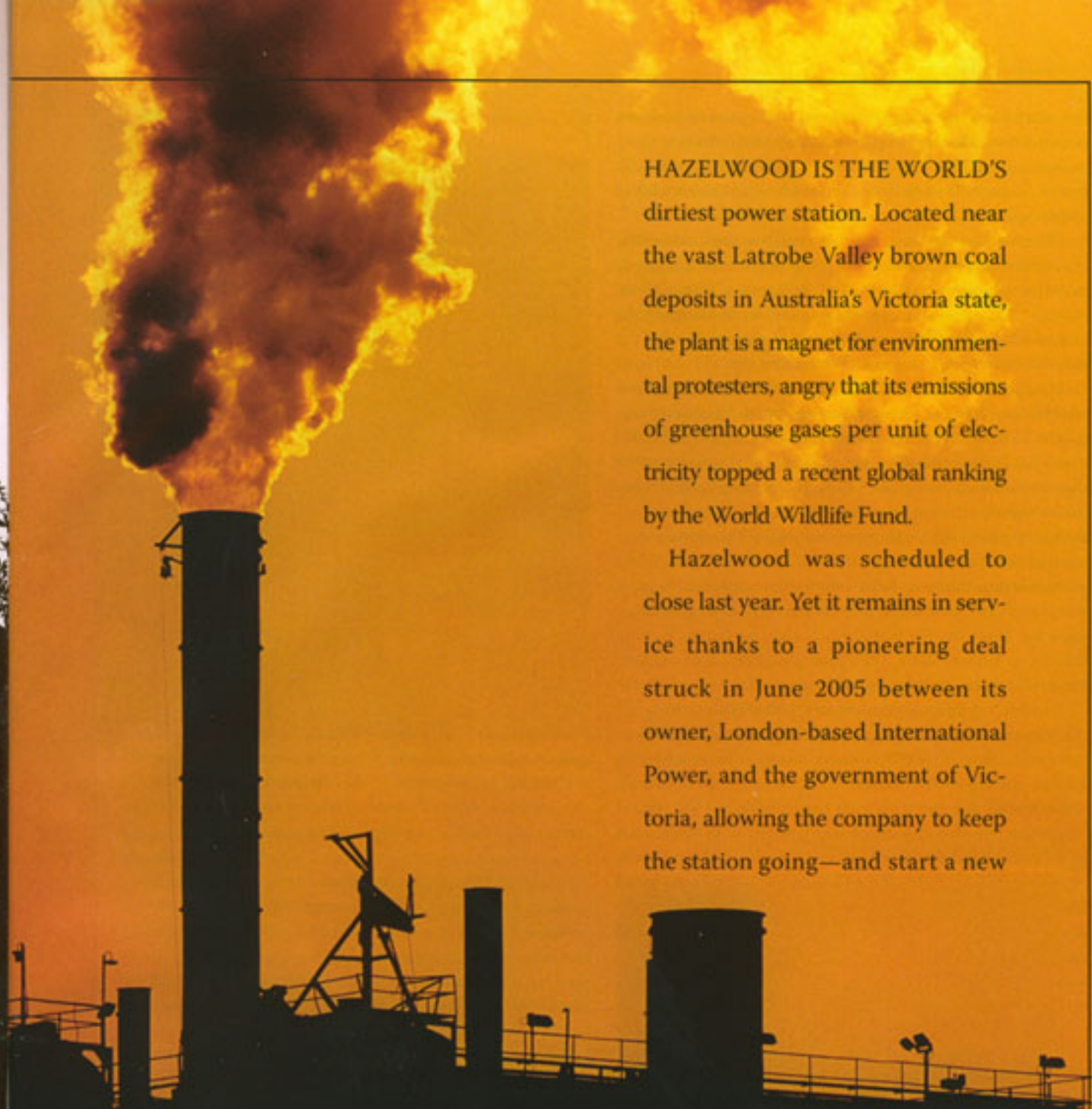




MARK
WILLIAMSON,
CFO,
INTERNATIONAL
POWER

THE CARBON



HAZELWOOD IS THE WORLD'S dirtiest power station. Located near the vast Latrobe Valley brown coal deposits in Australia's Victoria state, the plant is a magnet for environmental protesters, angry that its emissions of greenhouse gases per unit of electricity topped a recent global ranking by the World Wildlife Fund.

Hazelwood was scheduled to close last year. Yet it remains in service thanks to a pioneering deal struck in June 2005 between its owner, London-based International Power, and the government of Victoria, allowing the company to keep the station going—and start a new

ECONOMY

Factoring climate change into corporate strategy can be as difficult as predicting the weather.

BY JASON KARAIAN

open-cut coal mine nearby—as long as it agrees to limit the plant's lifetime carbon dioxide emissions to 445m tonnes. Once emissions reach that limit, the station must close. Currently, it produces about 17m tonnes a year, which would give it a life of a little over 26 years.

"There is no question that brown coal from the Latrobe Valley emits relatively high levels of CO₂, [so] we were happy to make those concessions," says Mark Williamson, International Power's CFO. Agreeing the emissions cap gives the company the incentive to invest in "clean coal" technology, since extending the life of the station depends on it, Williamson says.

Hazelwood is just one of International Power's 40-plus power stations in 18 countries being influenced by a new carbon economy. Williamson says that all investments made by the £2.9 billion (£4.4 billion) company are now based on the assumption that environmental compliance costs will increase. That's already had an impact—though International Power's generation capacity rose by nearly 50% in the past three years, CO₂ emissions per kilowatt-hour fell by 15%.

Nowhere is this new reality more apparent than in Europe, which accounts for about a third of the company's generating capacity. Since the EU launched its CO₂ emissions trading scheme in January 2005, Williamson says that his company "treats carbon like a fuel when selling forward our output."

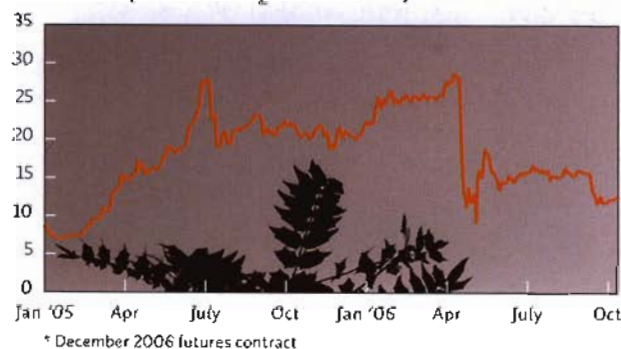
Europe's "cap and trade" system, which allocates tradable emission allowances to the EU's largest emitters, "kick-started the glob-



THE EU SET ITSELF AN AMBITIOUS TARGET OF REDUCING GREENHOUSE GAS EMISSIONS BY 8% FROM 1990 LEVELS BY 2012.

FIZZY

Market price of CO₂ allowances, €/tonne*



POWER CUT

Surplus of CO₂ allocation over 2005 emissions, %

SECTOR	UK	FRANCE	GERMANY
Glass	11	11	19
Paper & pulp	34	45	37
Cement & lime	14	1	16
Ceramic	24	17	41
Refineries	8	13	0
Iron & steel	6	8	14
Small combustion	11	29	11
Power stations	-23	9	0
COUNTRY TOTAL	-13	15	4

Sources: Carbon Trust, Entec

al carbon market," boasted Stavros Dimas, the EU's environment commissioner, in a speech last summer. When it ratified the Kyoto protocol in 1997, the EU set itself an ambitious target of reducing greenhouse gas emissions by 8% from 1990 levels by 2012.

The linchpin of this commitment is the CO₂ trading scheme, which covers around 40% of the EU's total greenhouse gas emissions. In 2005, regulators dispensed pollution permits to 11,500 plants in the oil, power, steel, cement, glass, ceramics and paper sectors. Exceeding permitted levels results in a €40-per-tonne fine in the first phase, which runs through 2007, though companies can buy and sell their rights to manage shortfalls and surpluses.

During the second phase, which will run through 2012, a fresh batch of allocations will be awarded to a wider range of companies, with additional greenhouse gases, like methane and nitrous oxide, possibly also included. Penalties in the second phase will rise to €100 per tonne.

The power of carbon

With the power sector accounting for nearly 60% of the EU's CO₂ scheme, energy companies have been the market's most active participants.

Drax has been more active than most. The £929m group operates the massive 4,000 megawatt power station at Selby, in northern England, the largest coal-fired plant in Europe, supplying 7% of the UK's electricity while emitting around 21m tonnes of CO₂ every year. Last year, Drax exceeded its annual

CO₂ allowance by 6.3m tonnes, forcing it to buy extra permits in the market at an average price of £14 per tonne.

As the scheme intended, carbon now factors heavily in the company's investment decisions. "Because CO₂ now has a price, we are able to evaluate and make investments that benefit both the company and the environment," Drax finance director Gordon Boyd says. "In the short time that the emissions trading scheme has been live, we have acquired a lot of knowledge about its drivers."

Later this year, Drax's board will consider the refurbishment of turbines in its generators, an investment of about £100m over five years to improve the station's energy efficiency by 1.5 to 2 percentage points. Though a marginal efficiency gain, it would also save 1m tonnes of CO₂ per year. "It's an investment we feel more comfortable making because there is a price for CO₂," Boyd says. "It will save coal costs, but what makes it more likely than not that the board will approve the project is that it also saves CO₂."

Carbon limits, even for the heaviest polluters, haven't hurt profitability. Drax's Ebitda surged to £239m in 2005, from £90m in 2004, and was again £239m in just the first six months of 2006, compared to £72m in the same period a year earlier. International Power, meanwhile, saw its European operating profit jump 168% in 2005, rising a further 109% in the first half of 2006.

The sharp hike in profitability came as the cost of CO₂ allowances rose exponentially (see top chart on page 28), accompanied by rising oil, gas and coal prices. UK power generators, with a carbon shortfall of 23% in 2005 (see bottom chart on page 28), were the biggest buyers of CO₂ allowances in the EU, but were still able to make around €1 billion in profit by feeding carbon prices into electricity prices, according to the Carbon Trust, a British quango.

This windfall angered energy-intensive companies. Alcoa, the world's largest aluminium maker, groused recently that the carbon-fuelled rise in power costs had a "significant impact" on its operations in Italy and Spain, and forced the closure of a plant in Germany last year.

However, according to Per-Otto Wold, CEO of Oslo-based

market information provider Point Carbon, some electricity end users are partly to blame by failing to recognise their own carbon allocations as an asset. If they had, they could have traded in the carbon market and reduced electricity prices last year.

There is no shortage of advice about how to leverage carbon allowances. Roland Geres, Munich-based managing director of consultancy FutureCamp, says he's working on projects that use the sale of CO₂ allowances to co-finance technology upgrades at industrial companies.

The word needs to spread more widely to reap the carbon benefits. Though a company's emissions position now has important financial implications, "the environment guys don't speak the same language as the treasury guys," says Sascha Lafeld, managing director of Frankfurt-based 3C Climate Change Consulting, a spin-off from Dresdner Bank. Environment managers usually run plants to optimise emissions individually, whereas it often makes more sense to optimise across a company's entire European capacity. This is where finance should step in, Lafeld says: "Finance executives think in a systematic, strategic way, but they are dependent on timely, relevant information from the environmental side."

The visible hand

While conceptually straightforward, the CO₂ market has been as subject to wild volatility as any new market.

This was starkly apparent in spring this year, when the CO₂ allowance price plunged from above €30 to below €10 over a torrid two-week period when the official 2005 emissions data for France, the Netherlands and the Czech Republic leaked nearly three weeks early, showing an unexpectedly large allocations surplus. Another leak two weeks later confirmed a surplus of allowances in most countries.

"It's fair to say that if this was the stockmarket, people would have ended up in court," says one trader at a large European utility. Further complicating matters is the nature of the product being traded—"a forced regulatory and political construct that you can't easily do fundamental analysis on like other com-

Source: Autex H1 2006.

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modities," as the trader describes it. "We don't know how many companies will put in the time and effort to trade their credits, and we assume that a lot of certificates will just expire." Carbon allowances are not transferable from the current phase of trading to the second phase, creating "a strange end effect that no one fully understands," the trader says.

This is clear from the confusion in the run-in to phase two of the scheme. Only Estonia submitted its CO₂ allocation plan for the second phase on time. As the EU—like most individual member countries—is likely to emit more greenhouse gases than it committed to under the Kyoto agreement (see charts on this page), the European Commission reckons that it will need to cut CO₂ allocations by at least 6% in the second phase. Governments, meanwhile, have so far been pushing for increased allowances. As analysts at investment bank JPMorgan warned in a June report, a "pitched battle" between member states and the commission over allowances is likely to add to the confusion and uncertainty in the months ahead.

However, "one thing that is certain," says Michael Rea, director of strategy for the Carbon Trust, "is that we're moving into a carbon-constrained world, and the price of CO₂ is likely to be more than it is today." Indeed, futures for CO₂ credits in 2008, the first year of the second phase, are trading around 30% higher than 2006 contracts, suggesting that the commission will be able to slash governments' overall carbon allowance plans.

Partly cloudy

Still, several key questions about the second phase remain unresolved.

It's unclear, for example, to what extent countries will distribute emission allowances by auction—up to a limit of 10%—to mitigate the windfall profits generated by free allocations in the first phase of trading. Harmonising permit allocation is another pressing issue. For instance, new heat and power plants in Germany receive allowances covering 130% of expected emissions, compared with just 60% in Sweden, according to the Centre for European Policy Studies, a Brussels-based think-tank. Whether countries will continue to base allocations on historical emissions, thus rewarding environmental laggards, or move towards fuel- or output-based benchmarking, is also up for debate. Another sore point: some countries withdraw allocations for plant closures, encouraging companies to keep dirty plants running.

It's no wonder that in a February survey of market participants by Point Carbon, respondents cited political factors as the most important long-term price driver for the EU's emissions trading scheme. These political factors, especially the lack of any guidance on the fate of the trading scheme after 2012, are, perversely, hindering investment in environmental efficiency.

"We have capital-intensive assets with very long lives, so we need reasonable visibility of the future carbon market dynamics," notes Williamson of International Power. "What's needed is the political will across Europe to create the proper tension in the market so that it provides a predictable price. We also need clarity on how this tension will be applied in the long term."

A post-2012 trading period lasting 10 years or more would

be helpful for investment plans, Williamson says. "At present we're not planning to build new plants partly because of the uncertainty around carbon. There's no question that this lack of certainty is slowing down our decision-making processes."

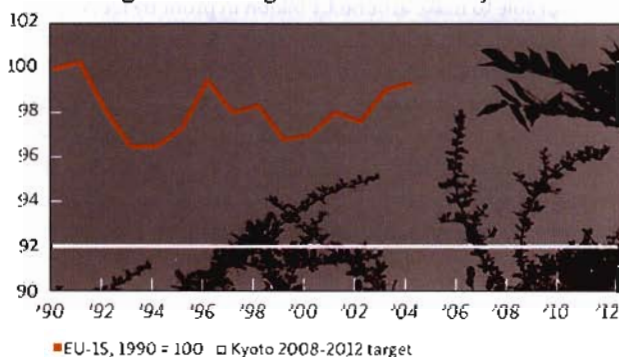
At Drax, finance director Boyd notes that his company is focusing on projects with payback periods of less than five years, keeping them within the limits of the CO₂ market's second phase. Longer-term projects are approached with caution. For example, co-firing its station with up to 20% biomass—grasses, willow, rapeseed and other crops—could, in theory, save Drax four to five million tonnes of CO₂ per year. But investment in this capability so far has been limited, just enough "to get the logistics in place," says Boyd. "We can ramp it up, carrying well beyond 2012 if the market is right."

Emission control

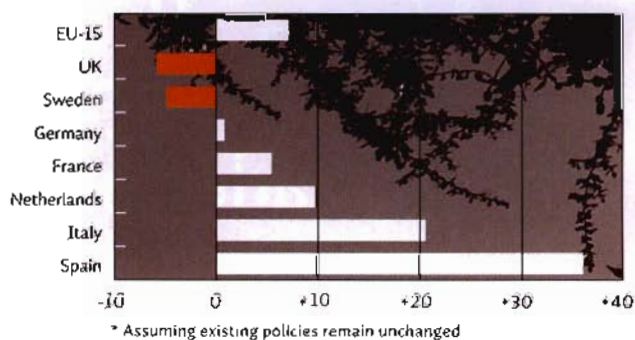
The peculiarities of the carbon market also affect investment decisions of companies not currently covered by the scheme. Yara, a NOKr45 billion (€5.3 billion) chemicals group based in Oslo, is one of the world's largest producers of fertilisers. Some of its combustion plants fall under the carbon trading scheme, but their CO₂ emissions are already well below the industry average because "energy efficiency was an issue for us even before greenhouse gases became a major issue," says Tore

SO MUCH HOT AIR

EU-15 greenhouse gas emissions vs Kyoto



Difference between 2010 greenhouse gas projections* and targets for EU-15, percentage points



* Assuming existing policies remain unchanged

Source: European Environment Agency



WITH THE POWER SECTOR ACCOUNTING FOR NEARLY 60% OF THE EU'S CO₂ SCHEME, ENERGY COMPANIES HAVE BEEN THE MARKET'S MOST ACTIVE PARTICIPANTS.

Jenssen, Yara's head of health, environment and safety. As a result, the company was able to sell 100,000 surplus carbon credits from a plant in the Netherlands last year.

The company is also a big emitter of nitrous oxide, a greenhouse gas with more than 300 times the global warming potential of CO₂. In October last year, Yara unveiled a groundbreaking new catalyst technology that dramatically reduces N₂O emissions. If rolled out at all of its nitric acid plants, the technology would cut Yara's greenhouse gas emissions by 25%. It's already in place at the company's Norwegian plants, contributing to compliance with a voluntary emissions reduction agreement signed by the country's process industries in 2003.

Looking for carrots

A Europe-wide rollout will depend on whether N₂O is included in the emissions trading scheme, Jenssen says. "If there are some carrots, some benefits to adopting new technologies, they will be adopted much faster," he says. Countries can choose unilaterally to include N₂O in the second phase of emissions trading, leading to furious lobbying by the chemicals industry. "We are not asking to get rich on this, but simply for payback on our investments and R&D," Jenssen says. "It would help maintain our competitive position. Competitors outside of Europe are not subject to the same restrictions, so emission allowances that are too low will restrict trade."

Adding to the complexity, the EU emissions trading scheme is soon to acquire a global dimension. Pollution permits issued

under a provision of the Kyoto protocol called the Clean Development Mechanism (CDM), a greenhouse gas reduction programme administered by the United Nations, will be exchangeable for EU emission allowances from 2008. CDM emission credits are awarded for projects that reduce any of the six main greenhouse gases in developing countries.

In May, International Power spent €12m for a 10% stake in BioX, a Dutch renewable energy company active in the CDM market. BioX specialises in converting oil-fired plants to run on palm oil, a much cleaner fuel that it harvests in southeast Asia. BioX generates CDM credits by capturing methane from the palm oil plantations and converting it into electricity used by processing mills. This provides a "dual benefit" for International Power, says CFO Williamson, as co-firing its European plants with palm oil reduces emissions, while the CDM credits can be exchanged for EU CO₂ allowances.

When a Dutch firm runs a project in Malaysia that will help offset the emissions of a UK-based company, it's hard not to argue that it marks the birth of a truly global carbon market.

Some €22 billion of CO₂ credits will be traded this year, up from €9 billion in 2005, according to Point Carbon. As Europe's emissions trading scheme matures, imposing increasingly stringent emission targets on a wider range of industries, the region's companies will gain experience of the risks and opportunities created by carbon constraints. Despite the initial frustration, being the first movers in the nascent carbon economy could put the region's companies at a significant advantage. ■