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Media

News

December 2008

Nobel laureate named US energy secretary

The West Australian the West.com.au

<http://www.thewest.com.au/aapstory.aspx?StoryName=537863>

16th December 2008, 9:03 WST

President-elect Barack Obama has named his energy and environmental chiefs and vowed a new dawn for US leadership to combat climate change after eight years of Republican foot-dragging.

Obama nominated Nobel Prize-winning physicist Steven Chu as his energy secretary, placing the expert in renewable energy on the frontlines of climate change policy and ending the nation's 'addiction' to foreign oil.

'This will be a leading priority of my presidency and a defining test of our time. We can't afford complacency nor accept more broken promises,' the president-elect told a news conference on Monday.

'We won't create a new energy economy overnight. We won't protect our environment overnight. But we can begin that work right now if we think anew and if we act anew,' he said. Joining Chu will be Lisa Jackson, chief of staff to the New Jersey governor, as head of the Environmental Protection Agency (EPA).

Obama also appointed Carol Browner, who served as EPA administrator under President Bill Clinton, to the new job of White House 'climate czar' overseeing the battle against global warming.

And Nancy Sutley, a senior adviser to Obama's transition team, was named chairwoman of the White House Council on Environmental Quality.

Despite an economic recession hitting the United States, Obama is promising to unwind the environmental policies of President George W Bush, whose refusal to ratify the Kyoto pact on climate change disgusted green campaigners.

Chu, a scientist and Washington outsider, won his Nobel in 1997. Since 2004 he has been running the Lawrence Berkeley National Laboratory in California, which has a budget of \$US645 million (\$A966.29 million) dollars and a staff of 4,000.

As energy secretary, Chu will lead Obama's ambitious agenda to generate 2.5 million new jobs through 'green' and new technologies aimed at making America more energy efficient and less reliant on foreign oil.

'We've seen Washington launch policy after policy, yet our dependence on foreign oil has only grown, even as the world's resources are disappearing,' Obama said.

'This time must be different,' he said, promising to harness wind and solar power, new crops and new technologies, as part of an 'all-hands-on-deck effort' to remake the fossil fuels-based US economy.

Jackson, who trained as a chemical engineer, vowed to restore teeth to the EPA, which during the Bush administration saw its funding slashed, scientific findings censored, and enforcement efforts downplayed.

In one notorious example, the EPA backed off a finding that said climate change was a risk to public welfare. The findings would have led to the nation's first mandatory global-warming regulations.

Despite the costs to industry as the US recession bites, Obama has promised to set caps on domestic emissions of greenhouse gases and reposition the United States in the vanguard of international action.

'Some say we have to concentrate exclusively on re-establishing the health of the economy,' said Chu, who if confirmed by the Senate will be only the second Chinese-American to serve in the US cabinet.

'I look forward to being part of the president-elect's team, which believes that we must repair the economy and put us on a path forward towards sustainable energy,' the acclaimed scientist said.

At UN climate talks in Poland last week, many delegates were delighted at the passing of the

Bush administration as the international community attempts to craft a successor to the Kyoto pact.

But Obama's room to manoeuvre may be curtailed by both the US recession and the limited time left before the deadline of December 2009 for completing a new UN climate treaty.

'Just as we work to reduce our own emissions, we must forge international solutions to ensure that every nation is doing its part,' Obama said Monday.

'As we do so, America will lead not just at the negotiating table. We will lead, as we always have, through innovation and discovery, through hard work and the pursuit of a common purpose.'

From The Times December 10, 2008

Ed Miliband seeks more power for State in UK energy industry

Robin Pagnamenta, Energy and Environment Editor

http://business.timesonline.co.uk/tol/business/industry_sectors/utilities/article5315428.ece

Ed Miliband, the Energy and Climate Change Secretary, appeared to be on a collision course with Britain's big power companies last night as he called for sweeping reforms to the industry, including greater state control and a retreat from the free market orthodoxy of the past two decades.

In one of his first big speeches since his appointment as head of a new Department of Energy and Climate Change, Mr Miliband signalled a departure in UK energy policy by suggesting that a more muscular approach would be needed from government to tackle the challenges of fighting climate change, curbing fuel poverty and securing long-term energy supplies.

'Sustainability, security and affordability are all challenges which the market alone cannot be guaranteed to solve,' he told an audience at Imperial College in London, before flying to Poland today to join negotiators from 190 countries at a UN Climate Change conference in Poznan.

He said that the Government needed to take a more interventionist approach in the setting of higher carbon prices to 'overcome market failures' that were inhibiting the adoption of renewable energy technologies.

He also indicated that the Government was shifting away from the liberalised approach to the energy industry of the 1980s towards a hybrid model that would combine dynamic markets with strategic government.

'These markets will work to the best effect in the public interest if there is a strategic role for government alongside the market.' He added that he would unveil a road map next summer identifying how Britain can cut carbon emissions by 80 per cent by 2050.

His remarks reflect growing concerns within government that Britain's energy industry is failing to deliver, either for consumers or for the Government's increasingly ambitious environmental and fuel poverty agendas.

Accusations of profiteering by the Big Six power companies and of failing to pass on steep falls in wholesale prices have been accompanied by criticism that Ofgem, the regulator, has been too feeble in its policing of the industry.

The Government has also come under fire for making little headway either in cutting UK carbon emissions, boosting investment in the power sector or meeting its targets to abolish fuel poverty.

Nevertheless, the speech is unlikely to help to mend the fragile relationship between Mr Miliband, who was appointed to the post in October, and Britain's big power supply companies.

The Times

December 10, 2008

Q-Cells cuts profit forecast as drive for renewable energy loses power

Robin Pagnamenta, Energy and Environment Editor

http://business.timesonline.co.uk/tol/business/industry_sectors/engineering/article5315744.ece

Q-Cells, the world's largest manufacturer of solar cells, cut its 2008 earnings forecasts yesterday, giving warning that a global recession was sapping demand for renewable energy. Anton Milner, the chief executive of the German group, said that it had been hit by a 'flood' of cancellations and delays in customer orders in recent weeks as developers of solar power projects worldwide struggle to raise finance. Tumbling oil prices have also undermined the economic rationale behind renewable energy schemes.

The company, which is planning a production shutdown over Christmas to clear stocks, said that it was cutting its sales forecast for 2008 by nearly 10 per cent to E1.225 billion (£1.072

billion) and its profit forecast by 14 per cent to E185 million.

The announcement has compounded the sense of crisis in the renewable energy industry, which had been seen as one of the few bright spots in manufacturing. Another manufacturer, Evergreen Solar, of the United States, said yesterday that it was delaying a planned \$800 million (£540 million) factory in Asia that would manufacture enough solar cells to power a city of 500,000 people.

The announcements came as representatives from 190 countries at a United Nations climate change conference in Poznan, Poland, continued to place clean energy technology, such as solar and wind power, at the top of the agenda as they sought to hammer out a successor agreement to the Kyoto protocol. Achim Steiner, the executive director of the UN Environment Programme, called this week for solar power to play a key role in cutting carbon emissions. In recent weeks there have been signs that the market is facing a sharp slowdown as demand evaporates. Analysts expect a glut of solar panels and cells to hit the market next year as manufacturers struggle to shift equipment.

New Energy Finance believes that lower costs could have a positive impact on the industry in the longer term by making solar power equipment more affordable in comparison with conventional fossil-fuel based sources of electricity.

Australia pledges to cut emissions by up to 15%

Damian Carrington and agencies

guardian.co.uk, Monday 15 December 2008 10.53 GMT

<http://www.guardian.co.uk/environment/2008/dec/15/climate-change-australia>

Australia today pledged to cut its greenhouse gas emissions by 5 by 2020 via the world's broadest cap and trade scheme.

Business analysts believed that industry overall would be relieved at the trimming of some of the costs to polluters but environmental campaigners condemned the deal.

The Prime Minister, Kevin Rudd, said the interim plan would not affect his commitment to slash the carbon emissions that are blamed for global warming by 60% from 2000 levels by 2050.

'Australia is today the biggest carbon polluter in the developed world on a per capita basis,' Rudd said. 'Yet we are the developed country with the most to lose from climate change.' He added: 'Without action on climate change, Australia faces a future of parched farms, bleached reefs and empty reservoirs.'

Australia's plan is only exceeded in scale by the European Union's emissions trading scheme.

On Friday, European leaders committed the bloc to a 20% cut in greenhouse gases, relative to 1990 levels, by 2020. This would rise to 30% if the UN negotiations culminating in Copenhagen in December 2009 deliver a global emissions deal. The upper 15% cut in the Australian deal has the same trigger.

Both these targets fall short of the cuts of 25 by 2020 demanded by the scientists contributing to the UN's Intergovernmental Panel on Climate Change, in order to avoid a high risk of catastrophic climate change.

The Australian cut is relative to 2000 emissions levels, a tougher reference year than Europe's 1990. Rudd argued that his new plan exceeded the cuts in the EU plan in terms of the emissions reduced per capita.

The Australian government was caught in the same dilemma that faced Europe's leaders on Friday: the need to start cutting greenhouse gases very soon to prevent long term climate catastrophe versus the need to support industry and business in the short term during a deep and global economic downturn.

The government said the scheme would only trim about 0.1% off annual growth in gross national product from 2010 to 2050, with a one-off increase in inflation of around 1.1%.

'You could say that the decision came down to a choice between the environment and the economy and at this stage it looks like the economy has won,' said Gary Cox, head of environmental derivatives at global brokers Newedge.

Green groups agreed. 'The weak targets announced today will damage Australia's international reputation and hold back progress toward an effective international agreement [in Copenhagen],' Australian Conservation Foundation executive director Don Henry said.

Frank Jotzo, an Australian National University economist who specialises in climate change policy, concurred. 'It's disappointing because it makes it very difficult, if not impossible, for Australia to come to the party of an ambitious international agreement,' Jotzo said.

Australia's largest business group, the Australian Chamber of Commerce, said it remained apprehensive about being burdened with pollution reduction targets during the current

economic slowdown.

But Rudd said the global economy could not excuse failing to act on global warming.

Sorry to ruin the fun, but an ice age cometh

<http://www.theaustralian.news.com.au/story/0,25197,23583376-7583,00.html>

Phil Chapman | April 23, 2008

Article from: **The Australian**

The scariest photo I have seen on the internet is www.spaceweather.com, where you will find a real-time image of the sun from the Solar and Heliospheric Observatory, located in deep space at the equilibrium point between solar and terrestrial gravity.

What is scary about the picture is that there is only one tiny sunspot.

Disconcerting as it may be to true believers in global warming, the average temperature on Earth has remained steady or slowly declined during the past decade, despite the continued increase in the atmospheric concentration of carbon dioxide, and now the global temperature is falling precipitously.

All four agencies that track Earth's temperature (the Hadley Climate Research Unit in Britain, the NASA Goddard Institute for Space Studies in New York, the Christy group at the University of Alabama, and Remote Sensing Systems Inc in California) report that it cooled by about 0.7C in 2007. This is the fastest temperature change in the instrumental record and it puts us back where we were in 1930. If the temperature does not soon recover, we will have to conclude that global warming is over.

There is also plenty of anecdotal evidence that 2007 was exceptionally cold. It snowed in Baghdad for the first time in centuries, the winter in China was simply terrible and the extent of Antarctic sea ice in the austral winter was the greatest on record since James Cook discovered the place in 1770.

It is generally not possible to draw conclusions about climatic trends from events in a single year, so I would normally dismiss this cold snap as transient, pending what happens in the next few years.

This is where SOHO comes in. The sunspot number follows a cycle of somewhat variable length, averaging 11 years. The most recent minimum was in March last year. The new cycle, No.24, was supposed to start soon after that, with a gradual build-up in sunspot numbers. It didn't happen. The first sunspot appeared in January this year and lasted only two days. A tiny spot appeared last Monday but vanished within 24 hours. Another little spot appeared this Monday. Pray that there will be many more, and soon.

The reason this matters is that there is a close correlation between variations in the sunspot cycle and Earth's climate. The previous time a cycle was delayed like this was in the Dalton Minimum, an especially cold period that lasted several decades from 1790.

Northern winters became ferocious: in particular, the rout of Napoleon's Grand Army during the retreat from Moscow in 1812 was at least partly due to the lack of sunspots.

That the rapid temperature decline in 2007 coincided with the failure of cycle No.24 to begin on schedule is not proof of a causal connection but it is cause for concern.

It is time to put aside the global warming dogma, at least to begin contingency planning about what to do if we are moving into another little ice age, similar to the one that lasted from 1100 to 1850.

There is no doubt that the next little ice age would be much worse than the previous one and much more harmful than anything warming may do. There are many more people now and we have become dependent on a few temperate agricultural areas, especially in the US and Canada. Global warming would increase agricultural output, but global cooling will decrease it.

Millions will starve if we do nothing to prepare for it (such as planning changes in agriculture to compensate), and millions more will die from cold-related diseases.

There is also another possibility, remote but much more serious. The Greenland and Antarctic ice cores and other evidence show that for the past several million years, severe glaciation has almost always afflicted our planet.

The bleak truth is that, under normal conditions, most of North America and Europe are buried under about 1.5km of ice. This bitterly frigid climate is interrupted occasionally by brief warm interglacials, typically lasting less than 10,000 years.

The interglacial we have enjoyed throughout recorded human history, called the Holocene, began 11,000 years ago, so the ice is overdue. We also know that glaciation can occur quickly: the required decline in global temperature is about 12C and it can happen in 20 years.

The next descent into an ice age is inevitable but may not happen for another 1000 years. On the other hand, it must be noted that the cooling in 2007 was even faster than in typical glacial transitions. If it continued for 20 years, the temperature would be 14C cooler in 2027.

By then, most of the advanced nations would have ceased to exist, vanishing under the ice, and the rest of the world would be faced with a catastrophe beyond imagining.

Australia may escape total annihilation but would surely be overrun by millions of refugees.

Once the glaciation starts, it will last 1000 centuries, an incomprehensible stretch of time.

If the ice age is coming, there is a small chance that we could prevent or at least delay the transition, if we are prepared to take action soon enough and on a large enough scale.

For example: We could gather all the bulldozers in the world and use them to dirty the snow in Canada and Siberia in the hope of reducing the reflectance so as to absorb more warmth from the sun.

We also may be able to release enormous floods of methane (a potent greenhouse gas) from the hydrates under the Arctic permafrost and on the continental shelves, perhaps using nuclear weapons to destabilise the deposits.

We cannot really know, but my guess is that the odds are at least 50-50 that we will see significant cooling rather than warming in coming decades.

The probability that we are witnessing the onset of a real ice age is much less, perhaps one in 500, but not totally negligible.

All those urging action to curb global warming need to take off the blinkers and give some thought to what we should do if we are facing global cooling instead.

It will be difficult for people to face the truth when their reputations, careers, government grants or hopes for social change depend on global warming, but the fate of civilisation may be at stake.

In the famous words of Oliver Cromwell, 'I beseech you, in the bowels of Christ, think it possible you may be mistaken.'

Phil Chapman is a geophysicist and astronautical engineer who lives in San Francisco. He was the first Australian to become a NASA astronaut.

Blessed change in the climate

Janet Albrechtsen | December 17, 2008

Article from:

The Australian

<http://www.theaustralian.news.com.au/story/0,25197,24811095-7583,00.html>

Every now and then you have to be grateful when you discover our political leaders have told a deliberate, calculated lie. Monday was such a day. Kevin Rudd's announcement of a carbon emissions reduction target of 5 per cent by 2020 demonstrated that his pre-election claim that climate change was the great moral issue of our time, and demanding that Australia lead the way, was what Winston Churchill would call a terminological inexactitude: a whopper, a piece of bare-faced duplicity of epic proportions. But thank goodness Rudd and his colleagues deceived us.

And deceive us they did. At the election last year, Rudd said Australian wanted real action on climate change. And Rudd acted, in a real symbolic kind of way. He ratified the Kyoto Protocol. More symbolism when he promised to cut emissions by 60 per cent on 2000 levels by 2050, 41 years away.

While most of the media has failed to take Rudd to task, the truth is that if the Rudd Government genuinely believed climate change to be the greatest moral threat facing humanity, and if it fully accepted the findings of the UN panel that laid down a minimum target cut of 25 per cent to 40 per cent below 1990 levels by 2020 to prevent catastrophic climate change, then we now would have bigger cuts. A true believer in those claims could do no less.

To a true believer, policy responses to a temporary global financial crisis could not compete with the sort of policies required to stem permanent, irrevocable damage caused by climate change.

But, thank God, Rudd and his ministers are not in fact true believers. Rudd's higher carbon reduction target of 15 per cent is predicated on other key economies committing to target reductions comparable to Australia. In other words, Australia follows, rather than leads.

Rudd's caution on targets is unquestionably driven by, dare one use the word, scepticism about the world's ability to reach consensus on tackling climate change. In other words, Rudd sounds more and more like John Howard every day.

The alternative - that Australia lead the climate change parade rather than sitting comfortably

in middle of the pack - is the kind of moral narcissism only the Greens and like-minded eco-fundamentalists can afford.

Bob Brown, who has the luxury of a public platform without the attendant responsibility, will always take the most extreme position, as he did on the weekend. He claimed that a target of 5 per cent to 15 per cent reductions by 2020 was 'effectively running up the white flag on climate change'.

Without any of the embarrassment deception would cause a real political leader, Brown implied that setting a low target for Australia limiting global greenhouse gas concentrations in the atmosphere to 550 parts per million would lead to the loss of the Great Barrier Reef, and the devastation of Kakadu and our alpine snowfields.

Similarly, only the politically naive Clive Hamilton could defend mainstream environmental organisations for pushing a moderate position, without flinching with equal embarrassment. What Brown and his overzealous supporters don't tell us is that whatever target Australia chooses is irrelevant to global greenhouse gas concentrations. Australia's emissions are such a tiny percentage of total global greenhouse gas emissions that we could adopt a target 10, 20 or 100 times more stringent than what Brown advocates but have zero effect on saving the reef, Kakadu or the snowfields if China, India, the US and other big emitters don't join in.

Rudd and Climate Change Minister Penny Wong have no such luxury. They lead a Government and know that putting Australia at the leading edge of climate change targets will put Australia at the bleeding edge of policy mistakes, where real people lose their jobs.

Brown's pseudo-religious rhetoric may appeal to some ALP voters but Rudd knows it would be the kiss of death to the Australian economy without securing any corresponding benefit to global carbon levels. Indeed, adopting 25 per cent to 40 per cent targets if big emitters such as China don't do the same could do great damage to the Australian economy and the world's greenhouse gas levels.

If Australia adopts draconian targets but China does not, Australia's emission-intensive industries will become uncompetitive with Chinese competitors, shifting production from less dirty Australian industry to dirtier Chinese competitors. It is a double whammy, at a stroke wiping out Australian jobs and damaging the environment.

Rudd and Wong have done the right thing in adopting the minimum targets they could get away with. They did the right thing by not taking ambitious targets to Poznan last week despite the hysterical claims by Greenpeace International that Australia, and the other usual suspects, were not doing enough to set up a framework for a new climate change deal. Governments, weighed down by the responsibility of governing, know and have always known that the rhetoric of climate change as the great moral issue of our time was bunkum. Climate change is an economic issue and a policy challenge that demands the kind of careful, pragmatic balancing act that the Rudd Government embraces as its touchstone. Rudd, of course, has form when it comes to discovering that what was a great moral issue on the campaign stump has become, in office, a policy issue requiring nuance and responsible pragmatism.

In Opposition, Rudd described the day the GST came into effect as 'fundamental injustice' day. In office, the Prime Minister has discovered it is a fundamental injustice delivering streams of money he cannot do without.

Similarly, campaigning Rudd slyly hinted that he had policies that would lower food and fuel prices. In office, he produced the demonstrably toothless FuelWatch and GroceryChoice. These deceptions pale into insignificance beside the spectacularly dishonest claims about moral leadership on climate change. Yet, paradoxically, all the pieces of cynical manipulation have one thing in common. They are good policy and we should be grateful to have been deceived.

The dishonesty underlying the position of Brown and activists such as Hamilton is of an altogether more sinister kind. They want Australia to adopt targets they know will decimate Australian industry without producing any noticeable benefit for total global greenhouse concentrations. Underlying their policies is an undisclosed secret agenda. Brown and many of his followers don't like industry, think Australians are too materialistic and should be forced back to a simpler but poorer life: a compulsory downshift, if you will, imposed by stealth. The choice between Brown and Rudd may be completely unappealing. However, offered the choice between two political shysters, go for the pragmatic one. The worst combination by far is deception married with moral delusion.

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Households pay as big polluters cash in on climate change

The Age

<http://www.theage.com.au/news/opinion/households-pay-as-big-polluters-cash-in-on-climate-change/2008/12/16/1229189620805.html>

Richard Denniss

December 17, 2008

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Other related coverage

Robyn Eckersley Real leaders would set real targets

If you accept the scientific evidence that there will be dangerous climate change in our lifetime unless we drastically reduce greenhouse gas emissions, you will have good reason to introduce an emissions trading scheme. And it would beggar belief that you would then ignore the scientific recommendations about how much action to take.

The Federal Government's pursuit of a 5 per cent emissions reduction target is like a patient with a deadly infection agreeing that they need to take antibiotics 'but insisting they take only one-fifth of the recommended dose.

The scientific evidence is clear' unless the developed world agrees to reduce emissions by at least 25 per cent by 2020, the possibility of avoiding dangerous climate change is about as likely as a return by John Howard to the Liberal leadership. That said, it is hard to believe that the result would have been much different even if it had been the former prime minister making yesterday's speech.

The industry assistance package proposed by Kevin Rudd is one of the most generous in Australian history; it should be known as the carbon polluters' rescue scheme.

The combination of very weak targets and very large compensation to polluters raises the question of whether it has all been worth the effort.

Details of the scheme have finally been released after more than 12 months of suspense, but what a disappointment it is.

The dirtiest brown coal-fired plants will receive the biggest slice of the \$4 billion of help to coal-fired power stations, and 90 per cent of the permits required by 'emission-intensive' activities, such as aluminium smelting, will be provided free. Also, the agriculture industry, which is responsible for about 16 per cent of Australia's emissions, will be excluded from the scheme until at least 2015.

The arguments for all this assistance to polluters are as weak as Rudd's targets. We are told that our 'trade-exposed' businesses will leave the country if we don't give them billions of dollars worth of permits, yet when the Australian dollar sailed up to 95 US cents early this year, there was no sign of them packing their bags. It seems that if the cost of energy rises, they are quite vulnerable, but if the dollar rises they are somehow immune.

The other argument is that they didn't see this coming and that it is unfair to the coal-fired power stations whose assets are worth less in a carbon-constrained world. Apparently all those highly paid executives haven't read the papers for the past decade and did not notice that Australia committed to reducing greenhouse gas emissions at the Rio Earth Summit back in 1992.

It's all about politics, say UN climate leaders

The Age

Tom Arup

December 17, 2008

<http://www.theage.com.au/environment/its-all-about-politics-say-un-climate-leaders-20081216-6zus.html>

Australia's carbon emission reduction targets for 2020 are based in politics, not science, two of Australia's leading climatologists have said.

Professor Andy Pitman, a co-author of the UN's Intergovernmental Panel on Climate Change (IPCC) fourth assessment report, told *The Age* he had seen no credible science that showed a cut of less than 25 per cent by 2020 would stabilise the global atmospheric level at a safe level.

The Federal Government has set Australia's reduction targets at 5 per cent on 2000 levels by 2020 without a global deal, and 15 per cent if a global agreement can be reached.

Mr Pitman said the work of the IPCC shows that cuts of 25 to 45 per cent from 1990 levels were needed to put the world on a trajectory towards 450 parts per million stabilisation, which means a 2050 reduction target of 80 to 95 per cent.

Professor Dave Griggs, who spent five years as head of the Science Working Group

Secretariat of IPCC, said even a 450ppm stabilisation point carried a 75 per cent risk of going over a two-degree temperature increase, and a 35 per cent chance of rising over three.

Professor Pitman did concede the Australian 2020 targets meant nothing in the grand scheme of things if a global agreement was not reached as Australia emitted only about 1.3 per cent of the world's total carbon. But he said Australia's 'weak' 2020 targets meant Australia had lost its ability to 'show leadership' to the rest of the world. 'The Australian economy is entirely based on digging crap out of the ground and selling it,' he said.

'It is a really good idea to have a plan B and the best way to have that is to develop industries around low-emissions technologies and the only way to do that is to put a real big incentive in the marketplace.'

'We declined that opportunity in the white paper and that's very worrying.'

Yesterday, Climate Change Minister Penny Wong said she doubted that a strong global agreement could be reached during climate negotiations in Copenhagen next year.

Prime Minister Kevin Rudd said he made no apologies for the 2020 targets, saying they were responsible in the economic climate.

No Light at the End of the Test Tube

The New York Times

Sunday Book Review

By ANN FINKBEINER

Published: December 12, 2008

http://www.nytimes.com/2008/12/14/books/review/Finkbeiner-t.html?_r=1

Science has a cure for wishful thinking. It goes like this: You have an elegant idea, you do the experiment, it seems to work. Colleagues and competitors repeat or refine your experiment, and now it doesn't work. You really want it to work so you do it again, differently, and then so do they, and it still doesn't work. After enough of this, and sometimes years of it, you admit it doesn't work and everybody quits.

Illustration by Johnny Sweetwater

SUN IN A BOTTLE

The Strange History of Fusion and the Science of Wishful Thinking

By Charles Seife

Illustrated. 294 pp. Viking. \$25.95

Related

Charles Seife's Web Site

But sometimes wishful thinking is incurable: the poster child is nuclear fusion, the subject of Charles Seife's substantive and lively new book, 'Sun in a Bottle.' Fusion - the process by which hydrogen bombs explode and stars shine - could potentially mine cheap, limitless energy from atomic nuclei, but after decades of experiments and numberless careers, it still doesn't work and still nobody quits. 'There's something about fusion that is a little different,' Seife writes, 'that makes generation after generation of scientists deceive themselves.'

Fusion occurs only in charged gases at extraordinary temperatures and pressures that happen in bombs only for fractional seconds and that only stars can maintain. Every time scientists try to confine a charged gas, and heat and compress it until its nuclei fuse, the gas squirts out of its confinement, cools off and generally declines to light our light bulbs.

Still, as Seife shows, fusion's grand promise has led to some dubious experiments. In 1989, Martin Fleischmann and Stanley Pons claimed to have achieved fusion at low temperatures (so-called cold fusion), effectively bottling a star on a table top. But no one else could repeat their results, and when the researchers wouldn't back off their claims, they were effectively excommunicated. In 2002, another team of scientists claimed that sound waves in liquid could create hot little bubbles that imploded and caused fusion. But this effort - recounted vividly by Seife, who originally covered it for Science magazine, which published the controversial paper - couldn't be repeated either and likewise ended in disgrace.

These experiments make good stories, but they occurred on fusion science's margins, something Seife doesn't make clear enough. Most fusion experiments are reputable and repeatable: they're real science. They're done by large international collaborations building machines that have been in the process of improvement since 1951 and have grown to more than 50 feet across, or by well-financed national teams using lasers powerful enough to be classified. But the state of the art is still what it has always been: fusion can't be sustained, and the energy released is less than the energy required to produce it in the first place. The decades-old mantra - 'fusion is only 20 (or 30, or 50) years away' - remains wishful thinking at its best.

Seife writes with effortless clarity, taking readers through the complex physics and engineering. That means the reader can not only understand but, even better, evaluate Seife's message: fusion scientists should just cut bait. By analogy to your closet, if you haven't worn it, throw it out. If you've been trying it for the last half-century and it hasn't worked, then enough already.

Ann Finkbeiner is the author of 'The Jaxons: The Secret History of Science's Postwar Elite.' She teaches in the science writing program at Johns Hopkins.

Guardian.co.uk

EU leaders claim historic agreement on cutting pollution

Big concessions to heavy industry seal agreement. Successful summit seen as triumph for Sarkozy

Ian Traynor and **Nicholas Watt** in Brussels

The Guardian, Saturday 13 December 2008

<http://www.guardian.co.uk/environment/2008/dec/13/carbon-emissions-eu>

European leaders last night announced they were leading the world towards a low-carbon future after sealing an ambitious climate change pact by making generous concessions to the big polluters in European heavy industry.

A two-day summit of 27 government leaders in Brussels ended a two-year effort to agree mandatory reductions in greenhouse gas emissions in Europe and came as a triumph for President Nicolas Sarkozy of France in the closing days of his six-month presidency of the EU.

Not noted for his understatement, the French leader declared: 'This council will go down in the history of Europe.'

The French navigated a route through conflicting claims from Poland, Hungary, Germany and Italy to finalise a deal that keeps the EU's main carbon dioxide reduction targets intact, while easing the costs of the package for European manufacturers and heavy industry.

The climate accord orders Europe to cut greenhouse gas emissions by 20% by 2020 compared with 1990 levels.

This is to be achieved through national reduction targets which vary among the 27 countries, and through a Europe-wide carbon trading scheme in which industries and power plants buy permits to pollute from 2013.

The rules for the emissions trading scheme, however, were relaxed under German pressure to exempt most companies in the processing industries, such as steel and cement, from paying for the permits, and power stations in central Europe, mostly coal-fired, were awarded large discounts on the price of carbon.

'To address the specific concerns of some countries, we had to accept some changes,' said Jose Manuel Barroso, President of the European Commission, whose draft legislation on the package was much stiffer than that agreed yesterday.

The decisions, to be turned into law by the European parliament next week, also cut CO2 emissions from cars by 19% by 2015, set binding national targets for renewable energy to total 20% of the European energy mix by 2020, encourage the use of 'sustainable' biofuels, and order 20% greater energy efficiency by 2020.

'This is a major advance,' said the prime minister, Gordon Brown. 'Europe after these decisions remains the leader on climate change.'

But critics complained that the package was too little too late, that EU leaders had capitulated to fierce lobbying from European industry, that the loopholes in the system and the awarding of pollution permits free to most non-energy firms in the scheme would trigger a bonanza in windfall corporate profits.

'Industry has to do next to nothing,' said Claude Turmes, a leading Green MEP from Luxembourg, who helped to draft part of the legislation. 'If they are honest, these leaders know they haven't agreed something really ambitious.'

'This could have been one of Europe's finest moments,' said Robin Webster, climate campaigner for Friends of the Earth. 'But huge loopholes allow big energy-users to carry on polluting.'

Barroso admitted that the terms of the deal could bring windfall profits for industry, reversing the logic of the polluter pays principle that is supposed to underpin the carbon trading scheme.

But he and others stressed that these concessions did not affect the overall targets. The accord was the first such agreement in the world and put Europe in a strong position to strike a broader pact with the incoming Obama administration in the US ahead of the effort to reach

a worldwide global warming agreement in Copenhagen a year from now, Barroso said. 'This is a message especially to our US partners,' said Barroso. 'Obama is still far from what we are proposing ... the idea that this has been watered down is nonsense.'

Ed Miliband, the energy and climate change secretary, said: 'Combined with the spirit of engagement from President-elect Obama, there is now everything to play for as we put the pieces in place for a global climate deal in Copenhagen next December.'

The package also includes provision for 12 pilot projects on carbon capture and storage, using novel technology to collect CO₂ emitted from power stations and bury it underground where it cannot warm the world.

The projects are to be funded from the proceeds of the carbon trading, which is supposed to generate tens of billions in revenue by 2020. Under British prodding, the summit agreed to double the funding available for these projects.

'This is a transformational funding stream for a transformational technology,' said David Miliband, the foreign secretary. 'Nowhere else in the world has got that.'

Poznan talks

UN climate talks in Poland were edging towards a conclusion last night, as ministers from 192 countries put the finishing touches to measures to fight global warming. The talks, in Poznan, were expected to make progress on helping poor countries pay to cope with the effects of climate change, as well as launch formal negotiations on a treaty to succeed the Kyoto protocol.

The energy and climate change secretary, Ed Miliband, said: 'I'm more optimistic now than when I arrived here that a deal is possible by the end of next year. It's not a done deal but I think it's do-able.'

The Poznan talks have made no progress on deciding new global curbs on greenhouse gas pollution, which scientists say are needed to avoid catastrophic climate change.

Officials said new targets would not be discussed until the summer, to give Barack Obama time to signal his intentions as US president.

David Adam

November 2008

Carbon permits face pressure on price from global crisis, The Australian, 14 November 2008

Lenore Taylor

The global financial crisis could force up the price of the developing-country carbon permits that the Rudd Government is hoping will provide a cheap source of greenhouse gas reductions for Australian companies under its new emissions trading scheme. Recently released Treasury modelling calculates that overseas-purchased carbon permits will deliver 20 per cent more of the greenhouse gas reductions demanded of Australian businesses by 2020, because they would be cheaper than many of the options to cut emissions in their domestic operations.

But key participants in the global carbon market have warned to Carbon Forum Asia conference in Singapore that the rapid drying-up of financing for the developing country emission reduction projects (CERS) that generate the credits could result in a shortage, just as the permits are sought by countries introducing emission trading schemes, such as Australia and New Zealand.

The Kyoto Protocol envisaged the establishment of an international market in carbon trading. Under the Kyoto model, developed country polluters can ameliorate their carbon reduction challenge by buying carbon reduction permits from accredited projects in developing countries. The developing countries would be awarded the credits for setting up carbon reduction projects.

Japan Bank for International Co-operation executive director Fumio Hoshi told the conference that the global credit squeeze in the short term risks a carbon credit shortfall in the medium term, given how long it takes to get developing country carbon credit projects approved under the processes set up through the Kyoto Protocol. "This could have a serious impact," Mr Hoshi said. "We are getting urgent requests for finance for projects, and projects already under construction are screeching to a halt because of a lack of finance."

<http://www.theaustralian.news.com.au/story/0,,24648844-11949,00.html>

Coal trial to lower carbon emissions, The Australian, 14 November 2008

Work begins today on a world-first low-emission coal project that could slash greenhouse gases from existing power stations. The Callide Oxyfuel demonstration plant in Biloela in Queensland will showcase technology capable of reducing emissions from typical coal-fired

power stations by 90 per cent. Low-emission generation relies on separating carbon dioxide from other gases produced when coal is burned. The Callide Oxyfuel Project will involve retrofitting an existing power station with technology that burns coal in oxygen and recirculated gases rather than in air, creating a concentrated stream of CO₂ that can then be captured and stored.

Resources and Energy Minister Martin Ferguson said governments and industries across the globe were keenly awaiting the results of the project. "Success at Callide will demonstrate that existing coal-fired power stations do not have to be dismantled to reduce greenhouse gas emissions," Mr Ferguson said.

Coal provides about 80 per cent of Australia's electricity and accounts for 32 per cent of its carbon dioxide emissions. Australia is the world's largest coal exporter and coal is the nation's largest export earner.

<http://www.theaustralian.news.com.au/story/0,25197,24648841-11949,00.html>

States revolt over Rudd's carbon plan, The Australian, 14 November 2008

Nicola Berkovic and Cath Hart

Premiers are in revolt over Kevin Rudd's plans for an emissions trading scheme, urging changes to the proposed formulas for compensating export industries to ensure they are not pushed offshore. The premiers of South Australia and Tasmania have written to the Prime Minister raising specific concerns about the design of the scheme, its impact on major industries and expressing fears that the ETS will spark major losses of jobs and revenue. Queensland, Victoria and the West Australian Liberal Government have raised concerns about the effects on emissions-intensive trade-exposed industries. The concerns come as one of the world's largest petroleum companies warned that a \$7 billion gas project could literally be floated out of Australian waters to avoid the impact of the Government's ETS.

<http://www.theaustralian.news.com.au/story/0,25197,24648977-11949,00.html>

Temperature set to rise by 6C, energy agency warns, The Times, 13 November 2008

Robin Pagnamenta

Long-term global temperatures are on course to rise by 6C (43F) unless radical changes are adopted in the way that the world produces energy, the International Energy Agency (IEA) said yesterday. In its 2008 World Energy Outlook, the IEA said that if present trends continued, greenhouse gas emissions from the burning of coal, oil and gas "would be driven up inexorably", putting the world on track for a doubling in atmospheric carbon dioxide levels by the end of the century.

The IEA said that the biggest contributor to global emissions over the next two decades was likely to be the use of coal - the world's second-most important fuel after oil, accounting for 26 per cent of energy demand. It said that coal production was set to rise by 60 per cent between 2006 and 2030, with 90 per cent of the increase coming from developing countries. Chinese coal output alone is expected to double. Global demand for the fuel has been growing at nearly 5 per cent per year since 2000, compared with total energy demand growth of about half this level, or 2.6 per cent.

The IEA said that to stabilise greenhouse gas concentrations at 450 parts per million of carbon dioxide equivalent - which would limit the temperature increase to a more manageable 2C - a sharp drop in all emissions would be necessary from 2020 onwards.

http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article5141873.ece

Labor divided over emissions trading, The Age, 13 November 2008

Tasmanian premier David Bartlett says his federal Labor colleagues have "got it wrong" on emissions trading, after a large metals company warned the scheme would drive its smelters out of business. Nyrstar, which produces zinc and lead, says its smelters in Tasmania and South Australia would not be viable under emissions trading. The company employs 1,500 people in Hobart and a similar number at its Port Pirie plant in South Australia. Nyrstar says emissions trading would cost it \$70 million in carbon taxes.

The federal government aims to start emissions trading, which will push up electricity prices, in 2010. It has released a plan to compensate some industries.

But other industry sectors that are not in line for compensation want changes to the plan. Nyrstar's comments prompted a reaction from the Tasmanian and South Australian governments. Mr Bartlett said he would fight to keep the Hobart smelter open. "I think at the moment, in the Green Paper, (Climate Change Minister) Penny Wong and (Prime Minister) Kevin Rudd have got it wrong," Mr Bartlett told the Tasmanian parliament. "They have it wrong because they are penalising companies such as Nyrstar." Mr Bartlett said the

government should not target companies which used renewable hydro energy. South Australian premier Mike Rann said he had asked the federal government for a compromise. "We've made submissions to the federal government to see if we can get some special exemptions for Nyrstat and I'm sure that will be sorted out," Mr Rann told ABC. <http://news.theage.com.au/national/labor-divided-over-emissions-trading-20081113-666h.html>

The green pseudo-revolution, The Guardian, 13 November 2008

Björn Lomborg

Whatever the enviro-lobbyists say, subsidising inefficient green industries is not the way to tackle climate change. With a worldwide recession advancing, strong action on global warming has been thrown into jeopardy. This matters, because in little more than a year, the world will sit down in Copenhagen to negotiate the follow-on treaty to the failed Kyoto Protocol. Yet, with people losing jobs and income, immediate economic help seems to matter more than temperature differentials 100 years from now.

Many green pundits have, however, started saying that the financial crisis only makes the need for action on climate change greater. They urge America's president-elect Barack Obama to pursue a "green revolution" with big investments in renewable energy, arguing that this could create millions of new "green collar" jobs and open huge new markets. Such sentiments, no surprise, are strongly voiced by business leaders who live off such subsidies. But are such pleas smart investments for society?

The problem with the green revolution argument is that it doesn't trouble itself about efficiency. It is most often lauded for supplying new jobs. But billions of dollars in tax subsidies would create plenty of new jobs in almost any sector: the point is that many less capital-intensive sectors would create many more jobs for a given investment of taxpayers' money.

Similarly, green initiatives will open new markets only if other nations subsidise inefficient technologies bought abroad. Thus, the real game becomes which nations get to suck up other nations' tax-financed subsidies. Apart from the resulting global inefficiency, this also creates a whole new raft of industry players that will keep pushing inefficient legislation, simply because it fills their coffers.

A good illustration is Denmark, which early on provided huge subsidies for wind power, building thousands of inefficient turbines around the country from the 1980s onwards. Today, it is often remarked that Denmark is providing every third terrestrial wind turbine in the world, creating billions in income and jobs. A few years ago, however, the Danish Economic Council conducted a full evaluation of the wind turbine industry, taking into account not only its beneficial effects on jobs and production, but also the subsidies that it receives. The net effect for Denmark was found to be a small cost, not benefit. Not surprisingly, the leading Danish wind producer is today urging strong action on climate change that would imply even more sales of wind turbines. The company sponsors the "Planet in Peril" show on CNN, which helps galvanize public pressure for action.

The crucial point is that many green technologies are not cost-effective, at least not yet. If they were, we wouldn't need to subsidise them.

<http://www.guardian.co.uk/commentisfree/2008/nov/13/economics>

Garnaut wisdom behind the detail - report makes it clear this is a global effort, The Australian, 5 July 2008

Since Ross Garnaut was commissioned by Kevin Rudd to formulate a global warming response for Labor in the leadup to the November federal election, things have moved on. Mr Rudd is now Prime Minister. It is no longer a simple issue of whether a global warming problem exists or if Australia should sign the Kyoto Protocol. The science may be not settled but the case for global action has been made. It was not fixed by Labor making good its pledge to sign the Kyoto document among much fanfare in Bali. Meanwhile, Mr Rudd has recast Professor Garnaut from climate change guru, Australia's Nicholas Stern, to just another voice.

Nonetheless, stripped to its core, the Garnaut Interim Report provides a welcome reality check on exactly where Australia sits in a global problem best described as a diabolical policy dilemma. The value of Professor Garnaut's report is its outline of the broad principles around which Australia's climate change response should be framed. Professor Garnaut has acknowledged the science of climate change is neither precise nor fully understood but argues this is a challenge to seek greater understanding rather than an excuse to delay formulating a response. As a wealthy country, Australia has the luxury of responding with a broad-based market-orientated system. Professor Garnaut says any exclusions should be

driven by practical necessity, not short-term politics. He also makes it clear that technological innovation, rather than a retreat to a pre-modern existence as some deep-green campaigners would insist, is the only credible way forward. In short, the solution lies in removing the links between economic activity and greenhouse gas emissions and there is a great prize, both financially and for humanity, in cracking that nut.

Most importantly, Professor Garnaut recognises that Australia's domestic greenhouse policy must be deeply integrated with what the rest of the world is doing. Professor Garnaut says there are clear risks for Australia's market economy if it gets too far ahead of the pack. He says any period in which an Australian mitigation effort is in place prior to an effective global agreement as "short, transitional and contributing to the achievement of a sound global agreement".

The Weekend Australian has no argument with any of these foundation principles on which Professor Garnaut has based his report. If there are grounds for criticism, it is that by advocating a starting date for an emissions trading system of 2010, with a high initial price of more than \$40 a tonne, Professor Garnaut risks contradicting his own advice that Australia should not get too far ahead of the international effort. In addition, he is probably asking too much of the political process to assume that the introduction of an emissions scheme, regardless of its format, can escape the perils of political self-interest. This includes the way in which money raised from imposts on carbon emissions will be redistributed to limit the political pain. Wayne Swan has already hinted that the revenue windfall will be redistributed to sectional interests than can be vaguely grouped as Labor's cherished "working families", carers and the elderly who feel they were overlooked in the last federal budget. This leaves people earning more than \$100,000 a year to pick up the real cost of Australia's climate change response. The Weekend Australian has already expressed concern that climate change policy not become an excuse for greater government interference and a return to left-wing social-engineering.

<http://www.theaustralian.news.com.au/story/0,,23971260-16741,00.html>

Scientists make space radiation breakthrough, The West, 4 November 2008

Scientists believe they have found a way of protecting astronauts from a dangerous source of space radiation, thus lifting a major doubt clouding the dream to send humans to Mars. The breakthrough takes forward ideas born in the golden age of science fiction, including a proton shield used in the TV show Star Trek, says one of the researchers. Space weather is one of the greatest challenges facing Mission Red Planet sketched by the United States and Europe for some three decades from now. Even the shortest trip would take at least 18 months. During this time, the crew would be exposed to sub-atomic particles that whizz through space, capable of slicing through DNA like a hot knife through butter and boosting the rate of cancer and other disorders.

The peril has been known for nearly half a century but has seemed insoluble because of costs and technological difficulty. Some experts have toyed with the idea of shielding the crew with lead or massive tanks of water, but the price of lifting this load into orbit from Earth is mind-spinning. Another idea, born in the 1960s, would be to swathe the spaceship with a replica of Earth's own magnetic field. Our weak two-pole field deflects incoming cosmic rays, protecting life on Earth as well as astronauts in low Earth orbit. According to these calculations, the spacecraft would have to generate a magnetic field hundreds of kilometres across. But such equipment would be huge and drain the ship's energy supply and its powerful field could well harm the crew.

British and Portuguese scientists have taken a fresh look at this old concept and say the magnetic field does not, in fact, have to be huge - just a "bubble" a few hundred metres across would suffice. "The idea is really like in 'Star Trek', when Scottie turns on a shield to protect the starship Enterprise from proton beams - it's almost identical really," Bob Bingham of the Rutherford Appleton Laboratory near Oxford told AFP. Their study, published today in a specialist journal by Britain's Institute of Physics, draws on numerical simulation that is also used by experts in nuclear fusion, in which a hot plasma is kept in place by a powerful magnetic field.

<http://www.thewest.com.au/default.aspx?MenuId=2&ContentId=106125>

October 2008

Future still dim for nuclear power, The Australian, 29 October 2008

Australia should be prepared to accept nuclear waste from overseas countries if we intend to sell uranium, but nuclear power is unlikely to attract significant private investment in the near

future.

Experts yesterday debated the future of nuclear power as part of a round-table discussion on potential solutions to climate change at the Australia Unlimited conference in Melbourne. Selena Ng, nuclear business development manager with Areva Australia, said 40 nuclear power plants were being built in 14 countries and global nuclear capacity could quadruple by 2050. While the bulk of the growth would be in China and India, there would be new nuclear projects in Vietnam, Thailand and Indonesia. "To meet the projected demand for nuclear power, the world will need well over 200,000 tonnes of uranium per year by 2050," Ms Ng said. "The majority will have to be by mining. Australia possesses more uranium than any other country ... but currently produces less than one-fifth of the uranium needed. It certainly has the potential to at least triple its production over the coming decades." Australia would be well placed to benefit economically from the growth in demand in nuclear power, Ms Ng said. "In some sense, it has an obligation to do so to enable the emerging countries, in particular, to meet their clean energy needs." She said Australia has vast areas that were technically suitable for a nuclear waste facility. "The use of nuclear power worldwide to generate electricity will continue to grow with or without us," she said. "Shutting our eyes won't make it go away."

The Rudd Government opposes the use of nuclear power in Australia.

<http://www.theaustralian.news.com.au/story/0,,24568376-11949,00.html>

Over-reaching for the stars, The Guardian, 22 October 2008

Randeep Ramesh

India's space programme is impressive but precocious. It has, after all, plenty of sub-lunar problems to solve. India's lunar rocket blast off this morning from the balmy island shores in the Bay of Bengal is about a country asking for the moon - and getting it. To brush off those who wonder why India - the country with the world's greatest number of poor people - is spending \$86 million on repeating what the Americans, the Russians, the Chinese and the Japanese have already done, Indian space officials have talked of the holy grail of nuclear energy: fusion.

You see, the moon has 5 million tonnes of Helium 3 - which is the ideal fuel for nuclear fusion power. Fusion's the next new, new nuclear thing. Indian officials will tell anyone who asks that fusion creates four times as much energy as boring old nuclear fission. Although nuclear fusion can be best described as experimental, the technologists say it does not produce environmental problems like radioactive nuclear waste. The message is it is clean and green. To create the right amount of anxiety at home, the space officials will point out that Indians must act before the Chinese do. The Chinese have already worked out that three space shuttle missions a year could bring enough Helium 3 for the whole planet. These are not outright lies - just calculations not grounded in reality.

Nuclear fusion is the stuff that stars are made of. Basically, it's the energy released when two light atomic nuclei are smashed together to make a heavier one. All you need to do is heat gas up to the temperature of the centre of the sun and then design a material that can contain this superheated plasma and collect loads of neutrons. Although the science was worked out in the 1940s, fusion has led to the thermonuclear explosion and little else but a series of hugely expensive white elephants. The latest of which is the International Thermonuclear Experimental Reactor (ITER) - a \$12 billion project backed by the US, the European Union, Japan, Russia, China, India and South Korea.

<http://www.guardian.co.uk/commentisfree/2008/oct/22/india-spaceexploration>

Climate change action is urgent: Garnaut, The Age, 16 October 2008

Federal government advisor Ross Garnaut is adamant Australia and other nations must press ahead with climate change initiatives regardless of the turmoil on world markets.

Professor Garnaut said the global financial crisis was a short-term problem that must not stymie efforts to solve the long-term issue of global warming.

But, he warned, it would take strong leadership across the globe for the issue to be dealt with under existing timelines. "I think the world's got a big challenge (in climate change) and we won't overcome it unless enough governments take a long-term view," he said. "The climate change problem will still be here tomorrow but our chances of dealing with it may not."

"It is bad policy to allow the approach to important long-term structural issues to be determined by short-term cyclical considerations.

"Certainly there are risks in the (financial) situation but there are also opportunities for leadership, and how we end up in Poland, in Australia, in the United States, it's going to depend on the quality of political leadership," he said.

"I think that we've got thoughtful leaders (in Australia) who are taking this issue seriously on both sides of politics at the moment."

Prof Garnaut said the proposals in his Climate Change Review, launched last month, continued to be manageable.

<http://news.theage.com.au/national/climate-change-action-is-urgent-garnaut-20081016-51w7.html>

European Nations Seek to Revise Agreement on Emissions Cuts, The New York Times, 16 October 2008

Stephen Castle

Brussels - Fears of a sharp worldwide economic slowdown are threatening a hard-won European plan on climate change that European leaders hoped would set an example for the rest of the world.

At a rancorous summit meeting this week of the European Union's heads of state, several Eastern European countries and Italy said they might no longer be able to afford to slash greenhouse gas emissions as envisioned under a broad plan agreed upon last year and would need some concessions from other countries in the bloc. That agreement called for the union to reduce such emissions, linked by climate scientists to global warming, by 20 percent from 1990 levels by the year 2020.

The plan - hailed by the former French President Jacques Chirac as "a great moment in European history" - goes beyond the Kyoto Protocol, which requires industrial nations bound by the treaty to reduce the emission of global-warming gases by an average of 5 percent below 1990 levels by 2012.

After the outline was agreed to last year, the countries began working on detailed proposals for how they would reach the goal for emissions cuts, which essentially meant figuring out how much of an economic burden each nation would bear. France, which holds the rotating presidency of the union, had hoped to win approval for a more detailed agreement in December.

While some countries had already begun worrying about how much they were being asked to contribute to hit the emissions reduction goal, the economic downturn increased their concerns.

At this week's two-day meeting, which ended Thursday, the countries that were questioning the plan won the right for any of the 27 members of the bloc to veto it. They also refused to set December as a goal for completing negotiations, though they said they would try. Prime Minister Silvio Berlusconi of Italy, who led the assault on the package, said: "We don't think this is the moment to push forward on our own like Don Quixote. We have time." Mr Berlusconi and others worried, in part, that taking action now would put European countries at a disadvantage at a time when nations worldwide were scrambling to secure their economies. They fear that strict pollution rules in Europe will drive more companies to parts of Asia and elsewhere where environmental standards are lower.

Beyond that, individual European Union members were concerned about whether they were being asked to shoulder too much of the burden compared with other members. Some Eastern European members, including Poland and Bulgaria, argued that Western Europe's more advanced economies ought to do more to achieve the Union's goals, thereby lessening the burden on poorer countries. Poland, for instance, which is hosting the next round of global climate treaty talks in December, is worried that it will suffer because it is heavily reliant on coal. The proposals under discussion might force it to shut some power plants, driving up the cost of energy production. Leaders of countries that want concessions say that nations like Denmark have a built-in advantage because they already depend more heavily on renewable energy.

Officials who generally support the proposals worked out since last year say that a failure to reach a deal in December would be particularly damaging because it would undermine Europe's ability to negotiate with a new administration in the United States. They expect it to be more open to efforts to tackle global warming whether led by Senator John McCain or Senator Barack Obama.

Moreover, a failure in December would have had the task of clinching an agreement to the Czech Republic, which takes over the European Union presidency in January and whose governing coalition is divided over climate change.

http://www.nytimes.com/2008/10/17/world/europe/17union.html?_r=1&ref=science&oref=slogin

Govt stands firm on emissions trading, The Age, 14 October 2008

The Rudd government has rejected pressure to delay or water down an emissions trading scheme planned for 2010 despite the world economic crisis.

The opposition and some business figures want the scheme put on hold while the world grapples with financial turmoil, but Prime Minister Mr Kevin Rudd is unmoved. He said climate change had to be tackled and emissions trading was important.

"Our ambition remains 2010. Climate change is not going to go away," he said.

"The long-term economic cost to the entire economy, and to the entire global economy, of not acting on climate change remains formidable," he said. Business wanted consistency and predictability around emissions trading and they would get it, he vowed. The important thing was to get the scheme's design and rules right, and to map it out early.

Federal Climate Change Minister Penny Wong, in Poland for greenhouse talks, said the financial crisis did not lessen the need to tackle climate change. But she said the economic crisis would be taken into account in designing Australia's emissions trading scheme.

Business heavyweight Don Voelte, chief executive of LNG company Woodside, said emissions trading should be put on hold as the world economy withered. "Heck, I think it's off the table right now," the staunch critic of emissions trading said. "You can't put something like that in at this time until we get this whole fiscal chaos that is going on in the world straightened out."

The federal opposition reiterated its position that emissions trading should not start until 2011 or 2012 but Australian Greens leader Bob Brown want emissions trading to start next year.

<http://news.theage.com.au/national/govt-stands-firm-on-emissions-trading-20081014-502s.html>

Head in the stars, feet on ground: Australia's new chief scientist has concentrated on issues out of this world, but that's about to change, The Sydney Morning Herald, 11 October 2008

Strong on research and communication ... Penny Sackett feels scientists must be free to speak out on controversial debates. Penny Sackett was not unfamiliar with Australian bushfires, but nothing other than first-hand exposure will fully acquaint anyone. So it was for the American-born astronomer visiting Canberra in the summer of 2002.

The sky over the national capital was heavy with smoke the day she was interviewed, successfully, to run the famous Mount Stromlo Observatory, but Sackett never imagined it was a portent of what was to come a year later: a true baptism of fire. The bushfires that swept through several Canberra suburbs on Saturday, January 18, 2003, killing four people and razing more than 500 homes, also roared up Mount Stromlo, destroying the observatory buildings and all five of its historic telescopes.

An expert in the hunt for extra-solar planets and the mysterious dark matter of the universe, Sackett was just months into her new position as director of the research school of astronomy and astrophysics at the Australian National University, and watched in horror with her husband the TV coverage of the inferno.

It was a traumatic beginning, says the SNU vice-chancellor, Ian Chubb. "She was a youngish scientist from Nebraska via Holland who had come to head up a school with an international reputation for superlative research, and her infrastructure got destroyed. Her job changed radically, beyond anything anyone would have ever anticipated." But Chubb was impressed by the exemplary way the new director reassured her traumatised staff and students, and set to work rebuilding the observatory from the ashes. "It was like a roller-coaster," says Sackett. "But a lot of it is just instinctive. You need to take care of people first. And after assuring their physical safety, think about their emotional safety." Two days after the fire her message to her team was encouraging: "Stromlo has retained its best and most important assets completely intact: our people, our spirit and our identity."

More than five years later, Sackett, 52, finds it reassuring that some of the new astronomy students have no memory of the disaster. "That's refreshing," she says. "It makes me feel what a large distance we have come."

Many in the science sector hope Sackett, who next month becomes Australia's full-time chief scientist, will use her talents to revitalise science in Australia and restore its influence on government policy, after more than a decade in which funding has fallen, the views of some scientists silenced and ignored, and projects with short-term commercial gain have won out over fundamental research.

<http://www.smh.com.au/news/specials/science/head-in-stars-feet-on-ground/2008/10/10/1223145635862.html>

Nuclear slated as fallback option, The Australian, 1 October 2008

Siobhain Ryan

Nuclear energy could meet more than a quarter of Australia's electricity needs by 2050 if efforts to move towards "clean coal" falter. Professor Garnaut, who has dealt sparingly with the nuclear option in the past, dusted it off for his final climate change report yesterday, and included modelling that showed the technology could account for 27 per cent of Australia's power needs in just over 40 years' time.

His report held to its earlier conviction that Australia was "not the logical first home of new nuclear capability", citing gas, renewable energy, or low-emission fossil fuel as better economic prospects. But "there would be reason for the Australian Government to engage with community disquiet on the issue, and to seek a change of policy" if low-emission technologies such as carbon capture and storage failed, the cost of nuclear power fell, and radioactive waste storage options improved, Professor Garnaut said. The community disquiet over nuclear energy in Australia, however, is shared by the Rudd Government. It allows uranium exports but staunchly opposes nuclear power generation and successfully used the Coalition's readiness to explore the energy option against it in last year's federal election campaign. The Rudd Government has chosen instead to heavily invest in research into ways to capture and store deep underground carbon dioxide from coal-fired power stations. It is this technology and energy source that would most likely be supplemented by nuclear power if adopted, the Garnaut report shows.

Opposition Leader Malcolm Turnbull said he had "no philosophical objection" to nuclear power. But, like Labor, he ranked it well below clean coal as a means of reducing carbon pollution.

<http://www.theaustralian.news.com.au/story/0,,24428530-11949,00.html>

September 2008

Nuclear and coal plants 'vital' to UK energy future, The Times, 23 September 2008

Robin Pagnamenta, Energy and Environment Editor

John Hutton, the Business Secretary, vowed yesterday to take on critics of new coal and nuclear power stations, arguing that their construction was vital to securing Britain's long-term energy needs.

Addressing the Labour Party Conference in Manchester, he said that an international battle for energy security was emerging as one of the most significant threats to both Britain's competitiveness and its sovereignty. He said that the country's growing reliance on imported gas from some of the world's most unstable regions was unacceptable and he called for a renaissance of nuclear power.

Mr Hutton, speaking before the expected announcement of a £12.4 billion takeover of British Energy by EDF tomorrow, said that he was

"determined to press all the buttons to get nuclear built in this country at the earliest opportunity ... and because energy security is a first thought, not an after-thought, I will not turn my back on another critical source of energy security for the UK - coal."

He lambasted opponents of both fuels, including environmental campaigners and other political parties, which he said were "posturing" over energy policy. "Tories say 'no' to new coal and send mixed messages on nuclear; Lib Dems say 'no' to new coal and nuclear. No coal plus no nuclear equals no lights. No power. No future."

http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article4805507.ece

Power bill \$40bn on emissions, The Age, 22 September 2008

Tackling climate change will ultimately leave Australia's electricity industry more than \$40 billion worse off if emissions trading is introduced without other greenhouse policies, an analysis shows.

<http://www.theage.com.au/news/business/power-bill-40b-on-emissions/2008/09/21/1221935451246.html>

Ross Garnaut's climate report muddle, The Australian, 12 September 2008

There's one blinding flash of clarity and honesty in Ross Garnaut's latest draft report on climate change which fatally undermines the entire report itself. Even more, it undercuts the very own tactical game Garnaut proposes Australia play to achieve the fundamental strategic objective of an international agreement to reduce emissions. And I quote from page 21 of his Target and Trajectories supplementary draft report: "The optimal level of Australian mitigation effort - the level that maximised the incomes and wealth of Australians - is easily calculated. It would be zero." That is to say, simply and bluntly, anything we do to reduce our carbon

emissions is going to cost. And cost however you measure the mix of costs and (any) benefits.

<http://www.theaustralian.news.com.au/story/0,,24337067-14743,00.html>

Study finds way to keep steel solid, The Guardian, 9 September 2008

Marcus Pearce

Scientists studying how metals are degraded in nuclear fusion reactors say their work could lead to new kinds of steel that are more solid at the high temperatures that led to the collapse of the World Trade Centre. They have discovered that microscopic magnetic properties of iron are responsible for the fact that it softens and loses strength at 500C, only about a third of its melting point.

<http://www.guardian.co.uk/science/2008/sep/09/soft.iron>

ITER Australia: Strategic roadmap identifies fusion power development, 5 September 2008

ITER and fusion identified in "Sustainable Energy Capability of the Strategic Roadmap for Australian Research Infrastructure"

Yesterday (4 September 2008), Senator the Hon Kim Carr, Minister for Innovation, Industry, Science and Research, released the Strategic Roadmap for Australian Research Infrastructure. The 2008 Roadmap, which has been developed as a result of the review initiated by the NCRIS Committee of the 2006 NCRIS Strategic Roadmap, sets out Australia's research infrastructure needs over the next five to ten years. The Roadmap will form an important input to the Government's White Paper response to the Review of the National Innovation System.

Under the sustainable energy capability, the strategic roadmap identifies fusion power development as within Australia's sustainable energy future. This pleasing outcome is consistent with the submissions the Australian ITER Forum have made to NCRIS, the government, the Innovation Review, and the Australian Research Council. The following extracts from page 65 to 66 are particularly interesting:

"As part of the mix, a truly long-term solution for large-scale, non-polluting energy supply may eventually come from nuclear fusion."

"Though potentially an energy solution of global proportions, fusion is still in experimental phase and requires concerted international collaboration, investment and co-operation to bring to commercial reality. The technology has recently entered the pre-prototype power plant stage through the \$16 billion International Thermonuclear Experimental Reactor (ITER) being constructed in France and funded by a consortium of seven countries and groups including Japan, Russia, China, India, South Korea, the European Union, and the US. If successful, a virtually limitless supply of clean, safe energy would be created from deuterium which is naturally abundant in water."

"Despite its grand scale and long timeframe, it is possible to include fusion power development in Australia's sustainable energy future. Support for research related to fusion power development is likely to require consideration of investments in local capabilities, including experimental facilities and skills development, and participation in international activities such as ITER."

<http://minister.industry.gov.au/Carr/Pages/NEWROADMAPSETSOUTRESEARCHINFRASTRUCTURENEEDS.aspx>

<http://www.innovation.gov.au/ScienceAndResearch/Documents/Strategic%20Roadmap%20Aug%202008.pdf>

August 2008

Liberal Party policy 'mixed up on nuclear energy', The Australian, 20 August 2008

Liberal Party policy on nuclear energy is "a dog's breakfast", Environment Minister Peter Garrett claimed yesterday, after a senior Opposition frontbencher called for Australia to include nuclear in its future energy mix.

"If we are serious about reducing global greenhouse emissions, the nuclear option is one we cannot ignore," former resources minister Ian Macfarlane said in a speech last night.

<http://www.theaustralian.news.com.au/story/0,,24210132-11949,00.html>

Australia "should sell" Uranium to India, The Age, 17 August 2008

"Selling uranium to India would help reduce international greenhouse gas emissions, opposition foreign affairs spokesman Andrew Robb says."

<http://news.theage.com.au/national/australia-should-sell-uranium-to-india-20080817-3wvl.html>

Nuclear energy a possibility for WA, The Age, 13 August 2008

'Western Australia's peak business lobby group wants to play a key role in shaping the state's

energy security policy and says nuclear energy should play a part."

http://news.theage.com.au/business/nuclear-energy-a-possibility-for_wa-20080813-3ulr.html

Energy curbs offer \$710m in savings, The Age, 12 August 2008

"A moderate carbon price is unlikely to compel business to implement energy efficiency measures to reduce greenhouse gas emissions and save on power bills, according to an Allen Consulting Group report.

The report found that a mandatory national energy efficiency program would produce a net economic benefit of \$710 million over the next 10 years.

<http://business.theage.com.au/business/energy-curbs-offer-710m-in-savings-20080811-3tni.html>

Nicol Peacock, Obituary, The Guardian, 7 August 2008

Pioneer in the nuclear fusion technology intended to produced endless green energy.

"In 1969, during the cold war, Nicol Peacock, who has died of cancer aged 77, led a team of five British scientists to the Kurchatov Nuclear Fusion Institute in Moscow to probe a controversial Soviet claim. Intricate dealings and manoeuvres had preceded this mission. Soviet assertions about the high performance of their nuclear fusion experiments, which used the "tokamak" concept, had been presented at an international conference in Novosibirsk in 1968 - and had been treated with scepticism by western scientists. Control of this process is of utmost importance, as it promises endless amounts of energy without the release of greenhouse gases."

Jes Christiansen

<http://www.guardian.co.uk/world/2008/aug/07/nuclear.energy>

July 2008

Researchers run world's largest-scale fusion energy simulation on Cray supercomputer, Press Release, Cray Inc., 29 July 2008

SEATTLE, WA - (MARKET WIRE) - Global supercomputer leader Cray Inc. today announced that researchers from the University of California-Irvine (UCI) have conducted the largest-ever fusion energy simulation on a Cray XT4 supercomputer. Codenamed "Jaguar" and housed at Oak Ridge National Laboratory (ORNL), researchers hressed the power of the highly scalable Cray system to simulate electron transport for a prototype fusion reactor developed to study the scientific and technological feasibility of fusion energy.

"Fusion holds the promise of a revolutionary new energy source for the world, and this important simulation has brought us one step closer to making it a reality," said Yong Xiao, the UCI researcher who led the unprecedented simulation of electron turbulent transport in fusion experiments. "Advances in high performance computing are key to advancing the science associated with identifying and developing alternative energy sources. The Cray XT4 system provided the scale, reliability and sustained performance required to handle the tremendous amount of data produced by complex fusion simulations."

Researchers speculate that fusion, the power source of the stars and sun, could provide a cleaner, more abundant energy source with far fewer harmful emissions than fossil-fuel burning power plants and fewer problems associated with waste than current nuclear power reactors.

http://markets.nytimes.com/research/stocks/news/press_release.asp?docKey=600-200807290725MRKTWIREUSPR____0419751-2I22PNVHRO3APLR5FQMT51CQ26&provider=Marketwire&docDate=July%2029%2C%202008&press_symbol=US%3BCRAY&scp=9&sq=Fusion%20Energy&st=cse

June 2008

Rudd rejects Labor nuclear push, The Australian, 27 June 2008

The Rudd government has flatly rejected calls from an influential unionist and the former Labor premier Bob Carr to embrace a nuclear power industry as it grapples with how to cut carbon emissions. Kevin Rudd told ABC radio this morning the nuclear option was not needed. And in a short media conference, Treasurer Wayne Swan, when asked about the renewed nuclear push answered: "No, a capital N-O." The issue was reignited after The Australian reported this morning that Australian Workers Union boss Paul Howes and Mr Carr had called on the Government to purge its prejudices and embrace a nuclear power industry.

<http://www.theaustralian.news.com.au/story.0,,23931252-11949,00.html>

Hypocrisy blinds Labor nuclear view, The Australian, 27 June 2008

"Nuclear energy has been stalking the Australian Labor Party for a generation. Only the

nation's vast reserves of coal and gas have kept the menace at bay, protecting the party from having to confront the darkest of all ideological divides. That protection has been wiped away by climate change.

Nuclear energy has never been in the game in Australia because it is significantly more expensive than coal- or gas-fired power. But emissions trading and a potentially high price on greenhouse emissions will change all that."

<http://www.theaustralian.news.com.au/story/0,,23929543-17803,00.html>

Resource boom: inflation threat, The Australian, 24 June 2008

"Since the industrial revolution 200 years ago, mankind has depended on fossilfuel. the notion that this might change is hard to contemplate." The Economist recalls the flurry of alternative energy stories when the price of oil spiked 35 years ago. The promise of fusion power and hydrogen cars came to nothing, and in any case the oil crisis subsided and the urgency went out of the search for alternative sources of energy. However, The Economist believes, the 35 years have not been lost. "This time, it's serious. More energy is needed all round. That gives alternatives a real opening." And the alternatives to fossil fuels have developed to the point that they provide serious competition.

<http://www.theaustralian.news.com.au/story/0,,23913557-30538,00.html>

ITER gains momentum, 18 June 2008

2nd ITER Council meeting - press release

http://www.iter.org/PR_18.06.08_EN.pdf

May 2008

Focus on Fusion, The Australian, 14 May 2008

"Forget concerns about budget-induced inflationary pressures. Australia should have much bigger things to worry about: chiefly trying to sustain our standard of living, and that of the world, in the era of anthropogenic climate change." Matthew Hole

<http://www.theaustralian.news.com.au/story/0,25197,23691902-27703,00.html>

Work on nuclear fusion heats up, The Australian, 6 May 2008

"A nuclear fusion laboratory designed to re-create the temperatures and pressures of an exploding star could be built in England under plans being drawn up by British scientists."

Jonathan Leake

<http://www.theaustralian.news.com.au/story/0,25197,23649600-30417,00.html>

Scientists to "recreate sun" in hunt for energy, The Sunday Times, 4 May 2008

Jonathan Leake, Science Editor

A nuclear fusion laboratory designed to recreate the temperatures and pressures inside the sun could be built in Oxfordshire under plans being drawn up by British scientists. The aim is to build the world's most powerful lasers and use them to blast tiny pellets of hydrogen fuel to create energy. The process could, say the researchers, be a partial solution to the world's energy crisis, offering a source of safe, carbon-free power with a minimum of radio-active waste. "The aim is to destroy matter by turning it into pure energy," said Dr John Collier, head of the high power laser programme (HiPER) at Rutherford Appleton Laboratory, which was launched last week. "This is the same process that powers the stars. Our task is to find how to control it to offer humanity a new source of energy."

HiPER would place Britain at the forefront of research on nuclear fusion, now enjoying a global revival after decades of neglect. The Rutherford laboratory, in Harwell, Oxfordshire, is seen as the most likely site.

In France construction work has begun on a separate experiment, the £8 billion ITER fusion project that uses magnetic fields, not lasers, to create the conditions for fusion. The first "burn" at ITER is expected around 2022.

It also coincides with the start-up of America's National Ignition Facility (NIF) at the Lawrence Livermore laboratory in California, which is shortly expected to achieve a limited form of controllable nuclear fusion. Success there would prove that laser fusion has real potential for power generation.

The NIF will use 192 laser beams, each more powerful than any currently in operation, to trigger nuclear fusion in a tiny pellet of frozen hydrogen.

<http://www.timesonline.co.uk/tol/news/uk/science/article3868099.ece>

Nuclear 2.0, Cosmos - The Science of Everything, Issue 19, 2008

"Fusion could one day generate limitless cheap energy from little more than water, while emitting no greenhouse gases. Robin McKie assesses the future of fusion and its tempting

promise as the ultimate power panacea for a warming world"
<http://www.cosmosmagazine.com/issues/2008/19/>

February 2008

Nuclear fusion becomes economic reality, Zdnet, 8 February 2008

"Nuclear Fusion mimics the reactions that occur in the sun to create safe, clean nuclear energy. Sound like hot air? Not according to a leading US venture capitalist who believes it will become economically viable within several years."

<http://www.zdnet.com.au/news/hardware/soa/Nuclear-fusion-becomes-economic-reality-0,130061702,339285739,00.htm>

Fusion 2.0, Cosmos Issue 19 February 2008

by Robin McKie

Fusion could one day generate limitless cheap energy from little more than water, while emitting no greenhouse gases. We look at its promise as the ultimate power panacea for a warming world.

It is a clear winter day in Cadarache, in southern France. The dry mistral wind from Africa has blown away the morning's lingering clouds and the afternoon sun has brought a glow to the gold and red leaves of the valley's trees. In the nearby pine forest, wild boar, mouflon sheep and deer are grazing. When it comes to rustic tranquility, this is hard to beat.

But dramatic changes are heading for this tranquil corner of Provence. Fleets of cranes, dump trucks, earth-moving equipment and concrete mixers are about to turn it into a massive construction site. This rural backwater is to become home to one of the world's most important scientific projects: ITER, the International Thermonuclear Experimental Reactor- a machine designed to recreate the energy that powers the stars.

<http://www.cosmosmagazine.com/features/print/1954/fusion-20>

Launch of European Master's course in Nuclear Fusion Science and Engineering Physics

Title of Masters Course

FUSION-EP - European Master in Nuclear Fusion Science and Engineering Physics

Duration: 2 years

Course description:

The aim of this multinational Master's programme is to provide a high-level research-oriented education in fusion-related engineering physics. This Course is closely connected to the research activities in the university partners, and provides a well-integrated language and cultural experience. The seven university partners Ghent University (Belgium), the Royal Institute of Technology (Sweden), Complutense University of Madrid (Spain), Technical University of Madrid (Spain), University Carlos III of Madrid (Spain), University Nancy I Henri Poincare (France), and the University of Stuttgart (Germany) offer great depth and experience in the field of fusion science and engineering physics. The universities provide a genuinely European opportunity for Master's level studies in a field which is of crucial importance to addressing the ever more urgent and vital problem of world energy supply.

In view of the expertise of the university partners, the programme offers three different pathways for its students: fusion-oriented Plasma Physics, Computational Methods in Physics, and Instrumentation and Radiation. The programme structure is combined with a mandatory stay at three participating universities in three different countries. Semesters one and two are spent at one university and the third semester at a second institution. Throughout these semesters, topics covered are plasma physics, computational methods in physics, instrumentation and radiation, classical electrodynamics, mechanics of continuous media, and various lab projects. The final semester is spent at a third university while students work on their Master's theses. After the second semester, a summer event is organised in which the mobility and specialisation tracks are organised and students proposed their Master's thesis topics.

Courses will be taught in the local language of the university. The joint or multiple degrees awarded by the consortium upon completion are recognised in all the participating countries. Admission criteria include a Bachelor's degree in engineering physics, applied physics, physics or an equivalent degree. Sufficient undergraduate knowledge of classical and modern physics is required, together with the necessary mathematical and computer programming skills. Applicants are subject to a well-defined selection procedure which identifies high quality students.

Website: <http://www.em-master-fusion.org>

Partners:

Ghent University, Belgium (Co-ordinating Institution)

Royal Institute of Technology, Sweden

Complutense University of Madrid, Spain

Technical University of Madrid, Spain

University Carlos III of Madrid, Spain

University Nancy I Henri Poincare, France

University of Stuttgart, Germany

January 2008

ITER Organization and Principality of Monaco sign Partnership Agreement, Monaco, 16 January 2008

Today, ITER Organization and the Principality of Monaco signed a Partnership Agreement that sets up five Postdoctoral Fellowships and the establishment of an annual International Conference on ITER related research. The Agreement was signed by his Excellency, the Minister of the Principality of Monaco, Monsieur Jean Paul Proust and the Directory General of the ITER Organization, Kaname Ikeda, in the presence of His Serene Highness Prince Albert II

This Partnership Agreement underlines the Principality of Monaco's historical interest in nature preservation and its commitment to create, together with the International Fusion community, a new energy source. "It is important to make the public and the principality's economic actors become aware of the ITER project and the stakes it holds for our planet's future", Monsieur Jean Paul Proust said.

The Partnership Agreement includes a contribution by the Principality of Monaco of 5.5 million Euro for a ten year period, of which 150.000 Euro are to be dedicated to the scientific conferences, and 400.000 Euro to Postdoctoral Fellowships each year. These Postdoctoral Fellowships shall enable five young scientists from the seven ITER member countries of from the Principality of Monaco to be trained over two years in research areas related to the ITER project.

The Partnership Agreement also foresees the organisation of an annual International Conference on scientific and technical subjects related to the ITER project that will take place in Monaco. In addition, the Principality of Monaco will host scientific meetings related to the ITER project or the ITER Council.

The arrangement enters into force immediately and will be concluded for a ten year period.

Pakistan launches National Tokamak Fusion Program

Forward from Professor Dr G. Murtaza

Salam Chair in Physics

Government College University, Lahore

54000 Lahore, Pakistan

Dear Colleagues,

Realizing the importance of Fusion and the worldwide effort in this regard, Pakistan has launched a National Tokamak Fusion Program to develop human resource and capability building. Under this program, we plan to install a small Tokamak (like HT-6M of Hefei, China) along with various accessories and diagnostics so as to acquire the basic scientific knowledge and technical know-how of the Fusion technology.

I would therefore, like to invite all colleagues working in Tokamak Fusion and who would be willing to come to Pakistan and help us establish our Fusion Program.

To implement such programs, the Government of Pakistan has initiated a Foreign Faculty Hiring Scheme in which the Faculty from abroad can be invited to our universities / institutions.

A brief note on the Scheme is given below. For details, you can access the website

www.hec.gov.pk

Under the said Scheme, nearly 100 Foreign Faculty Members are already serving various Universities / Research Institutions in Pakistan. Their list is available on the following link http://hec.gov.pk/new/HRD/Faculty_Hiring/Foreign%20Faculty%20Hiring%20Program/download/lis_cand.htm

For more information please e-mail to

Dr G. Murtaza

murtaza_qau@yahoo.com

Please pass this information on to your colleagues.

