich, who was on the best-seller lists warning of unprecedented famines overseas in the 1970s and food riots on the streets of America in the 1980s.

Last week, when the 300 millionth American was born, the parents were now worried abour antional shortage of food. If anything, they'll worry about their cital becoming obese. There is more food available per person — in America and the rest of the word than ever imagined by the 1960s doomsayers, Malthus or the ancient Greek philosophers who discussed the need for population control.

need to population control.

"Overpopulation is history's oldest environmental crisis, and it's the most instructive for making sense of today's debates about energy and climate change. It's a case study of intellectual arrogance, and of the perils of putting too much faith in a "scientific consensas" of experts infatuated with their own forecasts.

Four decades ago, scientists were se determined to prevent famines that they analyzed the feasibility of putting "fertility control agents" in public drinking water. The physicist William Shockley suggested using sterilization to impose a national limit on the numher of hirths.

ber of births.

Planned Parenthood's policy of relying on voluntary birth control was called a "tragic ideal" by the ecologist Garrett Hardin. Writing in the journa Science, Mr. Hardin argued that "free dom to breed will bring ruin to all." He and others urged America to adopt a lifeboat ethic by demying food aid, even during crises, to countries with weith.

napidly growing populations. Those intellectuals didn't persuade Americans to adopt their policies, but help had more impact oversees. Under prodding from Westerness like Polser Assamment behavior of the Polser and the Polser Assamment behavior of the Polser had been also assamment polser po

help.
"We should have volunteered logistic support in the form of helicopters, vehicles and surgical instruments," he wrote, and added: "Coercion? Perhaps, hut coercion in a groot case."

Dut coercion in a good cause. India's enraged voters stopped the government from pursuing coercive policies, but the Chinese couldn't prevent their rulers from imposing a one-child-per-family rule. It was ostensibly voluntary, but the penalties were so severe that there were reported eases of forced abortions and infantities.

cide. Now China is facing a new problem: a shortage of young workers to support an aging population. The one-child-family rule turned out to be both an assault on personal liberty and a public-policy mistake. The parents and eshort-term sacrifices that left them worse off in the long run—the same risk we run with policies designed to curth global warming many

decades from now.

Of course, the graphs projecting future temperatures could turn out to be more accument than the old graphs forecasting food production and population growth. Global warming is a real danger, and in some ways, control ling carbon dioxide is a more daunting problem than growing more food. It's worth paying for some insurance are interested to the source of the property of the p

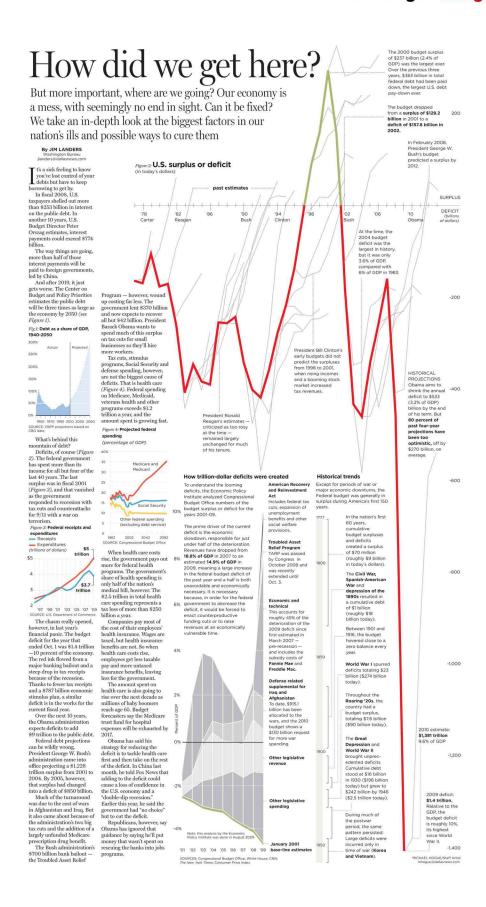
But we need to behance uncertain future benefits against certain costs today. Most steps to combat global warming will be expensive and will slow economic growth, inevitably affecting poor people around the world. More of them will be sick, and more of their children will die. They'll be less educated and live in less technologically advanced societies.

If the past is any guide, the chief plagues and disasters afflicting future generations will be different from the ones forecast by Al Gore or any other popular prophet. The best insurance policy is to build free, prosperous

In the long debate about overpropulation and famine, none of the gloom projections by intellectuals proved to be as prescient as an old proverb in farming societies: "Each extra mouth comes attached to two extra hands." No matter what problems lie alead, the good news is that America now he 600 million hands to solve them.



New York Times columnist.



Our debt

Congress will soon debate raising the ceiling on the federal debt. The last time this happened was in the first days of the Obama administration, when the ceiling was raised to \$12.104 trillion to cover the cost of the administration's \$787 the administration's \$787 billion economic stimulus plan. Before then, the debt ceiling was raised in the waning days of Bush's administration to cover \$700 billion in bailout funds for the nation's financial sector.

homon in ballout tunks for the nation's financial sector. We feel and borrowing will push the debt to more than \$18 trillion by 2014. Federal debt is divided into two parts. About 40 percent (\$4.4 billion) is debt the government owes itself—mainly money borrowed from the Social Security and Medicare trust funds (Figure 5). The rest—\$7.709 trillion as of Dec. 7—is called public debt and is owed to both U.S. and foreign lenders. Foreign governments hold \$3.7 trillion of U.S. government debt. China is the U.S. government debt. China is the U.S. government bilgest as 1 20 governments bilgest. government's biggest creditor, with roughly \$1.2 trillion in Treasury bills and bonds issued by federal

Figure 5: Dwindling assets





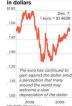
Appetite for this debt is Appetite for this debt is sensitive to interest rates and the value of the dollar. Last year's global financial crisis caused many foreign investors to buy U.S. debt with the assumption that it was a safe place to put money. That extra demand pushed up the value of the U.S. dollar while pushing down interest rates.

Net foreign assets



The dollar has since lost more than 15 percent of its value against the euro (Figure 6).

Figure 6: Cost of one euro, in dollars



value, foreign governments holding dollars lose. Several holding dollars lose. Several governments have started buying gold this year to curb the losses (Figure 7). Even though the federal government holds auctions for Treasury bills practically every working day of the year, the foreign appetite for U.S. debt is still strong and interest rates are quite low.

When the dollar falls in

Figure 7: Largest gold reserves (in tons, S United States 8,966



India 615 European Central Bank 553

Source med ded consel
Some analysis warn that
budget deficits of more than
St trillion a year will soon
force the Federal Reserve to
raise interest rates to keep
foreign lenders interested.
Higher interest rates would
weaken the U.S. economy at
a time when federal
spending is likely to keep
climbing. Federal spending is
expected to climb much spending a uses of one-cilimbing. Federal spending is expected to climb much faster than any recovery in tax revenue because of indation in medical spending indation in medical spending indation in medical spending balay-becomer generation. Analysts are nearly unanimous in warning that this pattern cannot be sustained. The way out will require higher taxes, lower spending, cuts in retiree health and welfare benefits or a combination of all three. Change can also come from economic growth and consumer behavior. In a declining economy with high unemployment, Americans have turned from borrowers to savers (Figure 8). They

\$126.7 billion in the first nine months of this year. Total consumer debt at the end of September was \$2.47 trillion.



U.S. trade

Government debt is just one part of what America owes the world. The total external debt of the United

external debt of the United States was \$13,454 trillion on Sept. 30 (Figure 9). The government's share of that amount was \$3.7 trillion. The rest is money foreigners invest in the country and lend to Americans (Figure 10). Figure 10: U.S. gross external debt

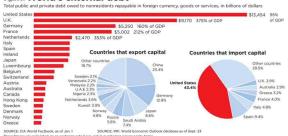


This external debt finances what we borrow to buy things from abroad. Year by year, this is, known as the current account. Thanks to big deficits in trade, the current account has been in deficit for a long time. The current account

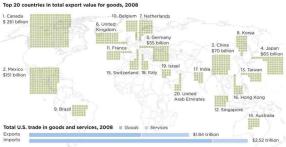
trade deficit by \$33 billion.
Texas, the nation's top
exporting state, did not hit a
recession until almost a year
after the rest of the country,
in part because of this
strong export performance.
Both imports and exports

performance narrowed use trade deficit by \$33 billion.

Figure 9: World's external debt



U.S. trade gap (Each square equals 1 billion U.S. dollars)





deficit reached its highest point so far in 2006, when it hit \$790 billion. Last year, it was \$665 billion. In 2009, it is expected to be \$485 billion.

trade deficit for 2009 is expected to be less than \$400 billion, the lowest deficit since 2001.

Even at those lower levels, trade deficits are a drag on economic growth and job creation. The Commerce Department's latest revision shows the economy grew 2.8 percent between July and September. But the trade deficit during those three growth down by 0.33 percentage points. Without the trade deficit, economic growth would have been nearly a third greater.

Imports give consumers a broad selection of less expensive goods, which makes their money go further. But a nation that consumes more than it makes is in authors in the selection of the second of the selection of the second of the selection of less expensive goods, which makes their money go further. But a nation that consumes more than it makes is a The fall in the current accented the test generally experience and reflects the national reflects the national reflects the national reflects the national recession that began in December 2007. Unless the United States changes its economy in fairly fundamental ways — by becoming a nation of savesrather than borrowers and by boosting exports in a major way — the nation's external debt could balloon. If we go back to the big trade deficits and borrowing or 2006 and 2007, the could be 210 of 2005 and 2007, the could be 320 of 2005 and 2007, the could be 320 of 2005 and 2007, the could be 320 of 2005 of 2005 of 300 of 2005 of 300 of 2005 of 300 of 2005 of 300 of 300

But a nation that consumes more than it makes is a borrower. Foreign funds are needed to finance trade and current account deficits. Invested in factories and other productive enterprises, such funds are a boon. If they are used for consumption — government deficits, household borrowings — a mation digs itself deeper into a hole.

A trade surplus, on the other hand, boosts a nation's ecconomic performance. China

other hand, boots a nation's conomic performance. China and many other Asian nations have used exports to boost economic growth and create jobs for decades (Figure 11). Many U.S. analysts argue that China has stude on this course well past the point where its own domestic consumption should be the point where its own domestic consumption should be the point where its own the point where its own the point where its own domestic consumption should be the point where its own the point where its own domestic consumption should be down the value of its export orientation by holding down the value of its currency.

Figure 11: United States trade with China

the dollar's value (Figure 12). Many U.S. and European

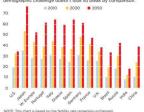
the Institute for International Economics. Figure 12: Piggybacking on the weak dollar

have plunged this year, as consumers at home and around the world have tightened their belts. The U.S. trade deficit for 2009 is expected to be less than Many U.S. and European analysts say economic equilibrium would require China to raise the value of its currency 20 percent. That shift by itself would boost U.S. exports by \$100 billion to \$200 billion, according to the locative for.

> Even as China's economy grows this year and its national savings climb, the Chinese currency has declined against other currencies in step with the U.S. dollar. China allowed its currency to fall 20 percent against the dollar between 2006 and 2008, but it ha

Chinese renminbi to the dolla

Old age dependency ratios



How nuclear waste is currently stored

Roughly **90%** of the world's used nuclear fuel is stored in ponds, usually at the reactor sites. Other storage is in dry casks or vaults with air circulation and the fuel is surrounded by concrete.

Storage ponds



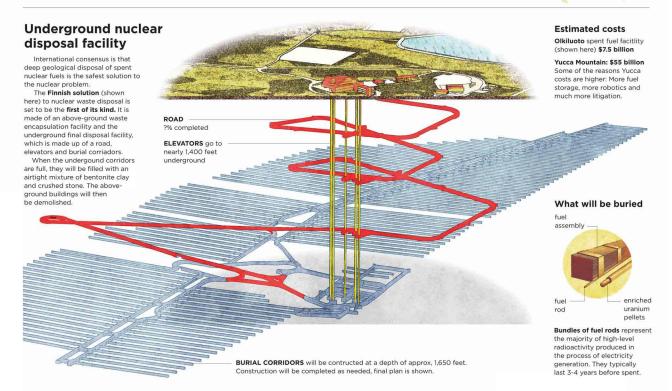
The ponds are usually about 23 feet deep, to allow at least 10 feet of water over the used fuel to fully shield it from the outside air.

The fuel is extremely hot, and the water cools the spent fuel.

Disposal plan for the U.S.

More than 161 million Americans live within 75 miles of sites that currently store nuclear waste (locations shown on map). In 2002, Congress approved the site of Yucca Mountain in Nevada as a single underground burial facility for the Nation's nuclear waste. If built, it would work similarly to the Finnish site below.





How nuclear waste burial works

1. The spent fuel rod bundles are transerred to the encapsulation facility in massive transer casks



capper canister

2. The fuel rods are packed into double-layered metal canister she lids are welded to form a water-and airtight cask

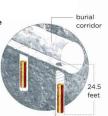
14.5 feet

3. The canister is lowered by elevator to the burial corridor. It is then loaded onto a vehicle equipped with protection against radiation.



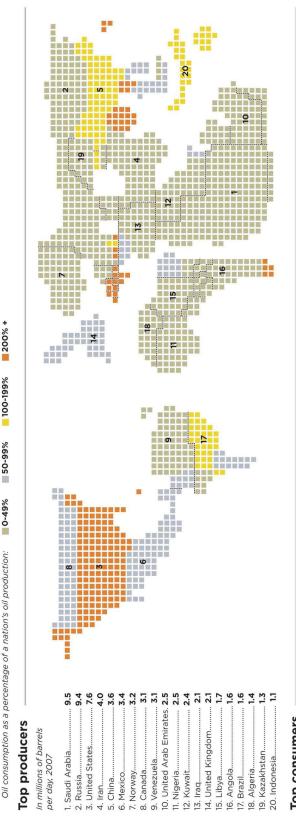
4. The canister is buried in a hole at the bottom of the corridor floor. Once the canister is in place, the hole is packed with bentonite clay.

packed with bentonite clay. Then, the corridor is sealed off with a mixure of stone and bentonite clay.



World oil production and consumption





consumers Top

															0				
In millions of barrels per day, 2007	1. United States 20.7	2. China 6.5	3. Japan 5.6	4. Germany 2.7	5. Russia 2.5	6. India 2.5	7. Canada 2.3	8. Korea, South 2.1	9. Brazil 2.1	10. France 2.0	11. Mexico 2.0	12. Italy 1.9	13. Saudi Arabia 1.8	14. United Kingdom1.8	15. Spain16	16. Iran1.5	18. Taiwan10	19. Netherlands 0.9	Duelied Oc

S

Obama's Green Bargain



Last year, around this time, the U.S. president was extolling the virtues of solar power. Now, he's talking about coal and nuclear plants. What happened?

One year ago, Barack
Ohama came into office
promising a "green' jobs"
crevistation. In a coup for
environmentalists, the new
Ust, president liad out a
vision for wearing the
United States of flossif fuels
and subering in a cleaner,
tone prosperous fiture. "We
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he 21d century." he said to as
ferharay join ta sessin of
Congress. "We invented solar
technology, but we've fallen
behind countries like
ferrmany and Japan is
producing it. New plug-in
producing it. New plug-in
uncestament in covin-rully
technologies, and asked
we'deported." and investing
in biofusels and "clean coal"
in biofusels and clean coal"
in the Comman and several
in the White Hotose have
in the White Hoto technologies, and asked Congress to send him a bill to regulate greenhouse gas

regules of combines gas a morphism of the missions.

But on Wednesday night, during Obanas's State of the Union address. environmentalists cringed. Instead of touting, say, solar panels and wind turbines, Obanas spoke about nuclear power, oil gas, coal, and biofuels—all of which have significant environmental drawbacks. He harely mentioned trenewable energy sources. The future, he said, in effect, would rely on many of the lithly energy sources of the past. Some of Obama's

Some of Obama's environmental supporters issued statements praising the mere inclusion of elimate and energy in the speech. But many were openly critical of the five, und-so-new, and not-so-clean types of energy be chose to support. For instance, Friends of the Earth, a global green advocacy group, called it a "kick in the gut to environmentalists."

what changed Obama's tune so dramatically? Inshort, political reality caught up with him. A year ago, Obama — and the world — believed Congress would

cap on carbon dioxide emissions — came almost as an afterthought to the energy

an afterthought to the energy components.
For the past few months, several centrist Democrats have lobbled against putting forward a bill that caps carbon at all. These senators, including Mary Landrieu of Louisians and Ben Nelson of Nebraska, favor instead a bipartisan energy bill (which Alaska Republican Lisa Murkowski helped write) that would open more areas power, and put in place a modest renewable electric power, and put in pace a modest trenswable electricity standard, without capping carbon. These sentators protests have only grown tooler since Republican Scott Brown won Demorrat Fed Kennedy's Scate seat.

So far there is only one Republican publicly backing climate and energy efforts—Linbey Graham of South Carolina. He is working with powerful senators, John Kerry.

carolina. He is working with powerful small or John Kerry of Massachusetts and Joe Lieberman of Connecticut to draft legislation, though they have yet of disclose any specifics. But Graham has made it clear that the intends to push for a bill that includes major incentives for nuclear energy, expanded offthore diffling, and advanced coal technologies,

environmentally unfriendly measures for a vote for capping curbon as the only way forward. Some of the more mainstream environmental groups, too, seem to be warming to the idea that if they want something done on climate, they're going to have to swallow less-than-ideal practice of the control of the cont

swallow less-than-ideal energy components.

The Senate has a unique opportunity here for the grand bargain on energy that has cluded it to date, says Jetemy Symons, senior vice president for conservation and education at the National Wildlife Federation. By marrium efforts to can National Wildlife Federation, By marrying efforts to cap pollution with expanded domestic energy initiatives, "measures that quite frankly the environmental groups won't be as happy with," they might actually get them passed. Although, reading Obama's addresses to

Obama's addresses to Congress from a year ago and this week, one might think Obama had flip-flopped on energy entirely, the truth is that the White House has had this shift in mind for mouths. Last May, for instance, a senior administration official hoaled the idea of linking cup and trade to "scrious" and "short-teem" increases in domestic oil production in an interview with the New

Yorker.
Plus, the Obama
administration has always administration has always been decidedly pro-nuclear a contentious energy solution among environmentalists, given that it produces no

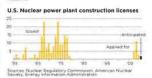
which he thinks might bring along more Republicans. What does off the Continuous of so-called plan that consists mostly of expanding the use of fossil fuels, with a few nods to renewables. Democrats would counter by saying their tills were also all-inclusive. Now, the Democrats' probable legislation really is that; the bill that seems likely consumers that Search likely

that, the bill that seems likely to emerge in the Senate this year is much more foosil-fuel friendly than past ones. It's not entirely clear, though, whether there are many votes to mine on the Republican side, "My impression is that right now Mitch McComell's strategy is to more eventhism." to oppose everything," says Dan Lashof, director of the Dan Lashof, director of the climate center at the Natural Resources Defense Council, of the Senate minority leader. But Republicans who seem like potential votes for a bill — Maior's Olympia Soowe and Susan Collins, and John McCain of Arixona among them -- have supported cap-and-trade bills in the past without the major handout to fossil-fuel

ration official floated time alienating the relatively
of linking cap and small base of devoted small base of devoted supporters Obanna has on this issue. It certainly will not please the United States' international partners, many of whom have already committed to much stronger carbon-capping and clean-enery measures. But it



e indicates 2008 capacity of 4 billion watts

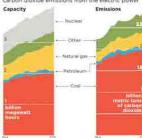




U.S. electricty generation and emissions

Source: Minerals Management Service

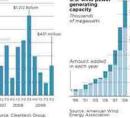
Coal fuels half of all electricity generated in the U.S., but contributes more than two-thirds of all carbon dioxide emissions from the electric power.

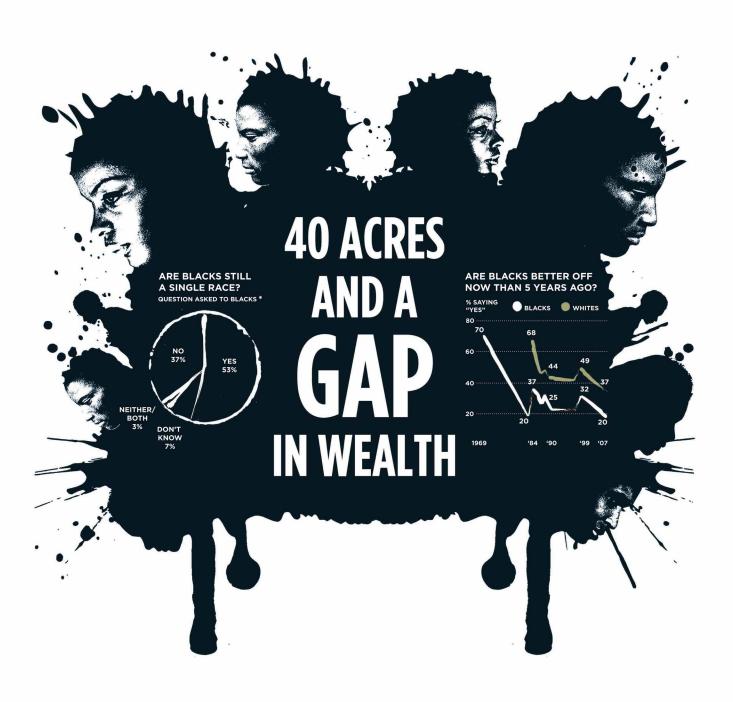


Global venture-capital investments in solar-energy technologies rose in the third quarter after falling for a year

Almost 10,000 megawatts of wind power generating capacity were added to the U.S. total last year. capacity \$451

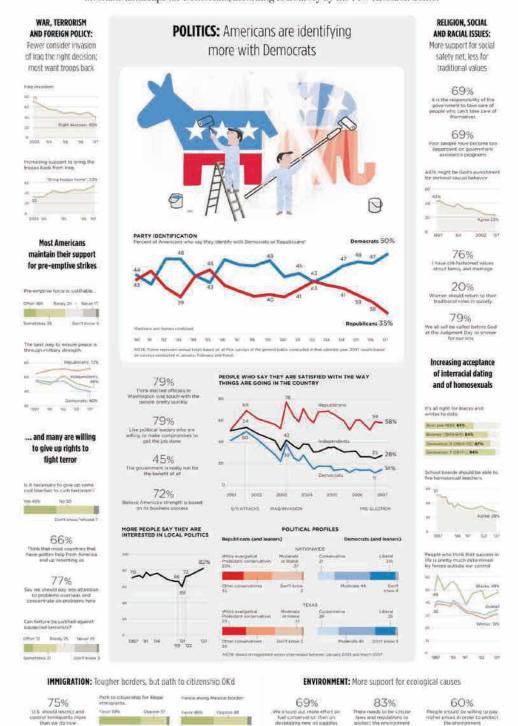
Wind Power





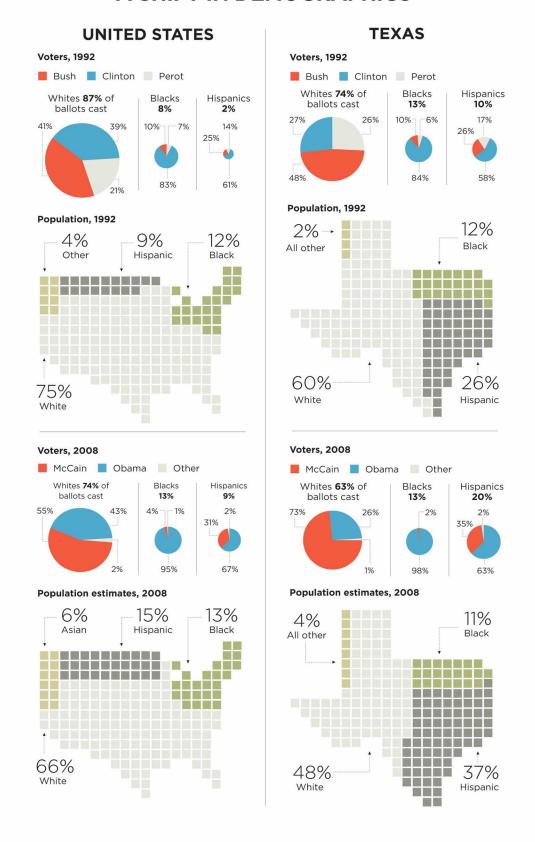
A SHIFT TO THE LEFT

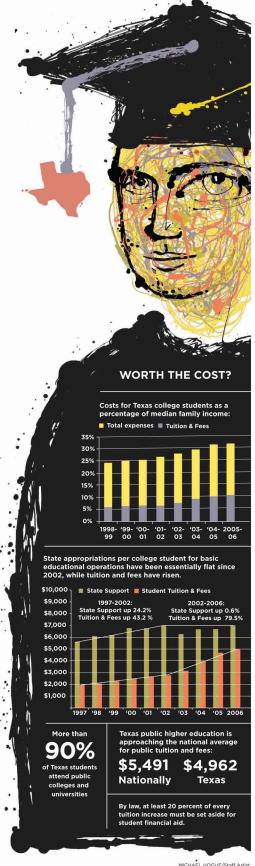
Decreasing support for traditional social values and rising concerns about global engagement set a favorable landscape for Democrats, according to a survey by the Pew Research Center



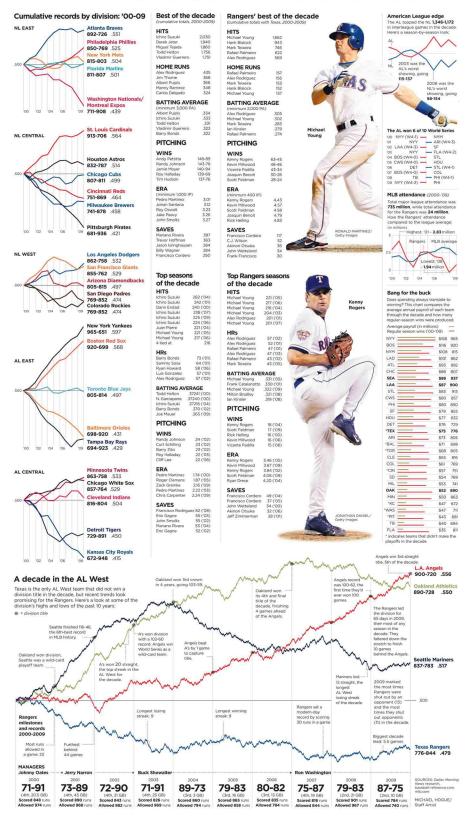
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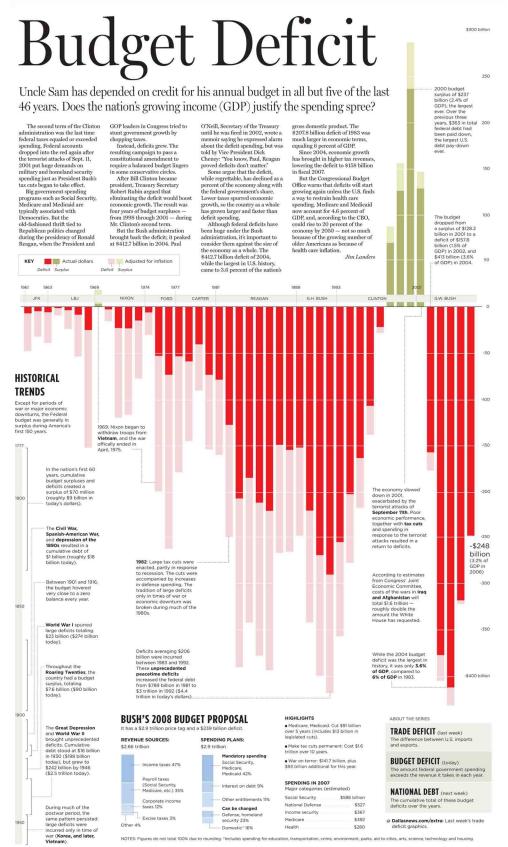
A SHIFT IN DEMOGRAPHICS





MLB's best: 2000-09





Electric vehicles promise cleaner air, but there are trade-offs

Plug-in hybrid electric vehicles, which draw electricity from the power grid, promise cleaner air. That's true for greenhouse gas emissions. When you compare carbon dioxide from a new gasoline vehicle to the emissions created by power plants to make electricity for an electric car, electricity wins easily. But in Texas, electric vehicles would be responsible for more nitrogen oxide pollution than new gasoline vehicles, thanks to the state's reliance on coal-fired power plants.



Nitrogen oxide emissions cause smog and can contribute to heart and lung problems.

NOx emissions per mile

Electric car 0.1 g per mile Gasoline car 0.07 grams per mile

Carbon dioxide emissions contribute to global warming.

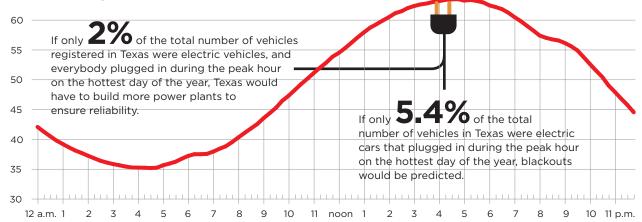
CO2 emissions per mile

Electric car 164 grams per mile

Gasoline car 0.1 g per mile

Can the Texas power grid support electric cars?

This chart represents this peak amount of power used by consumers on the hottest day in Texas, 2009.



Texas energy production sources

Texas power plants last year emitted, on average, 0.497 grams of nitrogen oxide (NOx) per kilowatt hour produced.

