

In defence of data

As spokesman for America's scientific élite, Ralph Cicerone will have to do some tough talking in Washington. **Emma Marris** asks him how he'll ensure that politicians will listen to the science.

Less than a month into his new job, Ralph Cicerone is already on the offensive on Capitol Hill. Taking over as the 21st president of the National Academy of Sciences (NAS) on 1 July, Cicerone has had to leave his office littered with unpacked boxes as he heads for Congress to do battle over climate change.

Cicerone earned his reputation not as a fighter but as a temperate manager and rational thinker. That level-headedness may serve him well in the volatile environment of Washington, but he clearly is not averse to standing his ground.

In his new role, Cicerone will have to work with a US administration that has often clashed with scientists over findings that oppose its approved policy. But he is clear that if the academy's reports come to unpopular conclusions, he won't be shy about letting the world know. "Once we come up with a position, I don't want to hide it in the closet," Cicerone told *Nature* last week. "I want it to be out there and useful and maybe a little bit aggressive."

Cicerone seems equally at home dealing with politics as he does defending scientific evidence. One of his early acts as NAS president was to engage Congressman Joe Barton (Republican, Texas) over a letter sent out last month. Barton had demanded that three climate researchers turn over reams of data on their climate-change research, a stance that has sparked disapproval among his fellow Republicans as well as other scientists (see page 450). Cicerone entered the fray to offer Barton an independent NAS report to stop individual scientists from being intimidated.

Balancing act

Balancing science and politics is a basic characteristic of Cicerone's new job. As president of the NAS, he represents the nation's most distinguished scientists. But he is also head of the National Research Council (NRC), which generates most of the influential reports advising the government on scientific issues.

Those reports don't always tell policy-makers what they want to hear, particularly when it comes to Cicerone's own field. As an atmospheric chemist, he is well equipped to deal with issues relating to climate change — a major scientific flashpoint for the Bush administration.

Cicerone is probably best known for his contribution to work in the mid-1970s showing that human activities could damage Earth's protective ozone layer. He also played a prominent role in the debate over banning the use of chlorofluorocarbons to ease ozone depletion.

In Washington, scientific knowledge is just one of many factors taken into account when making a decision, and quite often not the most important. Cicerone says he is preparing himself to deal with that. "Being an engineer and a scientist, I tend to think that the facts and the data should dominate everything," he says. "I have to get used to the fact that a lot of people don't start that way."

Cicerone's career history spans US scientific hotspots, including the Massachusetts Institute of Technology and the Scripps Institution of Oceanography in La Jolla, California. Most recently he served as chancellor at the University of California, Irvine, where he founded the Department of Earth System Science.

Clear vision

The 62-year-old Cicerone has been involved with the national academies for years, and has served on 20 of their study committees. In 2001, he chaired an NAS panel on climate change. The resulting report, *Climate Change Science: An Analysis of Some Key Questions*, was widely praised as straightforward and easy to understand. It was also phenomenally fast. Academy reports normally take one or two years to complete; Cicerone got the job done in a month.

The report helped to put Cicerone's name near the top of the list to succeed Bruce Alberts as NAS president, says Peter Raven, director of the Missouri Botanical Garden in St Louis and chair of the nomination committee that put Cicerone's name forward. Cicerone had extensive Washington experience, is a skilled fundraiser, and knew the NAS so well "he could hit the ground running", says Raven.

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— Ralph Cicerone

Cicerone can expect to deal with issues ranging from stem cells to nuclear power — two topics he mentions as possible subjects for the relatively rare self-funded studies undertaken by the academies. Cicerone's fundraising skills may help pump up the \$332-million NAS endowment and allow for a few more homegrown projects, his supporters say.

He will also have to balance government



interests against scientific openness. Earlier this year, the NAS was caught in a dispute over a paper in its *Proceedings of the National Academy of Sciences*. The paper presented a model of a bioterrorist attack using botulinum toxin, and officials at the Department of Health and Human Services asked journal editors to pull it, citing security concerns. Alberts, Cicerone's predecessor, delayed the paper, but published it in the end. Cicerone was involved in the decision, and plans to ask the newly formed National Science Advisory Board for Biosecurity for opinions on what could have been done.



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adopt, but the only ones he is eager to talk about at the moment are politically acceptable topics such as energy efficiency. He argues that some simple fixes, such as making sure manufacturers use energy-efficient lighting and motors, aren't made because they are swamped by the charged atmosphere surrounding climate change. "I find it very frustrating," he says, "that because of the really difficult questions that cause political polarization, we are missing some of the cherry-pickings."

Sherwood Rowland, a climate scientist and longtime colleague of Cicerone's at Irvine, expects him to speak out strongly in his new role. "He spent almost his whole career in areas of science that have very strong policy implications, and he has always been upfront about the policies that ought to go along with that," he says.

Public figure

Rowland also mentions one of Cicerone's skills that is crucial for successful political manoeuvring: "Ralph has a phenomenal memory for people — who they are, what they do, what their strengths are, and what to look out for."

But any amount of political savvy on Cicerone's part won't bridge the gulf between when people want scientific answers and when the NRC can provide them, or between the massive academy reports and the one-pagers that make up the informational diet of most lawmakers. "It's a perpetual, continual source of tension here," says Cicerone. As one possible solution, he envisions making the reports' executive summaries shorter, and releasing interim reports more often. But he also shifts some of the onus onto those who request the reports, urging them to "ask questions that won't go away this budget cycle. Ask questions that have longer-lasting value."

Such old-fashioned rationalism drives Cicerone. When creating study committees, he prefers to look for unbiased thinkers rather than balancing an advocate from one side with an advocate from the other. He is aware that some say this is an impossible task. "Many people say that's hopelessly naive: that science is not objective, everything is relative, everything stems from an individual's philosophy of life, ideology and so forth. I don't believe that."

When he's not working for the benefit of scientists, Cicerone plans to set up a long-term project to improve the public understanding of, and enthusiasm for, science. He feels that interest in science is beginning to decline, partly because good popularizers are rare. "I miss Carl Sagan," he says wistfully.

But he is not willing to go along with the often-repeated tale that Sagan was denied NAS membership because of his fondness for appearing on television and writing popular books. During the arguments over whether or not to elect Sagan "there were good people on both sides of the debate," says Cicerone. Spoken like a true Washington insider. ■

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Ralph Cicerone, new president of the National Academy of Sciences, wants to reach out to the public.

But how feisty on political matters is the soft-spoken Cicerone likely to be? "I'll probably be a bit more conservative than people want," he says. "I don't want to be part of an organization that just shoots off its mouth with opinions that are not as well justified as can be."

For instance, he is prepared to weigh in on arguments over whether science is being misused for political purposes. "I don't want to shy away from those disputes," he says, "because I have such a reverence for science. I don't want

to see it twisted or distorted." But at the same time, he is not ready to say that there is an ongoing pattern of politicization of science that would justify putting a panel together to study the issue. Instead, he thinks the best strategy is to keep the NRC reports flowing, so that if someone tries to mischaracterize science, a study can be slipped off the shelf and presented for a quick refutation.

Cicerone does have ideas about specific science policies that the United States should