Australia's OPAL reactor is the only one currently irradiating low-enriched uranium.

process could be carried out in small particle accelerators, similar to those already used to make medical isotopes such as fluorine-18 for positron emission tomography scans. Although this strategy would be much less efficient than ^{235}U fission, it could at least alleviate ^{99m}Tc shortages at a local level.

Another possible pathway is electron-induced ^{238}U fission. This, too, would bypass the need for nuclear reactors, although it would need to be done in dedicated high-powered accelerators (T. Ruth *Nature* **457,** 536–537; 2009).

For now, ^{235}U fission remains the most efficient way to generate ^{99}Mo in the quantities needed by the medical community. However, the reliance on highly enriched ^{235}U has made many governments reluctant to build more reactors because of fears that the material could be used to make a nuclear weapon.

Australia's OPAL reactor, located in New South Wales, is the only site in the world that is irradiating low-enriched ^{235}U targets, which pose less of a proliferation threat and also produce less hazardous waste. However, the University of Missouri in Columbia is seeking funding to upgrade its research reactor, which proponents say could start ^{99}Mo production from low-enriched uranium by the end of 2011. Meanwhile, the reactor-construction firm Babcock & Wilcox in Lynchburg, Virginia, in partnership with the medical-isotope supplier Covidien of Mansfield, Massachusetts, wants to build a series of small nuclear reactors with a novel liquid core that also relies on low-enriched uranium.

Ultimately, governments now need to secure the long-term supply of medical isotopes, says Graham. "There needs to be a major effort in several countries to either convert existing reactors or build new reactors to ensure a stable long-term supply of ^{99}Mo." ■

Paula Gould

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G8 climate target questioned

The path to a meaningful deal at the Copenhagen climate summit in December seems more treacherous in the wake of last week's meeting of the G8 nations.

Leaders gathered in the quake-struck Italian town of L'Aquila promised to try to prevent global temperatures from rising more than 2 °C above pre-industrial temperatures. They also said that rich countries would cut their aggregated greenhouse-gas emissions by 80% by 2050, and, with other countries, would cut global emissions by 50% over the same period. But they made no commitment to reducing emissions any earlier and did not agree on a base year against which to measure national emissions cuts.

The choice of base year "matters a great deal", says Gwyn Prins, an economist at the London School of Economics. A recent year, say 2005, would make targets easier to achieve for countries such as Canada, Japan and the United States, whose economies and emissions have grown constantly over the past 20 years. It would be even more attractive for booming countries such as China and India. But the European Union would benefit from a 1990 baseline — as emissions there have fallen since then — as would Russia, which saw a dramatic industrial decline in the 1990s.

> "So much for science — the rest is up to politicians and voters."

Others argue that the 2 °C limit is, in fact, a crucial commitment because it marks the first time G8 countries have agreed on what constitutes 'dangerous' climate change. Two degrees warming translates with "mathematical clarity" into the required "decarbonization" of the global economy, says Hans Joachim Schellnhuber, director of the Potsdam Institute for Climate Impact Research in Germany. A study earlier this year, for example, suggested that there is a 50% chance that global warming will exceed 2 °C by the end of the century if around 1,400 billion tonnes of carbon dioxide is emitted during the period 2000–50 (M. Meinshausen *et al. Nature* 458, 1158–1162; 2009). Emissions for 2000–06 alone amounted to around 234 billion tonnes.

"We have now a politically accepted and science-based threshold that allows us to calculate precisely how much greenhouse gas we can still afford to emit if we don't want to exceed a given probability of getting into dangerous territory," Schellnhuber says. "So much for science — the rest is up to politicians and voters."

Packed schedule

However, much remains to be done before the Copenhagen meeting in December, when nations will meet to negotiate a successor treaty to the 1997 Kyoto Protocol on climate change.

Last week, China and India reiterated their unwillingness to sign up to binding emissions cuts. If that stance does not alter, it is likely to jeopardize a bill to introduce a cap-and-trade programme to cut US emissions by 83% from 2005 levels by 2050.

The US House of Representatives last month passed its version of the bill. But Senator James Inhofe (Republican, Oklahoma), a senior member of the panel drafting the Senate's version of the bill, warned last week that "unless supporters of cap-and-trade legislation can develop a plan to persuade China and India to make meaningful emissions reductions on par with the United States, no such bill will pass the US Senate".

Serious questions also remain over whether the 80% reduction goal agreed by the G8 nations can be achieved using 'indirect' policy tools such as emissions trading and carbon 'offsetting' by land-use change and forestry projects. The European Union's emissions trading scheme, for example, has failed to deliver substantial emissions reductions since its launch in 2005.

Prins doubts that such policies, including cap and trade, will work (see G. Prins and S. Rayner *Nature* 449, 973–975; 2007). "We don't need meaningless targets, but real action on carbon intensity and energy efficiency," he says. "But this would require leaders admitting there's something fundamentally wrong. I'm afraid this won't happen unless the facts eventually slap us in the face." ■

Quirin Schiermeier

See Editorial, page 307, and www.nature.com/roadtocopenhagen for more climate coverage.