

CERN comes under fresh financial pressure

London. Completion of the Large Hadron Collider (LHC) at the European Laboratory for Particle Physics (CERN) in Geneva, Switzerland, may have to be delayed, following a move by Germany to reduce its contribution to the laboratory next year by almost 10 per cent.

The proposed reduction, approved by the German cabinet three weeks ago (see *Nature* 382, 285; 1996), has yet to be officially approved by parliament. Nor is it clear how it is likely to be implemented, given that the cut would appear to conflict with previous German commitments to support CERN's budget at its current level.

Although such cuts can be agreed only by CERN's council, Germany and the United Kingdom, already facing difficulties with CERN's annual subscription, could force them through, given their voting power on the council. But other member states are also increasingly concerned about the burden of the annual subscription.

One result could be increased pressure from some member states to persuade the United States and Japan to join as full members, a position with which British officials, for example, say that they have little difficulty.

But other countries would strongly resist such pressure. "CERN is a European facility, and its rules are not compatible with the admission of full members from outside Europe," says Hubert Curien, the former French research minister who is chairman of the laboratory's governing council.

Any such change, he says, would require revision of the treaty under which CERN was established in 1954. A more likely outcome would therefore be a decision to delay the completion of the accelerator.

The planned cut in Germany's CERN contribution next year is expected to be followed by similar reductions in its contribution for the three subsequent years. It comes as part of a package of public spending reductions that has been introduced by the coalition government of Chancellor Helmut Kohl to meet the terms of eventual membership of a single European currency.

The German research ministry (BMBF) last week corrected initial figures it had provided on the size of the reduction, and said that the country's contribution to CERN is in fact intended to fall from DM265.7 million (US\$178 million) this year to DM240.9 million next year. This represents a cut in constant funds of 9.3 per cent, and in real terms of almost 11 per cent, once inflation is taken into account.

CERN officials are declining to comment on the German proposals, pointing out that they have not received official confirmation in writing from Bonn.

Christopher Llewellyn Smith, the director-general of CERN, says that the labora-

tory is already having to work with a declining budget, as spending is due to increase more slowly than the anticipated rate of inflation. He points out that recently introduced economies have led to cuts in staff and a saving from other projects of SFr25 million (US\$21 million) a year.

But if the additional proposed German cut is confirmed, it will inevitably be a blow to plans for the construction of the LHC, approval of which was obtained from member states in 1994 only after budgetary concessions to Germany and the United Kingdom (see *Nature* 372, 713; 1996).

The treaty under which CERN operates fixes the level of Germany's annual subscription as a fraction of the laboratory's overall budget. One concern is that the obvious way

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Helping hands: Japan's science minister Kaoru Yosano (left) and Llewellyn Smith of CERN paint a doll last year to wish the LHC good luck.

to implement a cut in this contribution would be to reduce the total budget — and hence contributions by other members — by the same proportion.

Two strategies could reduce the annual costs to CERN members of constructing the LHC. One would be to seek to make the United States and Japan full members of what would become a 'global' laboratory, requiring both to increase their payments to the basic cost of the accelerator. This is seen as unlikely in current political circumstances.

The other possibility would be to delay the planned date of completion. At present, the collider, which has been designed to explore the predicted characteristics of the Higgs boson, is planned to come on line at two-thirds of its final energy in 2004, and to reach full energy in 2008.

If the United States and Japan agree to provide the additional funding that is currently under negotiation, CERN officials had been hoping to bring the date for reaching full energy forward to 2005. A reduced European contribution could result in this date slipping back, although officials argue that any annual savings gained by pursuing such a strategy would be minor, while the overall construction costs of the accelerator would inevitably increase.

Such a delay would also have repercussions for non-European involvement. Although foreign physicists would still be keen to participate, their political paymasters might be tempted to look to other projects to fund.

"We would be very disappointed if the project were to be put back," says Sidney Drell, deputy director of the Stanford Linear Collider, and chairman of a panel of physicists which has drawn up plans for the Department of Energy for possible US involvement in the LHC.

Yet any move to reduce the annual costs of the collider to CERN's member states is likely to be welcomed in Europe's capitals, as most governments are experiencing tight squeezes on public spending.

Britain's science minister, Ian Taylor, for example, has already given Germany's announcement a tacit welcome as reflecting and reinforcing UK pressure on CERN to reduce costs to free more money for Britain's domestic particle physics programme (which includes constructing the detectors with which collider experiments will be conducted).

France and Italy are facing similar difficulties in funding their domestic research efforts because of their commitment to CERN, and both are generally thought likely to react sympathetically to any move to reduce the pressure of the CERN subscription on their domestic research budget.

"France remains committed to CERN in general, and to the LHC in particular," says Claude D  traz, director of the National Institute for Nuclear and Particle Physics. "But CERN should open its books for a thorough review of what could be done in the present political situation. We cannot keep our eyes closed to the difficulties that we all face."

At the very least, the German move is likely to bring forward a review of the funding prospects for the LHC. It was agreed in 1994 that such a review should take place next year. Curien says: "We may ask the management of CERN to be ready as soon as possible to make this review."

Indeed, some government officials feel that the implications of British and German demands for cost reductions are sufficiently serious to warrant a meeting of the research ministers of member states within the relatively near future.

In Germany itself, the Deutsches Elektronen-Synchrotron (DESY) in Hamburg has, in contrast to CERN, been promised level funding for next year. Officials in the research ministry defend this decision on the grounds that while CERN, despite its financial difficulties, is still able to find money for new scientific experiments, they argue that this has recently become virtually impossible at DESY.

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