Central to the problems identified by Costanza Rovida, a consultant chemist based in Varese, Italy, is that chemical companies have failed to fill gaps in safety data as required.. What's more, European regulators seem to have little leverage to force them to do better.

REACH is often touted as Europe's most complex piece of legislation, but at the moment it looks toothless. Rovida's analysis raises an urgent question: is burdensome and ineffective regulation better than no regulation at all?

There are some parallels with, and perhaps lessons to be drawn from, the difficult birth of Europe's carbon-emissions trading scheme, which, like REACH, has lofty goals — in this case to reduce Europe's carbon footprint. Flaws in the design of the scheme resulted in farce, ridicule and zero reduction in carbon emissions in its first phase, from 2005 to 2007. But subsequent reform made for a stronger second phase, which is now drawing to a close. Details of the third phase are currently being hammered out.

Like REACH, the success of the emissions-trading scheme largely depends on self-reporting by companies — in this case of their annual carbon emissions, for which they get carbon allowances of a corresponding size. Honest participation is encouraged by independent third parties and national authorities that check each submission for accuracy. Hefty fines lurk for those who stray too far from the truth.

It is still early days for REACH, but there are few signs that Europe has the appetite to improve on its dismal first phase in the way it did with emissions trading, or that it will do more than encourage chemical companies to play by the new rules.

Jukka Malm, director of regulatory affairs at the European Chemicals Agency (ECHA), the body responsible for REACH, says he hopes that industry will up its game, but he can do little more than finger wagging to spur it on.

The companies know, as does the ECHA itself, that the agency's biggest weakness is that it has resources to check only a fraction of all data submissions for accuracy and compliance. To deny the regulator the muscle it needs to properly police submissions is a major flaw of the present design of REACH. In addition, there is no immediate threat of legal and financial sanctions against companies that fail to comply.

Nevertheless, REACH has not been a complete flop. It has motivated companies to dig around in their archives and make public old safety data that they had lying around on the substances they produce. It has also got companies to work together and share data.

"Is burdensome and ineffective regulation better than no regulation at all?"

But these gains are modest in comparison with the new laws' failures. Notably, they have resulted in only small improvements in filling gaping holes in the available data about potentially serious effects of substances on reproduction and development.

And it is also disappointing that the regulations have failed to encourage companies to explore alternatives to animal testing in response to the demand for more data.

What now? If European leaders allow business as usual, they will find themselves under pressure to scrap REACH completely. It will quickly reach a point where its costs, in terms of time and money, heavily outweigh the meagre gain in information.

That would be a missed opportunity. The legislation rightly aims to correct some serious problems, even though Rovida's analysis has identified real difficulties. Europe has until the 2013 deadline for the next phase of submissions to admit that it has a problem, and to reach a little further to solve it. ■

Sunday best

Good news — Australia's politicians have rediscovered climate change.

Some called it Carbon Sunday; others called it world-leading; yet others called it something much ruder. Either way, last weekend Australia took a bold step forward, announcing a package of measures to tackle the country's disproportionately high greenhouse-gas emissions.

At the heart of the package is a levy on carbon, which will be applied to emissions from the nation's 500 largest polluters. The package, of course, does not come close to cutting emissions by the amount required to head off the worst of global warming — but then, do any concrete political measures announced so far do that?

By such dismal reckoning, it would be easy to dismiss the Australian effort as weak — a mere drop in the ocean — and critics are already doing so. But the package deserves a more sympathetic and considered response. The policy breaks new ground, moves in the correct direction and comes at a welcome time, given how climate change has plummeted down the international political agenda over the past year or so.

The plan, announced by Prime Minister Julia Gillard on 10 July, will see the country's biggest emitters pay a levy of Aus$23 (US$25) on each tonne of carbon dioxide that they send into the atmosphere. The price will increase above inflation for 3–5 years, after which the strategy will grow into a broader emissions-trading scheme. Gillard said that by 2020, the move would reduce emissions to 5% below levels seen in 2000 — an overall saving of some 160 million tonnes of carbon. Alongside this introduction of a carbon tax, Gillard increased Australia's long-term emissions target from a 60% cut below 2000 levels by 2050 to an 80% cut. And she pledged Aus$10 billion to develop renewable energy.

Less than a year ago, climate change was too hot for Australian politicians. Despite opinion polls that showed strong public support for policies to address greenhouse-gas emissions, both the Liberal and Labor parties installed leaders who promised to do less — in fact, before the election last August, Gillard, leader of the Australian Labor Party, had specifically promised not to introduce a carbon tax. But when the votes pushed Labor into a coalition with the Australian Greens and independent members of parliament, the party had to promise its partners that it would embrace a fresh approach to climate change. That compromise produced the weekend's announcement. If policies to restrict emissions can undergo such a resurrection in Australia, they can in other places, too.

Australia's example also gives encouraging signs that climate policies need no longer be proposed by government environment departments, only to be fought against by treasury colleagues who control finances. The Australian action on carbon emissions comes alongside broader reforms of the country's tax system, partly to help ease the burden on citizens affected by the hikes in energy price that are anticipated as a result of the carbon levy. Some of the proceeds from the levy will also be intelligently rechannelled back to the industries affected, to help them adjust to and invest in clean energy. That is the way for a government to hush complaints that action on global warming is being used to raise general tax revenue.

It is far from clear that Gillard's grand plan will be realized. Tony Abbott, leader of the opposition and a professed climate sceptic, has already promised to scrap the scheme, should he win power in the general election set to take place in 2013. He has vowed to make the vote a referendum on the new tax, so we might not have seen the final Carbon Sunday. Still, welcome back, Australia. ■

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