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1 Climate Cassandras must be careful

<http://www.theaustralian.news.com.au/story/0,25197,26151633-21147,00.html>

George Will | October 02, 2009

Article from: The Australian

Plateau in temperatures adds difficulty to task of reaching a solution - The New York Times, September 23 IN this headline on a New York Times story about difficulties confronting people alarmed about global warming, note the word "plateau". It dismisses the unpleasant fact that global warming is maddeningly (to the same people) slow to vindicate their apocalyptic warnings about it.

The "difficulty" is "building momentum" for carbon reduction "when global temperatures have been relatively stable for a decade and may even drop in the next few years". That was in the Times's first paragraph.

In the fifth paragraph, a "few years" became "the next decade or so", according to Mojib Latif, a German "prize-winning climate and ocean scientist", who campaigns constantly to promote policies combating global warming. Actually, Latif has said he anticipates "maybe even two" decades in which temperatures cool. But stay with the Times's "decade or so". By asserting that the absence of significant warming since 1998 is a mere "plateau", not warming's apogee, it assures readers who are alarmed about climate change that the paper knows the future and that warming will continue: Do not despair, bad news will resume. The Times reported that "scientists" - all of them? - say the 11 years of temperature stability have "no bearing", none, on long-term warming. Some say "cool stretches are inevitable". Others say there may be growth of Arctic sea ice, but the growth will be "temporary". According to the Times, however, "scientists" say that "trying to communicate such scientific nuances to the public - and to policymakers - can be frustrating".

The Times says "a short-term trend gives ammunition to sceptics of climate change". Actually, what makes sceptics sceptical is the accumulating evidence that theories predicting catastrophe from man-made climate change are impervious to evidence. The theories are unfalsifiable in the "short run". The "short run" is defined as however many decades must pass until the evidence

fits the hypotheses.

The Washington Post reported the theory of a University of Virginia professor emeritus who thinks that many millennia ago primitive agriculture - burning forests, creating methane-emitting rice paddies, etc - produced enough greenhouse gases to warm the planet at least half a degree. The theory is interesting. More interesting is the reaction of people such as the Columbia University professor who says it makes him "really upset" because it might encourage opponents of laws combating global warming.

Warnings about cataclysmic warming increase in stridency as evidence of warming becomes more elusive. A recent report from the UN Environment Program predicts an enormous 3.4C increase by the end of the century even if nations fulfil their most ambitious pledges concerning reduction of carbon emissions. The US goal is an 80 per cent reduction by 2050. But Steven Hayward of American Enterprise Institute says that would require reducing greenhouse gas emissions to the 1910 level. On a per capita basis, it would mean emissions roughly equal to those in 1875. That will not happen. So, we are doomed. So, why try?

The US needs a national commission appointed to assess the evidence about climate change. Alarmists will fight this because the first casualty would be the media-reinforced myth of consensus - the bald assertion that no reputable scientist doubts the gravity of the crisis. The President, however, could support such a commission because he is sure "there's finally widespread recognition of the urgency of the challenge before us". At the UN climate change summit, Barack Obama said the threat was so "serious" and "urgent" that unless all nations acted "boldly, swiftly and together", we risked "irreversible catastrophe". Prince Charles agrees. In March, he said humanity had 100 months - until July 2017 - to prevent "catastrophic climate change and the unimaginable horrors that this would bring".

Charles Moore of The Spectator notes that, in July, the prince said that by 2050 the planet would be imperilled by the existence of nine billion people, a large portion of them consuming as much as Western people now do. Environmental Cassandras must be careful with their predictions lest they commit what deniers among the climate alarmists consider the unpardonable faux pas of denying that the world is coming to an end.

Washington Post Writers Group

2 Political cowardice on carbon

<http://www.theaustralian.news.com.au/story/0,25197,26188814-7583,00.html>

Peter van Onselen, Contributing editor | October 10, 2009

Article from: The Australian

THE debate over whether Australia should or shouldn't pass the government's Carbon Pollution Reduction Scheme ahead of the Copenhagen conference in December is a red herring when it comes to climate change.

Why? Because whether we do or don't will make little difference to Australia's capacity to reduce carbon pollution so long as both main parties aren't prepared to get serious and have a mature debate about nuclear power.

The Coalition has long been prepared to discuss the nuclear energy option, but only if it is done in a bipartisan way. It well knows the scare campaign on placement of nuclear reactors that Labor would run if it endorsed nuclear power without Labor's support. For its part the Labor government isn't even willing to debate the issue. Kevin Rudd has said it is off the agenda and that's that.

The internal woes of the Liberal Party leadership are a distraction from the pressing need to consider nuclear power if Australia wants to get serious about carbon pollution reduction. So are

debates about the exact make-up of the government's CPRS legislation. At the end of the day a floored or amended CPRS is not likely to be able to achieve substantial carbon reduction targets if nuclear energy is not included in the domestic energy mix.

The Australian energy sector as it stands is far too dependent on dirty coal. The concept of clean coal technology is exactly that, nothing more than a concept. It is not achievable at the moment and there are no indicators that it will be achievable any time soon (if ever). That, of course, hasn't stopped us pumping millions of dollars into trialling the technology. Research and development spending is crucial, to be sure, but not without tandem investment in proven technology such as nuclear power.

The most internationally proven way to address energy needs in an environmental and sustainable way is to go nuclear. Rudd likes to extol the virtues of the Group of 20 nations, but I can't recall hearing him comment on their overwhelming dependence on nuclear power as a means of carbon pollution reduction. Nineteen of the G20 nations already have nuclear power in their energy mix or are planning the construction of reactors; 15 and four nation-states respectively. Only Australia has shied away from the nuclear energy option and only for cowardly political reasons.

Rudd may have got a standing ovation for his symbolic decision to ratify the Kyoto Protocol when he attended the Bali climate summit soon after being elected Prime Minister.

But the more important gesture at that summit was the comments made by executive secretary of the UN Framework Convention on Climate Change (responsible for the Intergovernmental Panel on Climate Change), Yvo de Boer, when he said: "I have never seen a credible scenario for reducing emissions that did not include nuclear energy." You can't get more categorical than that. In other words, the executive secretary of the world's top body to address climate change thinks Rudd's efforts on the subject aren't credible.

De Boer is no dummy and he is certainly no newcomer to the climate change debate. He has been involved in climate change policy development since 1994, having helped to prepare the European Union for the Kyoto Protocol as well as serving as the head of the Climate Change Department in The Netherlands.

Rudd should have been horrified by de Boer's remarks given the Prime Minister has identified climate change as "the great economic, environmental and moral challenge of our time". De Boer must think Rudd isn't living up to his rhetoric on tackling the problem.

There have been a lot of suggestions by the opposition and some political commentators that Rudd is pressing for an emissions trading scheme before he attends the Copenhagen conference only because he wants to be able to puff up his chest and parade his greatness to fellow participants when he gets there. That may well be true, but even if the ETS is active in time for the conference, Rudd's chest puffing will be embarrassingly hollow. De Boer will know Australia isn't positioned to be able to meet effective targets without nuclear power and the Australian public should as well.

Rudd's ETS requires carbon reduction targets of only 5 per cent by 2020 with "aspirational" targets of 25 per cent. The latter become fixed only if the international community comes to a consensus on universal targets, and that is not going to happen. Even if it did, Australia's existing energy mix means we wouldn't be able to reach them anyway. A 5 per cent target is hardly tough policy to match the over-the-top rhetoric Rudd has used on climate change.

The 60 per cent reduction target by 2050 is absolutely not achievable without a nationwide nuclear energy program. Even if we got to work immediately on building the technology and the reactors for such a program, it is highly unlikely a 60 per cent reduction target by the middle of the century could be achieved. Politically that won't be Rudd's problem. Even with his popularity ratings we can safely assume he won't be around by then.

Experts well know that scientific and technological developments in renewable energy generation, along the lines spruiked by the Greens, are a long way from providing the sort of base-load power needed in Australia. That's the benefit of being in a minor party; you can claim the moral high ground with your 10 per cent of the vote by offering up policies that aren't necessarily achievable while safely ensconced on the cross benches. And morally righteous arguments against nuclear power in Australia are unsustainable given Australia exports uranium for overseas nuclear power generation.

The funny thing about the predicament of Malcolm Turnbull at the moment is that where Rudd sees the ETS as a nice issue to wedge the conservatives on, Turnbull is a believer in the need for a scheme to combat climate change.

Turnbull was the one who managed to convince John Howard to make an ETS Coalition policy ahead of the 2007 election. Convincing someone who doggedly wouldn't ratify Kyoto (even for reasons of political expediency) of the merits of adopting an ETS as party policy (even if only for political expediency) was a sure sign Turnbull has persuasive skills when he chooses to use them. It is a shame he didn't put those skills to good effect by convincing his back bench. He would have avoided a lot of headaches this week.

The final point that needs to be made about Rudd's CPRS legislation is the absolute irony of him supporting a market mechanism for addressing climate change. The CPRS will put a national cap on emissions and assign individual permits. Businesses and organisations can buy those permits, and indeed need to, if they want to emit carbon pollution.

That means there will be a cost to pollute, meaning the market will provide a mechanism to reduce pollution because polluting will be expensive and businesses want to maximise profits. So Rudd, the great critic of the so-called neo-liberal agenda and the market system that he blames for the global financial crisis, is a supporter of a cap-and-trade system that uses the market.

Whether climate change is real or not (I have no idea), only time will tell. Given that most respected climatologists tell us it is occurring and humans are contributing to it, it is a good idea to look at ways of curbing carbon pollution just in case. Nuclear power has to be part of the plan.

3 Australians warm to nuclear power

<http://www.theage.com.au/environment/australians-warm-to-nuclear-power-20091012-gu1f.html>

IAN MUNRO AND GEOFF STRONG

October 13, 2009 The Age

AUSTRALIANS are warming to the idea of nuclear power, with almost one in two saying it should be considered as an alternative source of energy to help combat global warming.

An *Age*/Nielson poll found 49 per cent of Australians believed nuclear should be on the nation's list of potential power options, while 43 per cent were opposed outright.

The finding marks a big shift of public opinion from 2006, when a Newspoll showed just 38 per cent in favour of nuclear power and 51 per cent opposed.

The survey came as political haggling in Canberra over emissions trading drew a sharp rebuke from former government climate adviser Ross Garnaut.

"This whole process of policymaking ... has been one of the worst examples of policymaking we've seen on major issues in Australia," he said.

Despite the poll findings showing more support for nuclear power, the Rudd Government yesterday restated its total opposition to it as an option to help Australia meet its future carbon

reduction targets.

During the 2007 election campaign, after prime minister John Howard put nuclear power on the agenda, then opposition leader Kevin Rudd said: "If you elect a Labor government, there will be no nuclear reactors in Australia, full stop."

Supporters of nuclear power say it is the only practical low-emissions alternative to coal for generating baseload electricity - the minimum required by industry and residential users.

Arguments against focus on safety - the risk of accidents and the fact that radioactive waste must be stored securely for thousands of years. Opponents also say it would take too long to develop a nuclear power industry.

Ziggy Switkowski, who chairs the Australian Nuclear Science and Technology Organisation, said: "[We must] provide for the next generation of baseload electricity generation with clean energy. The only way to do that is with nuclear power."

Support for considering nuclear was strongest among Coalition supporters (58 per cent), and opposition was strongest among Greens voters (62 per cent). ALP voters were evenly divided, with 46 per cent in favour and 46 per cent opposed.

Survey respondents were told: "The introduction of nuclear power has been suggested as one means to address climate change", and then asked: "Do you support or oppose the Federal Government considering the introduction of nuclear power in Australia?"

Federal Energy Minister Martin Ferguson restated the Government's opposition to nuclear power. He also cast doubt on the viability of photovoltaic solar power as a future energy resource. He said the renewable sector kept falsely insisting it could be an alternative to coal as baseload power.

But he believed solar thermal technology, which uses the sun's heat to boil liquids to power turbines, was a more likely answer.

Victorian Energy Minister Peter Batchelor dismissed nuclear power as an option for the state. He said increased reliance on lower-emitting gas, clean coal and renewable energy sources were the way ahead.

However, hopes for a cleaner future for Victoria's power industry received a setback last month with the abandonment of a "carbon capture" project at a proposed power station near Morwell, which instead is to become a gas-fired station. In another setback for the renewables sector, Solar Systems, which was to have developed a 154-megawatt solar photovoltaic power station near Mildura, was put into administration.

Meanwhile, the annual Lowy Institute poll has found that climate change is dropping as a priority for Australians.

The poll, released today, found Australians have gone from ranking climate change in 2007 as the equal most important foreign policy goal to putting it seventh out of 10 possible goals. The issue fell 10 points since last year and 19 points from 2007.

But Lowy executive director Michael Wesley said 76 per cent rated climate change a problem and those who felt this way viewed getting a solution as increasingly urgent.

As the Opposition prepared to put a package of amendments on emissions trading to Parliament next week, political sparring continued over the costs of curbing emissions.

Frontier Economics and independent senator Nick Xenophon hit back at Treasury's claim that Frontier's blueprint, commissioned by the Opposition (and Senator Xenophon), had a \$3.2 billion hole.

They accused Treasury of misunderstanding the "credit and baseline" approach to emissions trading and getting its sums wrong.

Senator Xenophon said Treasury was acting politically. He said he could not support the Government's scheme unless it included changes to the way the electricity sector was treated. There was a risk the Government's model would cause energy security problems, including blackouts.

The Seven Network reported an analysis commissioned by the NSW Government from Frontier last year on the Rudd Government scheme said that in the long term it could lead to real wages 8 per cent below the level they would otherwise reach, if long-run unemployment was to be avoided.

With MICHELLE GRATTAN

4 Going fission

<http://www.theage.com.au/national/going-fission-20091012-gu24.html>

The Age October 13, 2009

Is nuclear power the only way to meet Australia's future energy needs and cut carbon emissions? Geoff Strong and Ian Munro report.

THE 500 environmentalists who last month tried to shut down Hazelwood, Victoria's second-biggest power station, have inadvertently illuminated a distinctly Australian problem.

If asked, most Australians would profess to wanting to lower greenhouse gas emissions, now among the highest per person in the world. They would also want to retain living standards, supported by an economy that has slipped largely unscathed through the global financial crisis. And most would want this without resorting to a largely greenhouse-free energy source that has gained favour in many other advanced or growing economies: nuclear power.

The Rudd Government (and most of the states) walk a strange tightrope: they admit generating 80 per cent of the country's electricity with coal creates huge environmental problems but, unlike most other countries, have pinned hopes of future energy supply on unproven technologies to clean up coal, which, incidentally, is also our biggest export earner. The Federal Government's favourite option, carbon dioxide capture and storage (CCS), has not worked on a large scale and, even if it proves feasible, might be decades away. Says Professor Mark Diesendorf of the University of NSW's Institute of Environmental Studies: "If it works, and if it is not as expensive as some of the overseas estimates suggest, you are looking at somewhere between 2025 and 2030 before CCS could start really making a difference."

Three years ago Victoria was applauding a planned clean-coal power station for the Latrobe Valley, which Energy Minister Peter Batchelor said would make it a world leader in clean-coal technology. But last month the project was converted into a "dual gas" station. Carbon capture was scrapped. At the earliest, the plant will begin to produce power in 2013. The company responsible, HRL Technologies, says carbon-capture technology will be retro-fitted "when commercially viable".

CSIRO scientist Dr Lincoln Paterson, who is researching carbon dioxide storage, says all the elements of the technology exist, but have yet to be tied into a power station. A demonstration project at Loy Yang B is capturing carbon from flue gases. And in a demonstration near Port Campbell last year, 60,000 tonnes of carbon dioxide was removed from one underground "reservoir" and piped into another two kilometres away.

"If cost was not a factor you could do it today ... but the reality is you can't ignore cost. Cost is a critical element of the practicality," Paterson says.

Against this backdrop, Australia, a uranium exporter, has about 39 per cent of the world's most easily accessible uranium (but political restrictions mean it supplies 19 per cent of the world's demand). The Federal Government even admits that nuclear power helps reduce greenhouse emissions - but refuses to consider using it.

"Nuclear power globally is part of the climate change solution," says federal Resources and Energy Minister Martin Ferguson. "The Government accepts that and we are committed to the development of the uranium mining industry with all the associated safeguards. Australia, unlike a lot of those other nations, is energy rich, hence our focus on the immediate energy options. Here there is no requirement on us as a nation to go down the nuclear path.

"It is the view of the Australian community that we should pursue all energy options other than nuclear."

While no proposal to explore nuclear energy has been prepared or is under consideration for cabinet, senior Government figures are speculating about what Australia's options might be if renewable energy technologies and carbon capture don't deliver sufficient cuts in emissions and adequate energy supply.

The Government expects Australia's population to almost double to 35 million by 2049. Even with efficiencies, that is going to mean a big increase in electricity demand.

Professor John Price, of Monash University's mechanical engineering department, says: "We are reaching a point where there are no choices available to us. What are we going to do in 10 years' time? We are going to have electric cars. We are going to have desalination plants in every capital city. These are huge new demands that are not yet on our electricity system.

"Nuclear energy requires carbon dioxide production during mining and construction, but after that it's really zero."

Proponents of nuclear power say it is the only way to provide baseload power for a growing economy and meet climate change targets. But in July three high-profile supporters gave up the cause. Hugh Morgan, Ron Walker and Robert de Crespigny applied to deregister their company, Australian Nuclear Energy, in recognition of the Government's hostility. It had been set up in the last years of the Howard government, as the prime minister appointed former Telstra chief Dr Ziggy Switkowski to head an inquiry, which came down in favour of a domestic nuclear power industry.

Morgan says he believes Australia has left itself vulnerable to a future energy supply disaster by placing its hopes in unproven carbon capture and renewables: "If you need high-voltage electricity to maintain any significant industry in the country you need regular baseload power that they can rely on in 20 or 30 years. That is the umbilical cord to everyone else's industrial investments."

He says 450 new nuclear plants are planned or under construction globally, which will double the existing number of plants. But he fears even if Australia wanted to start building, because of global demand it would be way behind in the queue.

There is one Labor identity who has spoken out in support of an Australian nuclear industry. National secretary of the Australian Workers' Union Paul Howes says most of the opposition to nuclear power is seemingly from older people influenced by the Cold War nuclear disarmament movement.

"People are worried about nuclear waste, but they are only now beginning to consider the environmental costs of coal," says Howes. "There are new generation reactors being developed which will largely eliminate radioactive waste. They say nuclear is more expensive, but it becomes cheaper than coal when we add a carbon price as well as the costs of carbon capture."

Indeed, energy production has social costs that the independent Australian Academy of Technological Sciences and Engineering tried to quantify this year that are not included in any wholesale price. These include effects on human health, climate and crops. "Combining greenhouse and health damage costs for Australia gives representative total external costs of \$19 a megawatt hour for natural gas, \$42 a megawatt hour for black coal and \$52 a megawatt hour for brown coal," the academy says. These "external costs" were found to be much lower for renewable and nuclear energy: from \$1.50 for wind power, \$5 for solar photovoltaic and up to \$7 a megawatt hour for nuclear energy.

IT IS a sparkling, blue-skied day above the hills of Toora, near Wilsons Promontory. From a distance the green ridges seem to have been colonised by a troupe of baton twirlers, as the blades of the wind farm respond to a rising south-westerly. It is about 100 metres to the tops of the blades, prompting critics to lament the industrialisation of the landscape.

Still, wind is the most practical of renewable sources right now, clean and cheap. Victoria has approved wind farms up to 2000 megawatt capacity (one megawatt equals 1 million watts, roughly enough to power 400 homes a year), with another 2500 megawatts in prospect, but since it is an intermittent resource, wind delivers only a third of its nominated capacity.

If fully deployed, Victoria's water desalination plant will consume 92 megawatts. To compensate, AGL will build a wind farm of more than 300 megawatt capacity. With more than 150 turbines, Macarthur will dwarf Toora's 12 turbines, but wind energy is only ever a top-up to baseload power.

In Europe, particularly Germany, Denmark and Spain, experience has made energy authorities reinforce wind energy with baseload coal or nuclear up to 90 per cent of their potential.

Martin Ferguson adds that solar photovoltaic energy - which converts sunlight directly to electricity - is not a renewable energy answer.

Solar thermal energy may hold more potential. A German company, Solar Millennium AG, has built several solar thermal plants in southern Spain that, by storing heat during the day, can run at full power for 7½ hours after sunset.

"Now that we have thermal storage it is no longer true that solar energy is not a baseload electricity source," says Diesendorf.

Solar Millennium is looking to Australia for expansion through the Federal Government's Solar Flagship program, but its existing plants are, at 50 megawatts, less than one-thirtieth the capacity of Hazelwood. The solar cause also suffered a huge setback last month when Australia's leading solar energy developer, Solar Systems, which was to build a 154-megawatt power station in Mildura, went into liquidation.

The persistent doubt is that renewables may not economically deliver sufficient capacity to replace existing power stations.

Nuclear power, which does provide baseload power stations of similar capacity to coal, continues to be deeply opposed by many Australians. A poll conducted this year by the Uranium Information Centre found the 40 to 55 years age group most trenchantly opposed to nuclear power. This is the generation that grew up in the shadow of the Cold War; that experienced the anti-nuclear movement of the 1970s; that witnessed Chernobyl and the breakdown of the Three Mile Island reactor in Pennsylvania, overlaid with cultural influences including films such as the apocalyptic *Dr Strangelove* and the nuclear industry conspiracies *The China Syndrome* and *Silkwood*.

In the face of climate change, younger people are less resistant.

However, the climate change threat has not diminished opposition from veteran anti-nuclear

campaigner La Trobe University professor Joseph Camilleri. "I don't think we have anywhere near a fully fledged, widely accepted, long-term system of waste disposal. Until and unless that comes through ... to be thinking of a substantial expansion of the industry is foolhardy," he says.

Equally pertinent, he says, is that while nuclear power, in theory, may help counter climate change, in practice it is problematic. The reality is the sizeable expansion of nuclear energy would take place in parts of Asia and Latin America, which may not meet the operational and waste-handling challenges. There would be serious questions about "the technical, regulatory and other requirements, and whether on grounds of safety, waste disposal and proliferation they would be able to meet the standard that we currently accept in most parts of the industrialised West", Camilleri says.

But so-called fourth-generation nuclear reactors, which yield much more power with less nuclear fuel, actually consume large amounts of their own dangerous waste. Some have already been successfully tested in pilot plants.

Nevertheless, Mark Wakeham, director of Environment Victoria's anti-Hazelwood campaign, says political and practical obstacles such as the long construction time for nuclear plants, stand in the way. "It takes decades and we don't have decades," Wakeham says. "Every proposed nuclear power plant in the last two decades internationally has delivered over budget and has been significantly delayed. Our view is it's inherently problematic. It's a very large consumer of water so there's very few locations that you could actually site a nuclear power station in Victoria. Basically it would need to be near Port Phillip Bay or Western Port Bay, and if you reckon it's hard to get a wind farm constructed in Victoria at the moment, try building a nuclear power station."

Monash University's Price, who has worked as an engineer in the UK nuclear power industry, says that the public perception in Australia is at odds with reality. "[Nuclear energy] is a great deal cheaper than wind power and solar power, though is more expensive than brown coal," Price says. "There have been very few large accidents. In fact, only Chernobyl stands out, and that is not a reactor system that would have been approved in the West. The other reactor systems have all had terrific records."

Although the Federal Government remains resolutely anti-nuclear, it has an agency that is quite the reverse. The Australian Nuclear Science and Technology Organisation (ANSTO) runs Australia's only nuclear plant at Lucas Heights in Sydney's outer south-west, the 20-megawatt OPAL reactor, a joint German-Argentinian design that opened last year. (Lucas Heights was founded in 1958 in the early stages of the Cold War by the Menzies government with a 10-megawatt reactor, which was mainly used for nuclear medicine.)

HEAD of ANSTO Ziggy Switkowski believes that in its opposition to nuclear power Australia is alone among developed countries committed to deep greenhouse reductions. "Australia stands alone in claiming that we are different, that we have a whole range of alternatives that in combination will get us to our target. It is ambitious but the numbers just don't work," he says. "[We must] provide for the next generation of baseload electricity generation with clean energy. The only way to do that is with nuclear power. There is no other alternative.

"If we accept we want to move to a carbon-free economy by 2050, while there will be contributions from solar, wind and geothermal, the largest driver of that transition globally will be nuclear power. I don't think the case can be made that Australia is different, because we are not."

CSIRO's Lincoln Paterson says he is no advocate for the nuclear industry, but even accounting for the Chernobyl tragedy, nuclear is relatively low risk considering 6000 or so people die annually from coal mining in China.

"There is a risk with nuclear, but there's a pretty horrendous risk if we do nothing," Paterson says. "I've flown in and out of Bangladesh and there are 160 million people within 10 metres of sea level, and you start wondering what's going to happen to them.

"Wind by itself can't do it. Carbon capture and storage by itself can't do it. Nuclear by itself can't do it. It's going to require all of those technologies to make a contribution, and that's going to depend on where you are in the world and what the particular attributes of your country are."

It is, Camilleri says, one of the most serious challenges humanity has faced in the past several hundred years, calling for extraordinary political and technical responses.

5 Nuke fusion 'could solve energy crisis'

<http://www.theaustralian.news.com.au/business/story/0,,26211936-5005200,00.html>

Angus Thompson | *October 15, 2009*

Article from: The Australian

NUCLEAR fusion could help solve the world's energy crisis and the Australian government should commit to greater research in the area.

Leading nuclear physicist Barry Green said nuclear fusion had the potential to produce enormous amounts of clean and affordable energy from an almost unlimited fuel base.

"If harnessed on earth, fusion energy would provide millions of years of base-load energy, with zero greenhouse gas emissions," he said.

"As Australia launches further into the nuclear power debate, the role of fusion as a power source should also be considered."

Dr Green, who will today deliver a public lecture on fusion at the Australian Nuclear Science & Technology Organisation in Sydney, said Australia needed to commit to international research efforts.

Nuclear fusion - as opposed to fission, where atoms are split - is the process where two atomic nuclei fuse together and release large amounts of energy. Fusion reactions produce far greater energies per unit of mass than fission, which is used to generate energy in nuclear power plants worldwide.

Deuterium, the basic fuel for fusion, is a stable isotope of hydrogen with a natural abundance in the ocean, making it readily available and affordable.

Dr Green also believes that radioactive waste produced as a result of nuclear fusion can endure a half-life of just 100 years, as opposed to thousands of years as a result of fission reactions.

Research into the use of nuclear fusion as a viable form of commercial energy is being spearheaded by ITER, a multinational project.

The ITER project, of which Dr Green was a part, aims to develop a greater understanding of the physics and technology involved to make nuclear fusion a competitive source of energy in the future.

"The reality is that fusion energy can't make a significant impact on world energy production before about the middle or even three-quarters of the way through the century, so we're not talking about an immediate solution towards the world energy problems," he said.

"But the potential is huge because fusion uses the basic isotopes of hydrogen as its basic fuel, and we have enough deuterium in sea water for it to be a sustainable fuel for a base-load power which is safe, affordable, and environmentally friendly."

Dr Green was part of the experiment which produced the first man-made fusion reaction in

1991, a brief and modest 2 megawatts of power, but concedes that the continued research needed, along with economic boundaries and a lack of political will, means that the science could not play any immediate role in current climate change talks.

Australia's only nuclear reactor is at Lucas Heights and, apart from Australian physicist Sir Mark Oliphant's role in splitting the atom in 1932, experts argue Australia's role in nuclear research has been limited.

Dr Green is part of the ITER Forum, an Australian group of scientists lobbying the government to commit itself to the international fusion program.

6 Tax carbon to stop corruption

<http://www.theaustralian.news.com.au/story/0,,26215154-17803,00.html>

Peter Walsh | October 16, 2009

Article from: The Australian

POLITICS makes for strange bedfellows, but the alliance that has pushed the Carbon Pollution Reduction Scheme Bill to the point of ultimate success is surely the most bizarre alliance in the history of Australian politics.

The driving force behind this campaign to decarbonise Australia has been the Greens. Although they are small in terms of numbers they are extraordinarily influential.

Their influence is derived from the support they have in the media - notably the ABC and the Fairfax media - but also because they are well off with secure jobs and they live in the best suburbs.

Malcolm Turnbull's seat of Wentworth, which is probably the richest seat per capita in all of Australia, is a prime example of this wealth and influence.

Notwithstanding their personal prosperity the Greens seek to reduce the standard of living of other Australians (often in states far from Sydney and Melbourne, such as Western Australia) through measures that will reduce our productivity and progress.

An example of this mind-set is their unrelenting hostility to genetically modified crops.

The extreme Left realised early on that a regime that controlled emissions of carbon dioxide would enable them to control in great detail the lives of every Australian.

Former High Court judge Ian Callinan described the situation thus: "Emissions regulation offers government an irresistible opportunity to centralise and control every aspect of our lives; on our roads, on our travels, in our workplaces, on our farms, in our forests and our mines, and, more threateningly, in our homes, constructed as they will be compelled to be, of very specific materials and of prescribed sizes."

So the socialist Left got behind the Greens at an early stage of the campaign. What was initially a small cabal of government scientists realised in the 1980s that if governments could be persuaded that mankind's emissions of carbon dioxide were going to heat up the world, perhaps to make it uninhabitable, then their careers would prosper greatly.

Astonishingly, Margaret Thatcher was the first political leader of real consequence to fall for this nonsense (although she later retracted her support), but it was she who put large sums of money on the table to enable the British Met Office and the University of East Anglia to become world centres of the global warming hoax.

In Australia, Graham Richardson was determined to win the 1990 elections on Green preferences, so he threw lots of money at the CSIRO and was televised walking through so-called old-growth forests in Tasmania, pretending to be a tree-hugger.

As government support for these scientists grew, their numbers expanded quickly.

The Intergovernmental Panel on Climate Change became a vast gravy train and the fraudulent use of statistics, as in the notorious hockeystick and most recently in the scandal of the Yamal tree rings, became the defining characteristic of its modus operandi.

As a consequence of this intellectual and institutional corruption, our Australian scientific community is tainted with a loss of reputation that will bedevil us for at least a generation. However, the most disreputable member of this unholy alliance is the so-called business community.

In my time in politics I saw quite a bit of rent-seeking, but nothing compares in scale and scope with the rents that financial institutions of all kinds are pursuing in the emissions trading scheme at the heart of the CPRS Bill.

This rent-seeking is quite brazen.

In The Australian Financial Review on May 2, 2007, the WWF authorised a full-page advertisement just when the Howard government had lost its nerve and was planning to surrender on this issue.

This advertisement took the form of a letter signed by five senior economists from the banking and financial services sector, including ANZ and Macquarie Bank.

The key sentence in this letter, which urged the government to adopt an ETS, was this: "The emissions trading scheme ... would also have the added advantage - as against for example a carbon tax system - of establishing tradeable property rights with respect to permits, thereby building a support base for maintaining the system going forward within the corporate sector."

At the heart of this campaign is the creation of a powerful rent-receiving and rent-seeking alliance of banks and other financial institutions that will make billions from trading the emissions permits and that, once the emissions trading scheme is established, will be able to spend hundred of millions in ensuring, as best they can, that repeal is politically impossible.

There is a long list of reputable economists who are rightly pointing out that if the government wishes to decarbonise it should impose a carbon tax, pure and simple.

Such a tax would, of course, impose serious economic dislocation and the clamour for its repeal would be impossible to ignore.

But from the great alliance of Greens, the socialist Left, the now suborned science community and the rent-seekers of East Sydney and Toorak, a tax means no rents and is therefore not on their agenda.

It is an extraordinary thing that the Left has become a willing accomplice in this racket.

Peter Walsh served as minister for resources and energy from 1983 to 1984 and finance minister from 1984 to 1990 in the Hawke government. This article is based on his retiring presidential address to the Lavoisier Group.

7 Peter Beattie warms to nuclear energy

<http://www.theaustralian.news.com.au/story/0,,26221356-11949,00.html>

Jamie Walker | October 17, 2009

Article from: The Australian

ANOTHER Labor luminary has opened the door to nuclear power, with former Queensland premier Peter Beattie saying it could be part of a "mixed bag" of energy sources for Australia.

While Mr Beattie is lukewarm about a nuclear future, his comments yesterday show how far

thinking in the ALP has progressed about the once-unthinkable energy option.

Mr Beattie's chief reservation about nuclear power is not on principle or safety grounds -- it is the expense of building reactors. Just off the plane from Los Angeles, where he is Queensland's trade commissioner for North and South America, Mr Beattie conceded: "There is an argument for nuclear."

Mr Beattie's one-time counterpart as NSW premier, Bob Carr, and right-wing union boss Paul Howes, have called for a rethink of Labor's long-standing ban on nuclear power, as has mining giant Rio Tinto.

Speaking in Brisbane, Mr Beattie warned that Australia was "missing the boat" in developing the alternative energy sources that were at the centre of a research and development onslaught bankrolled in the US.

"By 2030 you are going to have a mixed bag of energy," he said. "You will have some nuclear, but you will have algae, solar, you will have geothermal and you will also have clean coal. If clean coal doesn't clean itself up, then it's going to be a smaller part of the equation."

Asked to what extent nuclear would be a part of Australia's energy future, he said he doubted it would amount to much. "There is an argument for nuclear," he said. "But I think, frankly, the new energies will leave nuclear behind. I mean, on all the assessments I ever saw when we were in government nuclear was too expensive -- we are too small a population in Australia."

7 India foresees big increase in its nuclear-energy usage

<http://www.theaustralian.news.com.au/business/story/0,,26150541-36375,00.html>

Krishna Pokharel, Prasenjit Bhattacharya | *October 01, 2009*

Article from: The Wall Street Journal

INDIA is poised for a big increase in its civilian nuclear capabilities.

Indian Prime Minister Manmohan Singh, left, International Atomic Energy Agency director general Mohamed ElBaradei during a conference on peaceful uses of atomic energy in New Delhi
Picture: AP

Prime Minister Manmohan Singh stressed the importance of nuclear energy in bridging the country's yawning energy gap, as Indian and international companies line up to enter a market opened by last year's US-India nuclear deal.

Addressing a function in New Delhi to honour Mohamed ElBaradei, director-general of International Atomic Energy Agency, Mr Singh said India is geared up for a major expansion of its nuclear program "in which international co-operation will be an important component".

"Nuclear energy is vital to meeting our energy and developmental needs, particularly those of large, developing countries like India," Mr Singh said.

Of India's total installed generating capacity of 152,000 megawatts, nuclear energy makes up some 2.7 per cent of that capacity, or 4100 megawatts, says India's ministry of power. India currently has 17 nuclear power plants and is building an additional six.

The global Nuclear Suppliers Group in 2008 lifted its ban on selling nuclear fuel to India, and, as a result, nuclear power is expected to rise to 40,000 megawatts of installed generating capacity by 2020.

The lifting of the ban was part of the negotiations undertaken by the US and India to reach a new deal on the transfer of civilian nuclear technology. The deal, signed in October 2008, ended

a 34-year US moratorium on nuclear trade with India following India's first nuclear tests in 1974.

These developments have opened the door for overseas companies such as GE-Hitachi Nuclear Energy, Westinghouse Electric and Areva to sell reactor technology and fuel to India at a time when the country is fast increasing its power-generation capacity to meet a huge gap in supply and demand. (GE-Hitachi Nuclear Energy is a joint venture between General Electric and Hitachi.)

Mr Singh said at a conference in New Delhi on Tuesday that the Indian government's nuclear strategy could potentially yield 470,000 megawatts of power by the year 2050. "This will sharply reduce our dependence on fossil fuels and will be a major contribution to global efforts to combat climate change," he said .

On Wednesday, India's Hindustan Construction Company and Amec, a UK -based engineering and project-management company, signed an initial agreement for taking on nuclear power projects in India. The venture with AMEC will focus on consulting services and subcontracting operations, said Vinayak Deshpande, president of Hindustan Construction. He said the company expects to eventually employ as many as 500 engineers.

Also, "we expect six nuclear reactors to come up for bidding in the next 15 months, and we hope to get a sizeable portion of orders from these projects," Mr Deshpande added.

Indian engineering and construction companies such as Larsen & Toubro and Bharat Heavy Electricals also are eager to tap into nuclear power projects.

8 Nuclear energy key to future

LESLIE KEMENY

October 14, 2009 Comments 37

<http://www.smh.com.au/opinion/politics/nuclear-energy-key-to-future-20091013-qvkw.html>

Sydney Morning Herald

About 60 countries are preparing for the Copenhagen climate conference next December equipped with a unique measure of economic assurance and environmental confidence. These are the developed and developing nations that have embraced greenhouse friendly nuclear power as a significant part of their present and future energy policies. By so doing, they will have ensured low-cost and reliable energy security for their industries and private consumers. As well, they will be operating cost-effective emissions trading schemes and laughing all the way to a potential international "carbon bank". The world is bemused that Australia is not in this group.

More than 50 years ago, Australia was set to become the first nation south of the equator to build and operate a nuclear power plant to generate electricity. Sadly, this project and many other planned ventures connected with the technology and commercialisation of the global nuclear industry have not gone ahead. This incredible neglect has been largely due to poor education, the pressures of Australia's hydrocarbon lobby, the pseudo-science of the "renewables" special interest groups and the politics of fear and risk beloved by Australia's "radical greens".

On April 18, 1958, prime minister Robert Menzies opened the Australian Atomic Energy Commission's (AAEC) Research Laboratories at Lucas Heights near Sydney. He challenged the nation to "enter the nuclear age". His vision was shared by Sir Philip Baxter, the first vice-chancellor of the University of NSW and the first chairman of the AAEC. In 1964, Australia's first and only school of nuclear engineering was established at the University of NSW.

For three decades the staff of the school at Kensington and the nuclear engineering division of

the AAEC at Lucas Heights were in the forefront of global nuclear research. The university group taught hundreds of Australian and overseas students and published peer-reviewed and internationally acclaimed technical papers, books and theses. In 1982 these included the role of nuclear power in averting global warming and its great importance to Australia to produce electrical energy, potable water and hydrogen.

In 1988, the mandate for civilian nuclear power development was withdrawn from the AAEC and the school of nuclear engineering was closed. This happened even though its staff had played a key role in developing Australia's superb uranium mining industry from the Ranger Uranium Inquiry (1976,) through to development of Olympic Dam and the Northern Territory and Queensland uranium resources.

A secure, clean and cheap energy future for Australia in which nuclear power plays a pivotal role is a categorical imperative. Uranium should be recognised in the Rudd Government's carbon pollution reduction scheme bill as the most valuable and cost-effective form of "carbon offset". And a national energy policy embracing the nuclear fuel cycle deserves bipartisan support. However, locking into a national emissions trading scheme before the international cap- and-trade insights that might be gained at Copenhagen is foolish. It could become a non-productive exercise irrespective of the econometric models used.

Professor Ross Garnaut's final report - released at the end of September 2008 - concedes that nuclear power could supply more than one-quarter of Australia's electricity needs by 2020 if a proposed policy based on "clean coal" and "renewables" fails. But he questions the technology on economic grounds and restates his earlier convictions that Australia is "not the logical first home of a new nuclear capacity". This is one of the many areas in which he and the Rudd Government are at odds with expert world opinion.

Recent data from the US Department of Energy underlines the huge advantages of uranium. The carbon production from coal-fired plants in the US was cited as 0.86 tonnes for one megawatt-hour of electricity production. The figure for gas-fired plants was 0.36 tonnes while that for nuclear plants was 0.005 tonnes. And the outstanding performance of the 104 nuclear power stations in the US during 2008 included a 98 per cent capacity factor and an unmatched generating cost of 1.68 cents per kilowatt hour. No wonder regulatory processes are well in place for another 25 nuclear plants.

In April this year, Sydney hosted the World Nuclear Fuel Cycle Conference. The Chinese delegation was led by the president of China Nuclear Energy Industry, Dr Chen Xinyang. China has an amazing energy and carbon reduction policy based largely on nuclear power. Eleven nuclear plants are already in operation. It is planned to have possibly 100 plants by 2030. China is developing an energy policy based on gradual replacement of its immensely polluting coal-fired plants with nuclear. At the same time it is ensuring its energy security with Australian uranium.

The Australian Government should heed the advice given at the December 2007 Bali climate conference.

Yvo de Boer, executive secretary of the UN framework convention on climate change, said: "I have never seen a credible scenario for reducing emissions that did not include nuclear energy."

Australia's 15 uranium trading partners - including the world's "greatest polluters" China and the US - have already embraced nuclear energy and should be an example to follow for all Copenhagen delegates.

Professor Leslie Kemeny is Australian foundation member of the International Nuclear Energy Academy.

Source: The Age

9 Sins of emissions just hot air, says think tank

TOM ARUP ENVIRONMENT

October 17, 2009

<http://www.smh.com.au/environment/sins-of-emissions-just-hot-air-says-think-tank-20091016-h150.html>

LEFT-leaning think tank The Australia Institute has seized on unpublished Treasury data revealing huge cuts in emissions from cows and sheep, saying they are "simply implausible".

The Treasury modelling, obtained by the institute under the Freedom of Information Act, claims that methane emissions from cows and sheep will drop 9 per cent in just the first year of agriculture's inclusion in the emissions trading scheme.

The industry data shows emissions will fall by 40 per cent by 2020 and slowing to 50 per cent by 2050. That is despite Treasury finding there will be a 80 per cent output increase - the true value of the industry - from 2008 to 2050.

Methane emissions for cow and sheep burps and farts make up about 11 per cent of Australia's total greenhouse gas emissions. The results come from Treasury modelling based on Australia adopting a 15 per cent 2020 emissions reduction target on 2000 levels.

The executive director of the Australia Institute, Richard Denniss, said Treasury must have made unlikely assumptions about the ability of technology and efficiency measures to arrive at the figures. Otherwise, he said, it indicates a big decline in the number of cows and sheep on Australian farms if agriculture is included in the scheme in 2015.

"Who are the scientists who can account for the kind of emissions reductions seen here, while the numbers of sheep and cattle are still growing?" Mr Denniss said.

The assumptions in the modelling also raised the question of whether Treasury had conducted what the Rudd Government's had been labelling the the most comprehensive modelling exercise in the nation's history, he said.

The data, previously unreleased by the Government, shows if agriculture is included in the scheme in 2015 then emissions from cow and sheep will fall from the equivalent of 86,477,000 tonnes of carbon dioxide to 78,571,000 tonnes in one year, while the true value of the industry increases.

"Although economists typically place great faith in the capacity of price signals to motivate behavioural change among human beings, it is unusual to do so where the adaptation capacity of animals is concerned," Mr Denniss said.

A spokesman for the Treasurer, Wayne Swan, said a decision to include agriculture in the emissions trading scheme has not yet been made.

The 2008 Garnaut Climate Change Review found that the effectiveness of measures to reduce cow and sheep emissions are limited.

10 From Times Online

October 22, 2009

Government's fast-track plan for power will raise hackles

Robin Pagnamenta, Energy Editor

<http://business.timesonline.co.uk/tol/business/article6884781.ece>

The Government is likely to anger local campaigners today as it announces a list of nuclear reactors, high-voltage power lines and giant wind farms that it wants to fast-track through Britain's planning system by using new powers it obtained this month.

The list of 11 significant energy and transport infrastructure projects is being published today by the Infrastructure Planning Commission (IPC), a new government-backed body set up this month in the biggest shake-up to Britain's planning regime in 60 years.

The IPC's goal is to accelerate the process of securing planning consent for projects considered to be of national importance from as long as seven years at present to less than a year.

The projects include EDF's plan to build two giant nuclear reactors at Sizewell, Suffolk, and Hinkley Point, Somerset, and two stretches of high-voltage transmission lines, totalling 54 miles (86km), linking them to the National Grid.

The proposed link to Sizewell includes 90 pylons and a 400,000-volt overhead cable passing through the Dedham Vale Area of Outstanding Natural Beauty near Colchester.

Robert Erith, president of the Dedham Vale Society, which opposes the plans, that said he would fight them all the way: "The opposition is going to be massive. This is a priceless piece of landscape that is worth preserving."

Sir Michael Pitt, the IPC chairman, said that the new body would weigh all opinions carefully. "The projects we are highlighting today raise important issues for the nation and for local communities, and we want the public to have confidence that their views will be heard," he said.

"The IPC will not accept any application where it considers that the consultation process has been unsatisfactory or the community's concerns have not been addressed."

The list has been published as the CBI called for Britain to accelerate its plans for new nuclear stations.

Neil Bentley, the CBI director of business environment, said that Britain would need up to 12 new reactors by 2030 to avoid blackouts and meet its target of cutting carbon emissions by 80 per cent by 2050.

He said: "With most existing nuclear plants due to close within ten years, we urgently need new reactors to come on stream."

11 From The Times

October 19, 2009

Act now if you don't want the lights to go out

The big energy companies are ready to change. But we're still waiting for the Government to guide us to a low-carbon future

Tony Hayward

http://www.timesonline.co.uk/tol/comment/columnists/guest_contributors/article6880059.ece

Throughout the 20th century, an abundant supply of low-cost energy was the driving force behind the spread of global prosperity and development. Today, satisfying ever-growing energy demand in a sustainable way has become the world's biggest challenge.

According to BP's projections, we will need about 45 per cent more energy in 2030 than we consume today. That will require industry to invest some \$25 to \$30 trillion — more than \$1 trillion (£600 billion) a year for 20 years.

We need a more diverse energy mix — involving greater use of nuclear power and of renewable

sources as well as fossil fuels — to enhance energy security and tackle climate change. But we also have to face a few facts. First, the transition to a lower-carbon economy is a journey that will take decades.

Second, it is not clear right now how we are going to get there. We need a clear road-map for the transition to a lower-carbon world, with governments and the private sector working together to shape the framework for our future energy mix.

Third, we should take a realistic view of the potential for alternative energy. There is a danger of promising too much, too soon.

You might say that this is what you would expect to hear from the chief executive of one of the world's largest oil and gas companies. But BP is also a significant investor in renewable resources such as wind, solar power and biofuels.

The reality is that the technology, infrastructure and regulatory framework for alternative energies will take decades to be deployed at scale. At present, all of the world's wind, solar, wave, tide and geothermal power account for only about 1 per cent of total energy consumption. Looking ahead, even the boldest forecasts say they will meet less than 10 per cent of demand in 2030.

The sheer scale of the energy industry makes a rapid transition inconceivable. It takes 30 years, for example, to turn over the capital stock in the power generation sector and 15 years in cars. That is why it is so important to establish and start implementing a road-map for the transition now, based on an understanding of the existing infrastructure, changing technology and economic incentives.

It is all about smart choices — about ensuring that the money we invest is spent to best effect. In many cases, such choices can be made on the basis of what we know now, rather than technologies still in development. And the smartest and most effective choice we can all make is to use energy far more efficiently.

Take transport, responsible for 25 per cent of UK CO₂ emissions. By far the most effective path to a lower-carbon road transport industry lies in making internal combustion engines more efficient. Smaller, more efficient petrol and diesel engines, combined with increasing use of hybrid technologies, will produce significant carbon savings in the next two decades.

Increasing use of biofuels will help. By extracting CO₂ from the atmosphere as they grow, some biofuels can reduce greenhouse gas emissions by 80 per cent compared with conventional petrol, according to recent studies. At BP we believe that biofuels could provide more than 10 per cent of global road transport fuel by 2030. To put this into perspective, the combination of advanced hybrid cars and quality biofuels offers comparable CO₂ savings to running battery-powered electric cars from the existing UK electricity grid — but at less than half of the additional cost.

Smart choices are also available in power generation, responsible for another 30 per cent of UK carbon emissions. Under EU regulations, a third of the UK's coal-fired stations are due to be retired before 2016. A number of options present themselves to fill the gap: nuclear power, offshore wind, natural gas and clean coal.

In my view we will need all of them. But nuclear expansion still faces significant uncertainties. Offshore wind is extremely costly. As for new-build coal, to meet carbon targets it would need to be fitted with carbon capture and storage — a technology that, while showing promise, still faces challenges that will take time to resolve. Commercial plants are unlikely before 2020.

That leaves gas, the cleanest fossil fuel with less than half the carbon emissions of coal. It is abundantly available to the UK. Indigenous gas provides 73 per cent of UK consumption today and could still make up as much as 30 per cent in 2020. Gas is also widely available from non-

UK suppliers, ranging from Norway to North Africa, as well as from the global market for liquefied natural gas. Any concerns about security of supply can be addressed by diversifying suppliers and building more storage capacity.

Gas is also a necessary complement for renewable sources, given that gas-fired generators — unlike nuclear and coal-fired plants — can be readily switched on and off to back up intermittent wind and solar power.

These are just some of the factors that need to be considered in drawing up an energy road-map for the UK. However, change on the scale envisaged will only happen if governments create the framework.

Industry needs stable and enduring conditions to invest, and in the case of energy that means a transparent and uniform price for carbon.

The EU has made a start with its Emissions Trading Scheme, but we are a long way from an effective, global carbon pricing regime. Until energy producers and consumers know and pay the real price of carbon, the climate for investing in a low-carbon economy will remain uncertain in the extreme. We will also need additional incentives and policies to drive technological innovation and behavioural change.

In the UK, a debate is under way about what more the Government needs to do to meet its commitments on cutting greenhouse gas emissions. Like others, I worry that the liberalised energy market on its own will not deliver the sustainable and diverse supply mix we need.

History tells us that real change in energy markets can only occur when public policy and private enterprise work hand in hand. Government needs to play an active role in drawing up a road-map for our energy future. Industry can then move forward with confidence to invest in a secure and sustainable energy supply. I don't believe we can afford to wait.

Tony Hayward is chief executive of BP

12 Fossil Fuels' Hidden Cost Is in Billions, Study Says

http://www.nytimes.com/2009/10/20/science/earth/20fossil.html?_r=2&ref=us

By MATTHEW L. WALD

Published: October 19, 2009

WASHINGTON — Burning fossil fuels costs the United States about \$120 billion a year in health costs, mostly because of thousands of premature deaths from air pollution, the [National Academy of Sciences](#) reported in a study issued Monday.

The damages are caused almost equally by [coal](#) and oil, according to [the study](#), which was ordered by Congress. The study set out to measure the costs not incorporated into the price of a kilowatt-hour or a gallon of gasoline or diesel fuel.

The estimates by the academy do not include damages from global warming, which has been linked to the gases produced by burning fossil fuels. The authors said the extent of such damage, and the timing, were too uncertain to estimate.

Nor did the study measure damage from burning oil for trains, ships and planes. And it did not include the environmental damage from coal mining or the pollution of rivers with chemicals that were filtered from coal plant smokestacks to keep the air clean.

“The largest portion of this is excess mortality — increased human deaths as a result of criteria air pollutants emitted by power plants and vehicles,” said Jared L. Cohon, president of [Carnegie Mellon University](#) in Pittsburgh, who led the study committee.

Nearly 20,000 people die prematurely each year from such causes, according to the study's

authors, who valued each life at \$6 million based on the dollar in 2000. Those pollutants include small soot particles, which cause lung damage; nitrogen oxides, which contribute to smog; and sulfur dioxide, which causes acid rain.

The study lends support to arguments that society should pay extra for energy from sources like the wind and the sun, because their indirect costs are extremely small. But it also found that renewable motor fuel, in the form of ethanol from corn, was slightly worse than gasoline in its environmental impact.

Coal burning was the biggest single source of such external costs. The damages averaged 3.2 cents per kilowatt-hour, compared with 0.16 cents for gas. But the variation among coal plants was enormous.

The worst plants, generally the oldest and burning coal with the highest sulfur content, were 3.6 times worse than the average, with a cost of nearly 12 cents per kilowatt-hour (which is more than the average retail price of that amount of electricity).

The best plants carried a cost of less than a quarter of a penny. Natural gas plants also showed a large variation, but both the best and the worst costs were far smaller than for coal.

Such variation suggests that existing technology could be applied to make the electric system a lot cleaner, experts said. One of the study's authors, Maureen L. Cropper, an economist at the [University of Maryland](#), said the findings should be used not to raise the price of electricity based on an average of indirect costs but to measure the cost of cleanup on a plant-by-plant basis.

The study did not measure damage from pollution-control devices. "If you're taking the output of a scrubber and dumping it in the Monongahela River, that's not in our study, Professor Cropper said.

The study found that operating nuclear plants did not impose significant environmental costs, although uranium mining and processing did. But 95 percent of uranium mining takes place in other countries, the study said. Canada and Australia together account for 44 percent of world production.

The committee did not put a dollar value on the risk of a nuclear accident that would produce environmental damage. It also noted the uncertainty of the cost of long-term disposal of high-level wastes.

The committee said environmental damage from gasoline and diesel fuel cost 1.2 cents to 1.7 cents per mile. A co-author of the study, Daniel S. Greenbaum, president of the Health Effects Institute, said that would come to 23 cents to 38 cents per gallon. Still, Mr. Greenbaum said, "we were hesitant to make that a central part of our findings," because pollution also results from manufacturing cars.

The study did not calculate the military cost of protecting fuel imports.

As for [wind energy](#), the study said it killed birds but not enough to seriously affect populations. A possible exception was raptors, birds of prey that ordinarily eat species whose numbers are being reduced by spinning turbine blades.

The study was not kind to ethanol. A mixture of 85 percent ethanol and 15 percent unleaded gasoline, or E85, showed slightly higher damages to environment and health than ordinary gasoline, because of the energy required to raise the corn and make ethanol from it.

[Electric vehicles](#) and vehicles using synthetic diesel fuel, also ranked poorly. The electric vehicles might do better if emissions of heat-trapping gases had been factored in, because they have lower carbon dioxide emissions per mile than gasoline-powered cars. But the cars running on artificial diesel would look slightly worse in that analysis, the study said.

13 German Nuclear Plants Get a New Lease

<http://online.wsj.com/article/SB125574177193591541.html>

Wall Street Journal

After Election, Alliance Agrees to Extend the Use of Atomic Energy, Rekindling a Long, Emotional Debate

By VANESSA FUHRMANS

BERLIN -- The victory of Chancellor Angela Merkel's new alliance in elections last month promises to extend the country's use of nuclear power -- and reignite protests among those who have fought to phase it out.

Both Ms. Merkel's Christian Democrats and their new governing partners, the business-friendly Free Democrats, want to scrap a law that says all 17 of the country's nuclear plants must be shut down by 2022. In alliance negotiations this week, the parties struck a preliminary agreement to allow the reactors to run longer, at least until renewable-energy sources can fill the gap.

Germany's opposition parties have promised to fight any policy change. Hundreds of antinuclear activists have been protesting outside the Berlin offices where conservatives and Free Democrats have been negotiating to form a new coalition government.

"If it comes to that, you can count on it re-energizing the antinuclear movement here," warned Mathias Edler, nuclear-power expert for Greenpeace Germany.

Decades of widespread anti-nuclear sentiment culminated in the 2002 legislation to phase out atomic energy. But the reactors still supply nearly a quarter of the country's electricity. To keep the power on without them, Germany might have to burn more coal and miss its goals to reduce greenhouse-gas emissions -- or become more reliant on its largest natural-gas supplier, Russia.

So far, though, the trickiest disputes have surfaced within the pro-nuclear power camp. One thorny issue is who would profit. Because the plants are relatively old and their costs have largely depreciated, they are a cost-efficient way to produce energy. Extending their lives could add more than €1 million (\$1.5 million) a day in profits per plant, German think tank DIW estimates.