

Germany's green example could be revolutionary



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ROME -- Environmental groups and institutions such as the United Nations Environmental Program (UNEP) have been fighting a losing war on the climate change file ever since "Kyoto" entered the green lexicon in the 1990s. That's because energy ministers and industrialists everywhere, especially in the United States and Canada, argued convincingly that the cost of reducing carbon dioxide output would kill jobs and wreck economies.

Many still are.

UNEP executive director Achim Steiner thinks the war may - stress on the may - finally be turning in his favour. Mr. Steiner, a German born in Brazil who has been the UNEP chief since last year, is running around the planet talking about the "third industrial revolution." Hans Joachim Schellnhuber, adviser to German Chancellor Angela Merkel and head of the Potsdam Institute for Climate Impact Research, is using the same phrase.

It is popping into politicians' speeches. Italian Prime Minister Romano Prodi used it at a climate change conference in Rome earlier this month.

The third industrial revolution is a response to climate change. It is the development of low-carbon or no-carbon technologies needed to wean economies off fossil fuels. In theory, the wealth and the jobs - entire industries perhaps - created by the technologies would help to offset the potentially horrendous costs of reducing carbon output. Nice idea, if not exactly a new one, but is there any evidence that it might work?

Mr. Steiner has a one-word answer: Germany.

A few months ago, Roland Berger Strategy Consultants, an independent consulting firm (think a European version of Bain or McKinsey), put out a report that suggested the third industrial revolution is well under way in Germany. It said the new energy and ecology-related fields are becoming the country's top job creation engine.

"By 2020, this sector will be employing more people than mechanical engineering or the automotive industry," said Roland Berger partner Torsten Henzelmann.

Already, Germany has created about 250,000 jobs in areas ranging from fuel cells and electric cars to wind power and energy-efficient houses (the German *Passivhaus* dispenses with conventional furnaces for heating). The German Renewable Energy Federation says it expects industry sales to grow 17 per cent this year to €32-billion (\$45-billion).

A study by Germany's federal environment ministry projects 150,000 new green-related jobs will be created by 2020. Earlier this month, a Canadian solar energy company, Arise Technologies, began construction of its first photovoltaic cell factory, in Germany. The \$73-million project will create 100 jobs. "You can make money out of climate change," Mr. Steiner says. "Capitalism can change with a changing market. Lehman Brothers has more environmental experts than the UNEP."

But would there be a third industrial revolution without the taxpayer? While Germany is creating green jobs, the effort comes at a price. Half of the capital cost of Arise's German factory was financed by a government grant (because it's being built in the job-challenged former East Germany). If that weren't enough, the government used legislation to guarantee a solar market. Demand for solar energy equipment is driven by Germany's Renewable Energies Act, passed in 2000. The law requires power companies to purchase energy from renewable resources at a fixed price three or four times higher than the market price.

There may come a point when the taxpayer grows weary of pushing industries onto the market. So far, the German taxpayer seems happy to act as nursemaid in the hope that what Germany achieved in engineering and auto making can be replicated in green technologies. It's not like green technology is the first to tap the taxpayer. Airbus comes to mind.

Other countries are looking at the German model. China has emerged as the biggest solar market and is building the biggest solar energy project. Its solar energy companies are growing in size and number by the day. India is getting into the game too. In the spring, India's Suzlon Energy outbid France's Areva, the world's biggest nuclear energy plant operators, for REpower, Germany's third-biggest wind energy company.

"China and India don't need to be told they have enormous environmental problems," Mr. Steiner says. "They have enormous amounts of capital to invest in [green] technology. The world underestimates the pace of innovation there."