

## Business professor takes post of science minister in Italy

**London.** Italian science is likely to see increasing priority being given to links between the academic and industrial worlds following the appointment of Stefano Bodesta, a prominent professor of business management, as the country's new minister of universities and research.

Bodesta is currently director of a centre which carries out research into industrial and business organization at the private Luigi Bocconi University in Milan — one of the country's leading business schools.

Together with several other members of the university's faculty, he has been involved in the creation of Forza Italia (Freedom Alliance), the political party set up by Silvio Berlusconi, the industrial magnate.

Berlusconi was last week appointed the country's prime minister following his party's successes in last month's general election. Bodesta is seen as one of several 'technocrats' who have been brought into government by Berlusconi in an attempt to resolve Italy's chronic economic difficulties.

The 55-year-old Bodesta is little known in the scientific community. But he has considerable experience of the academic world, having previously taught at the universities of Parma, Milan and Venice. He is the author of a number of books on topics such as strategic decision-making and the theory of industrial economics, and has been on the faculty of the Bocconi University since 1982.

One of the tasks facing the new government is to decide how far it is prepared to go in supporting proposals for funding research over the next three years that were proposed to Parliament shortly before the election by the departing minister of universities and research, Umberto Colombo.

Under Colombo's plans, the overall research budget was to grow by a massive 35 per cent over the two years 1994 to 1996, with particular increases in support for areas of applied research, destined to rise from 100 billion lire in 1994 to 1,000 billion lire. Direct government funding for university research was also due to rise sharply, from 250 to 450 billion lire, in this period.

Colombo's stated target was to increase Italy's spending on research and development from its current level of 1.6 per cent of gross national product to 2.0 per cent by 1995. Given the country's current economic problems, funding increases of the magnitude proposed by Colombo are unlikely to materialize. But there is a good chance that, under Bodesta, pressure will be maintained by the new government for some of the organizational changes recommended by Colombo for improving the efficiency with which research funds are used. □

## US motor giants fail to quell enthusiasm for electric cars

**Washington.** The oil and automobile industries have failed in a last-minute effort to stall a tough Californian regulation that will require all car companies operating in the state to develop and sell electric cars by 1998.

After a two-day review meeting in Los Angeles last week, the Californian Air Resources Board endorsed a plan to require car companies operating in the state to ensure that, by 1998, two per cent of sales are of cars emitting no pollutants — electric cars, in effect.

The mandate is expected to have a wide impact, as no major Japanese or US car maker can afford to exclude itself from the Californian market. All will have to start mass production of at least one electric car in their range to comply.

The board also rejected a proposal that it should review the mandate every six months, rather than every two years as it had proposed. It said that such a change would effectively paralyse investment in electric car technology.

The only potential barrier remaining is



the possibility that Pete Wilson, the conservative California governor, who is thought to oppose the mandate, may, if re-elected this autumn, sack the Air Resources Board and have the mandate lifted. But so far he has refrained from a move that would deeply alienate the strong Californian green vote in an election year.

The state of California pioneered air pollution law, and federal legislation therefore gives the state special powers to set its own laws and mandates on vehicle emissions. All other states work to rules laid down by the Environmental Protection Agency (EPA) in Washington. Many northeastern states have already petitioned the EPA to set a mandate in line with California's, and the outcome of last week's meeting will increase the pressure.

As well as addressing local air pollution problems, the mandate is intended to reduce greenhouse gases, one-third of which come from transport. But electric cars will help to

alleviate the greenhouse effect only if the electricity to power them is produced without pollution: if it is generated with oil or coal, an electric car may produce more greenhouse gas than a petrol driven one.

"The global warming impact may be almost zero, depending on how the electricity is made," says John Houghton of the UK Rutherford Appleton Laboratory, one of the world's leading experts on the greenhouse effect.

Given the costs and complexities of existing battery technology, the 1998 deadline may well prove to be over-optimistic. But the record of the big-three US car manufacturers — Ford, Chrysler and General Motors — of relentlessly opposing pollution and safety mandates in the past has undermined the credibility of their opposition to this one. Their proposal that California should turn to the National Academy of Sciences for advice was ignored by the board.

The United States Advanced Battery Consortium, a high-powered research and development collaboration led by the big-three car manufacturers, also suffered a rebuff. It told the board that the mandate had come too early, and would only lock car companies into immature and expensive battery technology. But other battery developers said they could mass produce batteries at reasonable cost if the mandate was there to guarantee them a market.

One impetus behind the mandate has been the emergence of a number of small companies promising to pioneer electric car technology and create a world-beating industry in California.

The debate over the mandate has to some extent developed into a war of words (and cultures) between these companies and the big-three manufacturers from Detroit.

The state's decision to press ahead may oblige the big-three to reconsider their opposition and prepare to comply with the mandate. Green activists are already suggesting that General Motors is ready to move swiftly to do so, perhaps by coming to an agreement with a Californian company, Electricar of Sebastopol, to modify part of the output of the Californian small car factory that GM runs jointly with Toyota.

### Colin Macilwain

● A conservative Member of Parliament has been elected as president of the UK's Electric Vehicle Association in a bid to stimulate political support for electric cars in Britain. Andrew Robathan, MP for Blaby in Leicestershire, demonstrated his commitment to such vehicles last week by driving one round the forecourt of the offices of the Electricity Association, close to the Houses of Parliament.