

# SHOWDOWN FOR CAPITOL HILL

Can science influence politics in the forthcoming US elections? *Nature* investigates how Democrats and Republicans are striving to win the hearts of voters.

**H**eather Wilson has something she wants the voters of New Mexico's first congressional district to know about her: unlike President George W. Bush, she supports embryonic stem-cell research. In a local television advertisement last month, Wilson told viewers in Albuquerque and its environs: "The president vetoed the stem-cell bill, and I voted to override his veto because it was the right thing to do."

It is not that surprising for a candidate to say an unpopular president is wrong, or that a popular biomedical cause is right. It is rather more surprising when the candidate and the president are members of the same party. But Wilson, the only woman in Congress who has served in the military, is a moderate Republican in a close fight to keep her seat. The stem-cell issue is one that she thinks may help her in the struggle to a fifth term in the House of Representatives, despite the fact that in other parts of the country some of her fellow Republicans are making opposition to the research a strong part of their campaign.

Most of the time, American voters couldn't care less about science. "If you look at what people are hot and bothered about, it's health care, Iraq, taxes, education, things of that sort," says Daniel Greenberg, a science-policy expert based in Washington DC. "Science and technology — they don't know anything about it." (See 'Q&A' page 744.) As a result, there's not much room for science in the typical US campaign — including the upcoming 7 November mid-term elections, which will decide who holds all 435 seats in the House of Representatives; one-third of the Senate's 100 seats; and 36 governorships. "Science plays a very little role because facts play a very little role," says Tony Massaro of the Washington-based League of Conservation Voters. "Issues, such as they are, are indicators for the values of the candidates."

Some liberal groups think that the Bush administration's record on science can be seen as a reflection of its values. They hope to exploit this, painting a picture of an administration opposed to objective truth and intellectual progress. Over the past six years, activists have assembled a litany of issues where, they say, the Bush administration has either ignored scientific evidence or sought to manipulate it — from delayed decisions on the Plan B emergency contraceptive to altered documents on global warming. This 'Republican war on science', as it was called in the title of a 2005 book by journalist Chris Mooney, has proved a powerful rallying point for scientists disillusioned



with the current administration. And there are many.

But despite the fervour of some of its devotees, there is little evidence that this radical thesis is having any more effect in this race than similar ideas had in the 2004 presidential election. Back then, a group of respected scientists, including two dozen Nobel laureates, publicly accused Bush of "misrepresenting and suppressing scientific knowledge" (see *Nature* 427, 663; 2004) and went on to support John Kerry's presidential bid. This year's race has seen the formation of a political advocacy group called Scientists and Engineers for America, which includes many of the same researchers.

The group says it will work to raise public awareness of perceived abuses of science, and hopes to persuade voters to elect like-minded candidates. But the way the organization is set up constrains it from endorsing any specific candidate in any specific election. And despite charges that it could be

Representative Heather Wilson has distanced herself from the president.



J. SCOTT APPLEWHITE/AP

## RUNNING ON SCIENCE

A look at nationwide races reveals three candidates who are challenging incumbents with science-based arguments.



**Patricia Madrid, New Mexico**

On the surface, the congressional race in New Mexico's District 1 looks like any tight political battle. The two candidates have railed against corruption and taxes, and quibbled over who had the better location in the state-fair parade. But as the challenger tries to take the scientific high ground, science has emerged as a new political weapon.

The race pits Heather Wilson, the Republican incumbent (see main story), against Patricia Madrid, a Democrat and the state's attorney general. In early August, Madrid released a television advertisement highlighting Wilson's campaign contributions from the oil industry, and then announced her own pledge to "invest in alternative energy and fight global warming".

Madrid's climate-change pledge was a sign of the times, says campaign spokeswoman Heather Brewer. "Global warming really resonates with people," she says. "It polls really well." The issue is not new to Madrid — as attorney general, she led the charge for New Mexico to join a coalition of states that sued the Environmental Protection Agency in an attempt to force it to regulate carbon dioxide as a pollutant.

If elected, Madrid says she plans to encourage the development of alternative energy sources by creating tax rebates for individuals and companies that use renewable energy sources.

The only scientific issue discussed during the candidates' 17 September debate was stem cells. Both Wilson and Madrid expressed support for federally funded embryonic stem-cell research, but Madrid took the opportunity to censure President George W. Bush for blocking federal funding for such research. "This administration is anti-science," she declared.

Although scientific issues are part of Madrid's campaign strategy, Brewer cautions that discussions about energy and climate change rarely extend beyond superficial political arguments. "Honestly, I just wouldn't call it a scientific discussion," she says. H.L.



**Claire McCaskill, Missouri**

Top billing on the campaign website of Claire McCaskill recently went to "real Missourians" complaining about incumbent Republican senator Jim Talent, and his failure to support stem-cell research. Here you can watch elderly Ida explain that she has Parkinson's disease. If she could tell Talent one thing, she proclaims in a shaky voice, it would be this: "I hope you and your family will never need the cures offered through stem-cell research."

Such is the political challenge that McCaskill, the Democratic state auditor, has laid for Talent as she seeks to unseat the conservative freshman senator. Talent, a former law professor and long-time politician, voted this summer against a bill that would have lifted constraints on federal funding for human embryonic stem-cell research. Talent called it unacceptable because it "would use tax dollars to fund research that would destroy human life at the earliest stages".

Talent is also opposing a state ballot measure, which McCaskill supports, that has put the stem-cell issue front and centre in Missouri's elections. The initiative would amend the state's constitution to allow scientists to conduct any form of stem-cell research allowed under federal law. It is a response to attempts in the state legislature to criminalize the research.

"There has been a type of warfare declared against science in Missouri," says McCaskill. "This is just about not criminalizing scientists and patients and researchers." The ballot issue has split the Missouri Republican party: former three-term Republican senator John Danforth, whose brother died of Lou Gehrig's disease, is co-chairing the coalition supporting the amendment.

Talent's stem-cell positions play well to his base in this conservative farm state, which, with one exception, has not elected a Democratic senator since 1980. But polls show that the ballot initiative has support among close to 60% of Missourians — a wave McCaskill hopes will tip the balance her way in this very close race. M.W.



**Jerry McNerney, California**

California's 11th congressional district, which sprawls across several counties east of San Francisco, has belonged since 1993 to Republican Richard Pombo — chairman of the House Committee on Resources and perhaps the least-favourite congressman of the League of Conservation Voters. It's also the site of a high-profile showdown between Pombo and his Democratic opponent, Jerry McNerney, a wind-energy engineer with a PhD in mathematics.

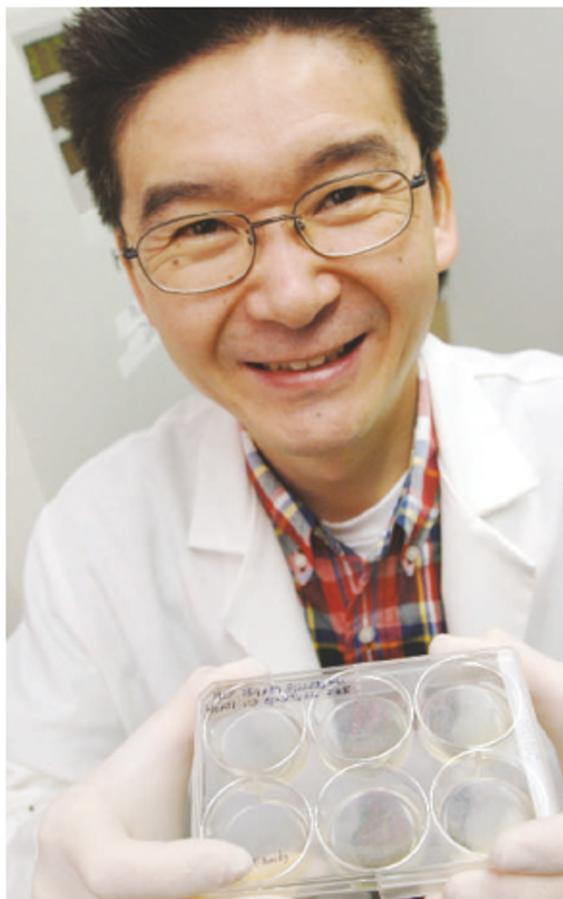
McNerney lost to the well-funded Pombo in 2004, and polls again paint him as an underdog in this competitive race. But he carries the fondest hopes of many US environmentalists, who are worried by Pombo's proposed radical reshaping — gutting, they say — of the Endangered Species Act and his plan to introduce oil drilling in areas that are currently off-limits.

McNerney is running on transforming the district — part of which is making a transition from farming to commuterland — into a hotbed of alternative energy. "We can develop the Silicon Valley of new-energy technology right here," he says. The area already has an established wind-power industry in the shape of Altamont, one of the first wind farms in the United States; McNerney would like to expand this sector, as well as pursue biofuels.

He says that environmentalist alarm at Pombo is giving him a real boost. Californians, after all, are famous for being ahead of the green curve in the United States. "People here are more aware of environmental issues," says McNerney. "It is easy to appreciate nature in a state like California, where we have good weather a lot. And there is a fragility that we can see."

McNerney may not be a career politician, but he has enough campaign savvy not to emphasize his PhD. "I think that it carries a little bit of a disadvantage," he says. "They look at a maths professor as someone who is kind of overbearing and scary." E.M.

L.G. PATTERSON/AP



**Stem-cell research is popular with many voters...**



**...and Kerry Healey hopes to profit from that popularity in Massachusetts.**

just a Democratic front, its leaders insist the group is non-partisan. "There have been very strong advocates for science from both parties," says founding member Peter Agre, a Nobel-prizewinning chemist and vice-chancellor for science and technology at Duke University Medical Center in Durham, North Carolina. "This is not a Republican issue or a Democratic issue. It's an American issue."

John Marburger, President Bush's science adviser, agrees — and argues that the Bush administration has done a fine job of advancing various scientific initiatives. "Science has wide bipartisan support in this country," he says. "Scientists benefit from that." He points to the 'competitiveness initiative', meant to keep the United States at the forefront of science and technology, which is currently winding its way through the Republican-led Congress. If brought into effect, it would mean an 8% increase for the National Science Foundation's budget and a 15% boost to funds for the Department of Energy's Office of Science in 2007 (see *Nature* 439, 644–645; 2006).

But if science as an overriding issue is hard pushed to gain traction, specific issues — in particular, stem cells and energy — could play an important role in some tight races. In a neck-and-neck national election, with the Democrats enjoying a lead in public opinion but requiring 15 seats to take control of the House and 6 seats to take control of the Senate, it's possible that the tactical use of these issues in specific races could make a difference.

### Culture shock

Meanwhile, in various states, scientific issues are turning up on important ballot initiatives. In Missouri, a high-profile measure would amend the state constitution to protect stem-cell research (see 'Running on science', previous page). In California, leading researchers are pushing for a clean-energy ballot initiative that would put more than \$1 billion towards research on alternative energy sources (see 'Good times for green energy', opposite). These initiatives do not necessarily lend themselves to the big-picture analysis of a 'war on science', but they should reveal how Americans are thinking about various ways in which research can have a practical impact on their lives. And that could, perhaps, influence candidates as they begin strategizing for the presidential race of 2008.

More so than any other line of research, stem cells have brought candidates from both parties to the front lines of science. Wilson is far from the only Republican now distancing herself from Bush on the issue. "You won't see any Republicans in competitive races touting the fact that they supported Bush on human embryonic stem-cell research," says Sean Tipton, president of the Coalition for the Advancement of Medical Research, a Washington-based advocacy group that supports the research. "A lot of candidates recognize that it plays into real weaknesses for Bush and his party."

In several governors' races, Republican candidates are reaching the same conclusion, sometimes moving to support generous state funding for stem-cell research. In Maryland, governor Robert Ehrlich stood quietly by in April 2005 as a bill providing \$25 million in research funds for such research died in the face of conservative opposition in the state legislature. But this January, he came out vocally in support of the work, and in April he signed into law a bill providing \$15 million in state funding.

## Good times for green energy

California is again trying to leapfrog the rest of the United States with a dramatic new research initiative. Last time, in 2004, it was stem cells. This time it is alternative energy.

On 7 November, California voters will be asked to approve a proposition that would raise taxes on the oil industry in order to create a fund to reduce dependence on fossil fuels. Of \$4 billion drawn from the fund during the next ten years, about \$1.1 billion would be available for research on renewable or efficient energy technologies.

Proposition 87 mirrors aspects of the 2004 California measure when voters approved \$3 billion for stem-cell research. In both instances, the state has moved when the federal government balked at aggressively funding research.

"California has a clear mission," says Daniel Kammen, director of the Renewable and Appropriate Energy Laboratory at the University of California, Berkeley, and the first of many scientists recruited to the proposition's cause. "The nation will be looking to emulate the California model."

Under Proposition 87, a 'severance tax' would be levied on the 200 million barrels of oil annually produced in California. California is currently the only state without such a tax, although its oil companies are taxed in other ways. The severance tax could be levied for a decade, but given the recent high price of oil, proponents anticipate the \$4 billion would be raised in less than six years. The money would be divided between two main programmes: the \$1.1-billion research allocation, and \$2.3 billion for creating businesses that would reduce use

of fossil fuels by 25% by 2017.

A governing board, similar to the state's stem-cell oversight group, would direct exactly where the money goes. There would be places on the nine-person board for, among others, a research scientist with expertise in the area, a business academic, a public-health expert and a venture capitalist.

The measure is part of a nationwide mosaic of fledgling state laws designed to cut fossil-fuel use and offer viable renewable energy sources. Already, California forces utility power-plant operators to cut emissions if they sell electricity into the state, no matter where the generators are located; similar programmes are under way or being planned in places such as New England, Arizona and New Mexico. Also in California, the country's first law to reduce greenhouse-gas emissions will come into effect on 1 January 2007.

The Proposition 87 campaign is coordinated by Anthony Rubenstein, an erstwhile Hollywood screenwriter who previously ran an urban renewal organization in Los Angeles.

It has been generously funded by Steve Bing, a movie producer, who has pledged an unprecedented \$40 million to the cause. Other notable supporters include venture capitalists Vinod Khosla, a biofuels evangelist, and John Doerr. The oil industry, which claims disingenuously that the proposition would increase prices and more reasonably that it would lead to California importing oil rather than producing it, has put up a similar amount of money in opposition. The campaign seems certain to be the most expensive ever fought on a ballot proposal.



California's only public alternative-fuels station in San Diego. More to come?

The proposition itself was largely written by leading California energy scientists. After receiving a cold-call at home on Christmas morning in 2004 from Rubenstein, Kammen set about enlisting an impressive array of California's Nobel laureates and other leading scientists in support of the measure. Supporters imagine the proposition's success bringing even more key scientists to the state. "Just like with stem cells, it will lead to top researchers moving here," says chemist Nathan Lewis of the California Institute of Technology in Pasadena.

Three weeks before the election,

polls suggest that the electorate is fairly evenly split; the 20-point lead that the proposition enjoyed in the summer, before the campaign really got under way, has been whittled down. So far, California governor Arnold Schwarzenegger, who is an advocate of clean-energy research and measures to curb climate change, is opposing the proposition, so as not to increase taxes. But those backing the idea are optimistic he may join the bandwagon if polls reflect support — just as he did with the stem-cell initiative, which he backed at the last minute.

Rex Dalton

In Massachusetts, lieutenant governor Kerry Healey (Republican) has been at pains to show her support for stem-cell research in her bid to become governor. In August, she broke publicly with the current governor when his administration announced a restrictive interpretation of a 2005 state law governing stem-cell research. A spokesman for Healey called the rules a "mistake" that "could have a chilling effect on those individuals at the forefront of this emerging field".

In some states, the issue is economic as well as political. Jim Doyle, the incumbent Democratic governor of Wisconsin, has pointed at his challenger's congressional vote against expanded federal funding for stem-cell work. Doyle has also emphasized his own role in bolstering research in the state where human embryonic stem cells were first isolated. That's a canny strategy in a state that is "terrified that it's losing jobs and people, and needs biotechnology", says Arthur Caplan, director of bioethics at the University

of Pennsylvania, who has advised several Democratic and Republican campaigns on stem cells. "It's an economic argument dressed up in a stem-cell costume."

In other states, though, Republicans are using opposition to stem-cell research as a traditional pro-life values issue. In the Missouri senate race (see 'Running on science') Republican incumbent Jim Talent hopes that opposition to a stem-cell measure on the state ballot will increase turnout among the conservative voters he needs.

Politicians know that stem-cell issues appeal to many voters. So does the promise of 'energy independence', a catch-phrase that promises no more reliance on foreign oil. Voters have been put off by the ongoing war in Iraq and unrest in the Middle East, as well as record-high oil and gas prices this summer, although these have eased somewhat in recent months. "Usually, we are fighting to get issues up in the forefront," says Massaro. "This year, everyone is thinking

and talking about energy." Many gubernatorial candidates, including Wisconsin's Doyle and Ted Kulongoski, Democratic governor of Oregon, are advancing some version of the '25 by 25' pledge — the broad-based push to produce 25% of the country's energy from renewable sources by 2025.

The issue has come into play in closely fought Senate races as well — and again on both sides of the partisan divide. In Washington state, Democratic senator Maria Cantwell is posing with wind turbines even as her Republican opponent proclaims his support for heavy investment in alternative energy. In Tennessee, Democratic candidate Harold Ford runs ads where he strides across fields of soya beans grown for biofuel. In New Jersey, Republican challenger Tom Kean says that, "unlike President Bush", he doesn't think America can "drill its way to energy independence".

The interest in energy issues runs deep. Earlier this year, the liberal citizens' group MoveOn.org staged more than 1,000 house parties, asking attendees to name the issues they thought the group should press hard on for the elections. "There were just two issues that came up at every one of those house parties," says Eli Pariser, executive director of MoveOn's political action committee. "One was health care and one was energy." For Pariser, the issue is about more than oil prices and geopolitics: "There is this sense of a grand scientific exploration in the style of the campaign to put a man on the Moon. People are

**The push towards using clean energy sources, such as biofuel derived from crops, has been used by some candidates to woo floating voters.**



hungry right now to be asked to be part of a big project."

But some routes towards energy independence involve extracting non-renewable energy sources — such as drilling in the Arctic National Wildlife Refuge, a plan pushed heavily by Ted Stevens, a Republican senator from Alaska. The drive for energy independence shouldn't eclipse the message of preparing for climate change, argues Alden Meyer, director of strategy and policy for the Union of Concerned

# Q&A



**Representative Rush Holt is a rare thing in the US Congress — a bona fide scientist building a promising political career. Since his election for the 12th district of New Jersey — the one containing Princeton —**

**eight years ago, this former physicist and son of a West Virginia senator has garnered several powerful committee slots. Holt has emerged as one of the Democratic Party's most prominent spokesmen on science, education and security. Colin Macilwain asked him about the life of a scientist on Capitol Hill, and what the mid-term elections could mean for science and education.**

**What difference would it make to science, or to scientists in America, if the Democrats took control of the House of Representatives?**

The atmosphere in Washington is more politically partisan than I have seen in half a century, and it even affects things like science. I've never believed that science is completely removed from policy or politics. But many scientists would say they are appalled at the way a political game has been made of science, such as intelligent design in the schools, where both the president and some in Congress have said that both this and evolution should be taught. And climate change — until very recently it's been difficult to get anyone to acknowledge that there is climate change and that there is any connection with human activity.

**Are scientific issues arising as issues in campaigns around the country?**

Not as major issues, but in my district there is a kind of frustration that we've been unable to deal with energy problems

— it might be high fuel prices, but somewhere in the voters' minds it is connected with a failure to find alternatives to fossil fuels, and a failure to listen to scientific analysis on climate change and that sort of thing.

**Do the Democrats have a programme for science, technology and education — and, if so, what is it?**

It may not be as well known or as well understood as we would wish. We do have a good message ['The Innovation Agenda'] released six or eight months ago. It calls for nationwide broadband, a greater investment in research and greatly increasing the number of trained science teachers in the schools.

**But isn't it true that, historically, Republicans are likely to spend more money on research and development?**

The president has acknowledged that the physical sciences have languished, but in the latest budget, not much has come through. So I'm not willing to elevate him to the hall of fame.



Scientists in Washington DC. "Unless you work in the global-warming message as well, there are some proposals — such as turning coal into liquid fuel — that could wreak havoc with the environment," he says. "You have to bring in the longer-term fossil-fuel dependence as well."

Climate change offers less political mileage than energy independence. That may reflect the current American view: in June, a poll conducted on a number of issues by the Pew

**What about involving the public in decision-making? A lot of discussion happens in Europe but it doesn't seem to get much traction in the United States.**  
I think it is fair to say, and unfortunate to note, that the public is not driving the science agenda. I wish they were. In the United States we have found ourselves in a position where the public says, 'science is for the scientists, but not for me'. Not often do any non-science or non-engineering constituents come to me with science or technology on their list, and I imagine that's true for other members of Congress as well.

**You've said that most people in Congress tend to view science as a special interest, albeit an intelligent one. Have you seen much change in how Congress views science?**

The public's appreciation of science is no better, and maybe a little worse, than a decade ago. In official Washington, scientific subjects have become really politicized. There should be debate about the policy that is derived from science. But, historically, if science puts limits on the choices that are possible, the politicians would accept that. Now, by treating science as just another topic to be dealt with ideologically, or to be part of political

trades, they will even ignore the laws of science.

**You decided not to seek a berth on the science committee but to look to more general committees instead. Was that a good choice?**

The greatest need here is for scientific expertise in those areas that are not obviously scientific. On funding for NASA or for Antarctic research, we get pretty good scientific advice. But on 'how do we get reliable elections' or 'what is the effect of good transportation planning', which are to most Americans not obviously scientific, we have the greatest need.

**Do you find your fellow congressmen receptive to a bit of scientific knowledge?**

Yes. People will listen to me on some subjects more than just an average colleague. Am I as influential as I'd like to be? No — but I work at it.

**What is your proudest achievement in the Congress?**

It has nothing to do with science, and it is not even easy to describe. But it is building a sense of respect for government, or to put it another way, beating back the cynicism about government, at least within my own district.

Research Center for the People and the Press found that, although 64% of respondents thought energy policy was "very important" to them, only 44% said the same of global warming. Nevertheless, in tight governors' races in Rhode Island and Massachusetts, candidates have divergent stances on the Regional Greenhouse Gas Initiative, a seven-state scheme for limiting greenhouse-gas emissions.

### Capitol gains

Back in Washington DC, where several powerful representatives have notoriously sceptical views on climate change, the elections could significantly shift the balance of who gets listened to the most. If the Democrats take back either house of Congress, the chairmanship of all committees will switch from Republicans to Democrats. And chairmen and chairwomen have the power to call hearings on topics of particular interest — or to call witnesses such as novelist Michael Crichton to criticize the current state of climate-change research, as happened last year in the Senate's Committee on Environment and Public Works.

If Republicans lose control of the House, accusations of scientific politicization could gain a higher profile. "I think there would be more investigations if the House changes," says Kurt Gottfried, president of the Union of Concerned Scientists in Cambridge, Massachusetts. For instance, California Representative Henry Waxman — a Democrat who has been active in pursuing conflict-of-interest issues at the National Institutes of Health and other agencies — is in line to gain the chairmanship of the House Committee on Government Reform.

Representative Bart Gordon (Democrat, Tennessee), meanwhile, is in line to gain control of the House Committee on Science if the House switches majority. As such, he might call hearings on the accusations of scientific censorship at NASA and the National Oceanic and Atmospheric Administration, says Joel Widder, a policy adviser at the lobby group Lewis-Burke Associates in Washington DC. "The politicization of science and politics affecting scientific decision-making would clearly be issues that he would explore," Widder says. If the Republicans maintain the majority, the same committee might be headed by former Democrat Ralph Hall of Texas, global-warming sceptic Dana Rohrabacher of California or physicist Vernon Ehlers of Michigan.

Which party wins may also influence how science budgets are distributed among agencies and across disciplines, as Congress is in charge of doling out money for scientific research. But the total pot of money for science isn't likely to grow, as the United States continues to struggle to pay for the war in Iraq and unexpected expenses such as Hurricane Katrina, on top of a growing deficit. "It's not like the Democrats are going to open the treasury and fix all the budget problems that all the science agencies are screaming about," says Widder. "I think that the budget environment is likely to be so constrained that it doesn't matter who's in charge."

No matter what happens on 7 November, the face of US science is likely to change. And on 8 November, campaigners from both parties will be picking themselves up, preparing for the new Congress to convene in January — and realizing it's never too early to start planning for 2008. ■  
Reported by Geoff Brumfiel, Meredith Wadman, Emma Marris and Heidi Ledford.  
See Editorial, page 724.

A. MANN/AP