

1. N-plant spill probe 'seriously flawed'

BY: LEIGH DAYTON, SCIENCE WRITER From: The Australian

July 18, 2012 12:00AM

<http://www.theaustralian.com.au/news/health-science/n-plant-spill-probe-seriously-flawed/story-e6frg8y6-1226428536319>

A DAMNING review by global consultant KPMG has again highlighted safety and bullying concerns at Australia's nuclear facility.

The review by KPMG's forensic unit was conducted for the national regulator, the Australian Radiation Protection & Nuclear Safety Agency, and obtained by The Australian yesterday.

It found an ARPANSA investigation into a September 2007 contamination incident at the Australian Nuclear Science and Technology Organisation involving radioactive Yttrium-90 was seriously flawed.

The review concludes at least three staff working in the radiopharmaceutical production facility were contaminated and it's likely some sought to cover it up to "save face".

The report details disturbing interviews: "(Redacted) stated that around 10.00am on 3 September 2007 he was changing out of his 'scrubs' in the change room when (redacted) entered the change room. He asked (redacted) if he was contaminated and (redacted) replied, 'Bloody shut up . . . just be quiet'."

ARPANSA's inspectors failed to examine key records and, at the behest of ANSTO, dismissed the testimony of David Reid, the staff-elected health and safety officer at the time of the incident, according to KPMG. Mr Reid was suspended in June 2009 after going public with accusations of safety breaches, cover-ups and bullying. He was sacked in June 2009. "The review proves I was right and ANSTO has gone to great lengths to hide serious

safety problems," he said. Last March Mr Reid lodged a claim against ANSTO in Federal Magistrates Court in Sydney, alleging bullying, harassment and abuse following his attempt to raise safety concerns. The matter will go to court ordered mediation this month. Mr Reid also filed a complaint yesterday with the Therapeutic Goods Administration, claiming that between 2007 and 2010 ANSTO falsified batch records on radiopharmaceuticals used to treat conditions such as cancer. The KPMG review contains evidence to that effect. ANSTO chose not to comment on claims two key players in the incident still work in the facility and that the then Quality Control and Quality Assurances officer continues in the position. An ANSTO spokesperson said: "There have been numerous infrastructure, administrative and cultural improvements at the building in question since 2007, including a project that saw 89 improvements between 2009 and 2012 . . . ANSTO has also made a number of improvements to both the way investigations are undertaken and the way workplace issues are addressed."

2. Baby steps prove better path to climate change

BY: CAMILLA CA VENDISH From: The Times July 24, 2012

12:00AM

<http://www.theaustralian.com.au/news/world/baby-steps-prove-better-path-to-climate-change/story-e6frg6ux-1226433152996>

AT an Oxford University conference on the world's shrinking resources, I suddenly felt a sense of kinship with all those people who have politely told me over the years to stop bleating on about the environment.

When the irrepressible Bill Clinton, addressing the roomful of luminaries, said "I always see the glass as half full because pessimism is an excuse for inaction", I felt ashamed. For I realised that I, too, had slumped into apathy.

This is partly because of the daunting scale of the problem. The first decade of the 21st century has seen rising tensions over land, food and water. Yemen, expected to be the first country to run out

of water, has seen rebellion against officials who dug their own wells. Record floods and droughts have wrecked livelihoods and led countries to expand their search for land; Saudi Arabia is buying farms in Ethiopia.

China and India are doubling their real per capita incomes at 10 times the pace that England achieved during the Industrial Revolution and at 20 times the scale. This boom in emerging economies threatens supplies of everything from precious metals to potassium and phosphorus fertilisers, for which there are as yet no substitutes. Population growth and global warming have pushed up food prices.

Yet mounting evidence of climate change in the past year has been met with dwindling interest in tackling it. Recent news that Arctic sea-ice melt may be contributing to our peculiarly wet northern summer has barely evoked a reaction. Last month, the head of Exxon Mobil, an oil company that used to throw money at anti-science lobby groups, acknowledged global warming was a real problem but it barely got a headline.

The most obvious reason for apathy is that people want jobs, not green initiatives that foist costs on business. The financial crisis has drained the air out of the politicians' tyres and made them more likely to save money by slashing subsidies for renewables than trying to sell carbon taxes to hostile voters. But there is something else, too, which almost no one foresaw.

America's newfound ability to tap huge reserves of shale gas and "tight oil" has changed every previous assumption about the West's energy future. In 2008, the US imported almost two-thirds of its oil. That is now down to half.

By 2030 the US and Canada could be producing more oil than Saudi Arabia, according to some analysts, because fracking technology makes it possible to drill where conventional methods could not. Fracking extracts previously inaccessible reserves of oil and gas by injecting pressurised liquid into layers of rock.

Fracking refutes the old "peak oil" argument that world production was in terminal decline and that countries should therefore seek other, cleaner, alternatives.

The Green New Deal that both David Cameron and Barack

Obama once hoped might boost employment and put industry on a new footing has barely been mentioned in either country since the fracking industry started creating jobs: half a million in the US so far.

It is no coincidence that unemployment is lowest in North Dakota and Texas, the states that have rushed to exploit this new, unconventional oil and gas.

Shale gas is not the only development that has completely altered the context in which many of the old environmental arguments were made. There is also, finally, a recognition that multilateral talks don't work.

No less a person than David Nabarro, the UN's Special Representative for Food Security, told last week's Oxford conference that this year's Rio summit was "a kind of funeral procession" for the idea that 192 countries could get together and change the world.

In that sense, the news is not all bad. If the UN itself has lost patience with global talking shops, it is more likely that countries will now pursue bilateral deals of the kind that Norway has pioneered with Indonesia and Tanzania to preserve forests.

There are some encouraging examples to follow. Brazil is leasing land to the Chinese to grow sugar cane for ethanol cars. The C40 group of 58 large cities has carried out almost 5000 projects retrofitting buildings and generating clean energy. Some individual country investments in renewables have paid dividends for their neighbours; Chinese investment in photovoltaics has enormously reduced the cost of solar panels.

It is a paradox, but I suspect that the only way out of our apathy will be to take small steps, which may not be sufficient, but might spur us on to bigger things.

McKinsey, the consulting firm, has come up with a list of 15 initiatives that would help to preserve water, food and energy around the world and produce net savings for investors - from reducing municipal water leakage to improving energy efficiency in commercial and residential buildings. These are not glamorous, but they work and feel manageable.

Ultimately, though, the world needs a carbon tax, to tax pollution rather than income and to give investors the certainty they need to fund alternative energy. The opponents of carbon tax argue that we must adapt to climate change rather than prevent it. But that is a counsel of despair; the consequences of runaway climate change for food production could be devastating.

If we are to share this planet successfully, we must all use less. But in the meantime we must praise those who take the small steps, and hope they make the rest of us braver.

3. **Japanese anti-nuclear demonstrations grow**

By Mure Dickie, Published: July 16

http://www.washingtonpost.com/world/asia_pacific/japanese-anti-nuclear-demonstrations-grow/2012/07/16/gJQAPXPgoW_story.html

TOKYO — It has been slow for a chain reaction, but more than a year after the biggest nuclear crisis in a quarter century, Japanese demonstrations against atomic power are beginning to generate serious steam.

A string of some of Japan's biggest protests in decades — each attended by tens of thousands of people — have in recent weeks given voice to a wave of anti-nuclear sentiment caused by the failure of the tsunami-crippled Fukushima Daiichi plant on March 11, 2011.

By challenging the government's attempts to restart Japan's nuclear industry, the demonstrations could have far-reaching implications for energy policy in the world's third-largest economy, and thus for the sector's global development.

On Monday, an estimated 75,000 people gathered near a Tokyo park in what was dubbed by state broadcaster NHK the

capital's largest anti-nuclear event yet.

Organizers and participants see recent demonstrations as signalling a fundamental change in attitudes in a nation where relatively few have been willing to take political issues to the streets since the 1960s.

Demonstrations are common in Tokyo, but they usually center on a narrow issue of policy or labor grievance and rarely attract more than a few thousand people.

Anti-nuclear numbers have yet to match those who joined 1960s protests against Japan's alliance with the U.S., but the anti-nuclear cause is being driven more by individual citizens, says Satoshi Kamata, a journalist and organizer of the Monday protest.

"It's very late, but at last it is starting," Kamata said. "Japanese people historically have not been used to standing up for themselves, we have been a people that just put up with things. . . . Finally that is changing."

Organizers say anti-nuclear groups are belatedly working more closely together. Recent Friday night protests outside the prime minister's office have been led by an alliance that includes new activist groups organized by social media as well as the left-wing labor union federation Zenroren.

Such co-operation combines the federation's experience organizing demonstrations with citizen groups' ability to attract wider participation – but was initially hampered by a lack of mutual trust, says Yoshikazu Odagawa, Zenroren secretary general.

Odagawa says a brief period this year when all of Japan's nuclear power plants were offline became an inspiration. "That really brought groups together," he said.

Anti-nuclear activists are also united in anger at the decision last month by Yoshihiko Noda, the prime minister, to restart two reactors at the Oi plant in western Japan in order to prevent possible summer power shortages.

One of the Oi reactors returned to full operation last week and the other is slated to begin generating electricity at the weekend.

Many participants on Monday directed particular ire at Noda, whose popularity has been falling in recent opinion polls. “Noda! We’re angry!” one banner read. “Noda, step down!” was a common chant.

Gauging participation at recent demonstrations has been difficult. Organizer claims that 170,000 turned up looked exaggerated to journalists on the scene, but a police estimate of 75,000 reported by NHK appeared credible.

Like other recent protests, Monday’s event had to contend with sweltering weather and highly restrictive policing. Around the prime minister’s office, authorities have insisted on giving priority to traffic flow, forcing protesters to stay on congested pavements and then restricting access to the area on safety grounds.

Marchers on Monday were only allowed to set off in groups of a few hundred each and then required to walk three abreast in the outside lane of a busy city road.

Still, along with union veterans and peace activists from around the country, the demonstrations have attracted many newcomers to public protest ranging from young parents to the elderly.

Maki Sekiguchi, a Tokyo office worker attending with her husband and small child, said she had never been part of a demonstration before recently deciding to join the Friday

night crowds around the prime minister's office.

Sekiguchi admitted she was still wary of talking about protest participation with acquaintances for fear of being thought "a bit strange," and like other participants she was skeptical the protests would persuade the government to halt reactor restarts.

But she said none of this would stop her joining future demonstrations.

"We feel we have to do something," Sekiguchi said. "The government may not change its mind, but I still think it's meaningful for us to do what we can."

4. OPINION

August 6, 2012, 6:59 p.m. ET

Fred Krupp: A New Climate-Change Consensus

It's time for conservatives to compete with liberals to devise the best, most cost-effective climate solutions.

<http://online.wsj.com/article/SB10000872396390444320704577569231537988226.html>

By FRED KRUPP

One scorching summer doesn't confirm that climate change is real any more than a white Christmas proves it's a hoax. What matters is the trend—a decades-long march toward hotter and wilder weather. But with more than 26,000 heat records broken in the last 12 months and pervasive drought turning nearly half of all U.S. counties into federal disaster areas, many data-driven climate skeptics are reassessing the issue.

Respected Republican leaders like Govs. John Kasich of Ohio and Chris Christie of New Jersey have spoken out about the reality of climate change. Rupert Murdoch's recent tweet—"Climate change very slow but real. So far all cures worse than

disease."—may reflect an emerging conservative view. Even Exxon Mobil CEO Rex Tillerson, during public comments in June, conceded the reality of climate change while offering assurances that "there will be an engineering solution" and "we'll adapt."

Even if my outlook differs, these views may turn out to be a welcome turning point. For too long, the U.S. has had two camps talking past each other on this issue. One camp tended to preach and derided questions about climate science as evidence of bad motivation. The other camp claimed that climate science was an academic scam designed to get more funding, and that advocates for action were out to strangle economic growth. Charges of bad faith on both sides—and a heavy dose of partisan politics—saw to it that constructive conversation rarely occurred.

If both sides can now begin to agree on some basic propositions, maybe we can restart the discussion. Here are two:

The first will be uncomfortable for skeptics, but it is unfortunately true: Dramatic alterations to the climate are here and likely to get worse—with profound damage to the economy—unless sustained action is taken. As the Economist recently editorialized about the melting Arctic: "It is a stunning illustration of global warming, the cause of the melt. It also contains grave warnings of its dangers. The world would be mad to ignore them."

The second proposition will be uncomfortable for supporters of climate action, but it is also true: Some proposed climate solutions, if not well designed or thoughtfully implemented, could damage the economy and stifle short-term growth. As much as environmentalists feel a justifiable urgency to solve this problem, we cannot ignore the economic impact of any proposed action, especially on those at the bottom of the pyramid. For any policy to succeed, it must work with the market, not against it.

If enough members of the two warring climate camps can acknowledge these basic truths, we can get on with the hard work of forging a bipartisan, multi-stakeholder plan of action to safeguard the natural systems on which our economic future

depends.

Many conservatives start out as climate skeptics for understandable reasons. To begin with, it's an issue that's long been associated with liberal Democrats. We're all skeptical about issues presented by leaders with whom we normally disagree. Secondly, conservatives naturally insist on extensive evidence when a claim seems to justify more government action.

But one of the hallmarks of modern conservatism is to try to see the world as it is, not as one hopes it would be. Skeptics who make their decisions based on the best available information have long said they would reconsider their conclusions as the facts dictate. And many of them are concluding that the planet is warming in ways that outpace its natural rhythms. In a recent University of Texas poll, 70% of Americans, and 53% of Republicans, accepted the reality of climate change. This is not just a function of the summer's brutal heat.

In a 2011 study, funded in part by the climate-skeptical industrialists David and Charles Koch, University of California, Berkeley physicist Richard Muller (also a climate skeptic) confirmed that temperatures have been climbing over the past five decades. His conclusion: "You should not be a skeptic, at least not any longer."

Mr. Muller's Berkeley Earth Surface Temperature research project has since come out with a new analysis of global temperatures over the past 250 years. From that analysis, currently under review by the scientific community and available on the project's website, he concludes that climate change is "almost entirely" due to greenhouse-gas pollution.

That gases such as carbon dioxide and methane can trap heat is an undisputed matter of basic physics. But what is most telling is that as concentrations of these greenhouse gases in the atmosphere have increased, the global average temperature has increased in near-unison.

Agreeing with Mr. Muller does not necessarily require conservatives to embrace more government regulation. To the

contrary, they should promote policies that fit their views of government and the market. One example is the revolution in natural gas. It makes environmentalists uncomfortable, but we cannot afford to ignore this potentially lower carbon fuel. CIA Director David Petraeus had it right when he said in May in an interview at Dickinson College, "assuming it can be done in an environmentally safe way, which is obviously a must, [natural gas] is going to provide an incredible boost to our economy." The key is ensuring that methane leaks in the system don't undermine the carbon advantages of gas, and that our groundwater remains clean and safe.

We'll have a much better shot at developing solutions to our climate and energy problems that are good for our economy if leaders from across the political spectrum get re-engaged in the debate. It is time for conservatives to compete with liberals to devise the best, most cost-effective climate solutions. Solving this challenge will require all of us.

Mr. Krupp is president of the Environmental Defense Fund and co-author of "Earth: The Sequel" (W.W. Norton, 2008).

A version of this article appeared August 7, 2012, on page A13 in the U.S. edition of The Wall Street Journal, with the headline: A New Climate-Change Consensus.

5. I was too optimistic: scientist's climate fear

From:AFP August 06, 2012 12:00AM

<http://www.theaustralian.com.au/news/world/i-was-too-optimistic-scientists-climate-fear/story-e6frg6so-1226443398188>

HUMAN-DRIVEN climate change is to blame for a series of increasingly hot summers and the situation is already worse than forecast just two decades ago, a top NASA scientist says.

James Hansen, who directs the NASA Goddard Institute for Space Studies, wrote in The Washington Post at the weekend that even

his "grim" predictions of a warming future, delivered before the US Senate in 1988, were too weak.

"I have a confession to make: I was too optimistic," Dr Hansen writes. "My projections about increasing global temperature have been proved true. But I failed to fully explore how quickly that average rise would drive an increase in extreme weather."

Dr Hansen and his colleagues' analysis of the past six decades of global temperatures, published in the Proceedings of the National Academy of Sciences, reveals a "stunning increase in the frequency of extremely hot summers".

Describing "deeply troubling ramifications for not only our future but also for our present", Dr Hansen said the analysis was based not on models "but actual observations of weather events and temperatures that have happened".

The peer-reviewed study shows global temperature has been steadily rising due to a warming climate, about 0.8C in the past century, and that extreme events are more frequent. The study echoes the findings of international research released last month that rising greenhouse gas emissions boosted the odds of severe drought, flooding and heatwaves last year.

Dr Hansen said the European heatwave of 2003, the Russian heatwave of 2010 and widespread drought in Texas and Oklahoma last year could each be attributed to climate change.

"And once the data are gathered in a few weeks' time it's likely that the same will be true for the extremely hot summer the United States is suffering through right now," he said.

Another well-known US scientist and former sceptic of global warming, Richard Muller, last week made a very public turnaround in The New York Times, saying a close look at the data had convinced him that his beliefs were unfounded.

Dr Hansen, too, while being a long-time proponent of humans as the main cause of global warming through pollution and fossil fuel consumption, expressed his increasing certainty that other causes could not be blamed.

"The odds that natural variability created these extremes are

minuscule, vanishingly small. To count on those odds would be like quitting your job and playing the lottery every morning to pay the bills," he writes.

6. 'Respect the science' but don't delve into the academy's political game-playing too closely

Article rank
4 Aug 2012
The Weekend Australian
TONY THOMAS

<http://theaustralian.newspaperdirect.com/epaper/viewer.aspx>

ONE of the least examined, but most influential, bodies in this country is the Academy of Science. Its fellows, who total 458, and its committees are big contributors to Intergovernmental Panel on Climate Change reports. So does the academy operate with integrity?

More text follows

7. Market reform key to cheaper energy prices

BY: MARTIN FERGUSON From: [The Australian](#) August 11, 2012

12:00AM

<http://www.theaustralian.com.au/national-affairs/opinion/market-reform-key-to-cheaper-energy-prices/story-e6frgd0x-1226447820376>

WE should not lose sight of how far Australia's energy markets have come in the 15 years since we began this process of reform.

States letting go of their controls over energy was no small thing. It required trust, resolve and commitment across the federation. Yet our work is not done in delivering better outcomes for consumers.

Higher electricity prices in the order of 40 per cent around the country in the past three years have elevated the importance of completing unfinished business.

This challenge can only be met by co-operation on the part of all governments, our market institutions and the energy industry.

The end game of delivering this essential service to households while strengthening Australia's economic productivity is too important and requires the co-operation of federal and state governments.

To understand how electricity prices have emerged to the front and centre of our policy debate, we must look to the pressures that have driven increases in the price of electricity.

There are improvements that can be made, but many of the emerging pressures are the result of growing demand and major changes in the way we all use energy over an increasingly ancient and geographically dispersed network.

Network costs are hands-down the primary driver of rising electricity prices and account for approximately half of a typical household electricity bill.

This compares with power generation accounting for 20 per cent, retail costs - including various climate change and energy efficiency schemes - accounting for another 20 per cent, and 10 per cent due to the introduction of the carbon price.

Australia cannot escape the fact that, in a country our size, network costs will always be a big component of our electricity bill.

Australia has the most geographically dispersed electricity network in the world and while we have about the same amount of network infrastructure as Britain, we have about a third of the population to

share the cost.

To add to this, much of our network infrastructure was built between the 1950s and 1970s and is reaching the end of its useful life. It therefore needs to be replaced and the cost of this is being felt on our quarterly bills.

Replacing existing networks is challenging, but upgrading their carrying capacity to meet growing peak demand has also added to costs.

Peak demand is estimated to have added 25 per cent to the cost of retail electricity bills in order to supply electricity for less than 40 hours per year - clearly an inefficient use of capital with resulting consequences for energy bills.

Blackouts in the Sydney CBD in 2009 and the poor reliability of the Queensland network in the lead up to the 2004 Somerville inquiry, led the community to call for addressing underinvestment in these networks.

State governments responded, increasing reliability standards to trigger large network investments, which flowed through to network charges.

Getting the balance right between cost and reliability is challenging, but clearly some response was needed.

This provides the underpinning rationale behind electricity price rises but consumers are still left wondering what can be done to ensure future price rises are moderated?

The chief body responsible for our energy markets is the Standing Council on Energy Resources. It comprises commonwealth and state and territory energy ministers. Currently, the council has mapped out a program of work to ensure our energy market is delivering in the long-term interests of consumers.

After all, this is the objective enshrined in the National Electricity Law - to act in the long-term interest of consumers.

To achieve this objective, we must first focus on ensuring that sound regulation underpins our energy market. This means finding the balance between a reliable supply of electricity and minimal

costs to consumers.

Current network regulation has delivered on reliability, but we need to see if this could be done more efficiently.

In November, in advance of the next setting of network investment plans, the Australian Energy Market Commission will release its rule changes to the economic regulation of network businesses.

This process is investigating whether enhancements can be made into how revenues are set for network businesses. A review of the appeal regime that sits alongside these rules has also been brought forward, to be completed this year.

Further, the commission's review, titled Power of Choice, is exploring ways to reduce peak demand and use the system more efficiently through demand-side participation to be completed by November.

The second requirement of an effective energy market framework is a strong regulator that provides confidence to consumers and is also accountable and transparent. I have full confidence in the Australian Energy Regulator, but the current reviews and the experience of recent regulatory outcomes has provided new insights into how we can further enhance its role. I intend to discuss these with my state and territory colleagues.

Third, ongoing reform must rely on improved business productivity.

The government's regulatory regime can only deliver so much. Owners and operators of network businesses must be consumer oriented.

Network businesses, and states that continue to maintain ownership of them, need to change the way they operate to focus more on efficiency, service delivery and ultimately reducing costs to consumers.

The Productivity Commission is already conducting a review to be completed early next year that looks at the potential for increased benchmarking of performance across these network businesses.

This will help us to understand whether networks are actually being as efficient as they could be.

Competitive and transparent markets are the final essential element of an effective energy market.

Governments should be minimising policy intervention - including where state governments set retail tariffs that limit the ability of retailers to offer special deals to consumers and minimise the opportunity to compete.

Victoria is the only state to have deregulated its market and global research shows Victoria enjoys one of the world's most competitive retail energy markets. This means greater choice for consumers in the electricity contracts they choose.

NSW has requested the commission to review its retail competition, which I hope will provide the green light for price deregulation in the future.

Energy market reform is something that all levels of government must work together to deliver.

Continuing bipartisan support from all Australian governments will help us achieve these ambitious reforms and create a truly national and efficient energy market that will deliver lasting improvements for the consumer.

Martin Ferguson is Minister for Resources and Energy and Minister for Tourism

8. Poised for energy game-changer

BY: GILES PARKINSON From: [The Australian](#) August 03, 2012

12:00AM

<http://www.theaustralian.com.au/business/companies/poised-for-energy-game-changer/story-fn91v9q3-1226441797585>

A WEEK ago, the Climate Institute published the results of a survey that showed Australians, despite being largely undecided about climate change, much preferred solar and wind energy over coal power and nuclear.

It was a choice largely driven by the urge to be clean and green, and two key reports delivered in the past year affirm their choice: solar and wind are the cheapest options too.

The reports -- a study by AECOM and a more detailed, landmark analysis of 40 technology options by the government forecaster, the Bureau of Resources and Energy Economics -- suggest we are on the verge of a profound change in sentiment in the debate about renewables.

The studies have effectively blown the argument that the nation's 20 per cent renewable energy target should be canned or wound back on the basis that it is too expensive.

BREE found that wind and solar will be less expensive than new coal or gas by 2020 and will be the cheapest of all energy options by 2030. Its findings suggest that the RET, because it encourages deployment, simply accelerates the fall in the cost curve.

AECOM's report found that building more renewables generation such as wind and solar would enable the nation to protect against rising gas prices, which are seen as inevitable as gas is funnelled through the massive liquefied natural gas plants to the export market.

"Our analysis suggests that at moderate additional expense, Australia's energy prices can be made more resilient against international market volatility and that achieving the RET targets is likely to be of high value for maintaining a diverse generation portfolio and protecting Australia's economy," AECOM senior consultant Jenny Riesz concluded.

If the RET scheme is to be curtailed, it should be recognised that it is with only one key motivation: to protect the assets of incumbents, or the plans of those who wish to invest heavily in gas-fired generation. This latter seemingly only has a small window of opportunity, given the recent revised demand forecasts by the Australian Energy Market Operator. BREE's forecasts suggest that gap is closing fast. By 2020, it will be gone altogether.

This, of course, must lead to a rethink about how the country plans its energy future, a key finding of the report's lead author, Quentin Grafton. For many in the industry, building wind and solar farms was only a sideshow to the main energy game, but their ability to

be built at scale, and at least cost of all technology options, means these are the main game.

The question remains how you support such technology -- some say gas, some say dispatchable renewables (solar thermal with storage, or geothermal), and others say nuclear. What is clear is that the present market vision needs to be thrown out the window.

As the BREE study notes, its analysis "foretells a different energy future". Grafton, BREE's chief economist, notes: "Australia will experience an energy transformation over the coming decades that will have a profound impact for electricity networks, how energy is distributed and on Australia's ability to meet its targeted greenhouse gas emissions reductions."

Grafton told Greenchip in a later interview that the network of the future will be fundamentally different from what it is now. And while it is not BREE's role to predict how that may play out -- that is for the upcoming energy white paper to say -- it intends to update its forecasts every six months, and do a review every two years, such is the pace of change in the sector.

"Anyone who knows the energy sector can connect the dots," Grafton says. "If you go out to 2050 and look at the costs, that tells us the electricity generation sector will be fundamentally different in 2050." And the networks would change too.

Exactly what that might look like, and how the industry should be prepared for it, is being studied by the Australian Energy Market Operator, the Australian Energy Regulator and the Australian Energy Market Commission. The chief concern is how the incentives of an industry that has been based on generating, transporting and selling more and more electrons can be changed to reward efficiency, demand management, and accommodate a new generation of technologies that require no fuel, and so produce energy at a short-run marginal cost of next to zero, and incorporate the software that transforms an ancient monolith into a smart grid.

Gas generators in Germany, which has the world's most ambitious energy transformation plan, have lamented that solar and wind have trashed their business models, and the government there is pausing to review how their business models can be accommodated. But the fossil fuel generators can no longer fall

back on their claim that they are and always will be the cheapest.

Algae in demand

THERE are a bunch of ways to grow algae. One is to stop chlorinating your swimming pool, but even long after the water becomes unsuitable for bathing, it is not an efficient way to grow the quantities needed to create a saleable product. And algae is, all of a sudden, a saleable product. A recent estimate suggested the global algae industry could be worth \$1.5 billion a year by 2015, and a multiple of that within the decade.

Algae is seen as a potential cheap source of reducing carbon emissions from generators and refineries, and as a potentially lucrative source of green jet fuel. The military and airline companies are particularly interested, and the race is on to find the cheapest way to grow and harvest it. Some companies have focused on harvesting the algae in sewage ponds. Others are looking at genetically modified strains produced in a test-tube. Still others are experimenting on large pond systems.

The listed company Algae.Tec has focused on an altogether different system: an enclosed, modular and scalable system that can be housed in a modified shipping container.

The first such container was officially opened yesterday at Manildra's ethanol refinery near Nowra, in southern NSW, the result of a collaboration started when Manildra's chairman Dick Honan heard Algae.Tec's technology discussed on the radio. Its photobioreactors use solar power and the emissions from the refinery's fermentation unit as a feedstock. The process is reasonably well established, but the key to the project is to see if the company can meet its targeted yield -- which is 250 tonnes of algae a year per container.

If that can be delivered and verified, the company is hopeful of striking commercial deals with potential partners in NSW -- in Nowra and the Hunter Valley -- as well as in Brazil, India, China and the US. The company says a 2000 module facility would generate \$350 million worth of fuel a year and create up to 700 jobs, about the same number being made redundant by the recent closures of oil refineries.

NSW Energy Minister Chris Hartcher was effusive in his praise

when he opened the facility. "Like all governments, we recognise that renewable energy is the future," he said. And this technology ticked all his boxes: it was green, did not displace food, offered a local replacement for imported oil and the technology was owned by an Australian company.

Algae.Tec chairman Roger Stroud said algae served a dual role in sequestering carbon emissions and creating a product that could be sold as jet fuel, or biodiesel or feedstock. "It won't cost (emitters) anything, apart from their land. We pay for any water, we connect it and take their flu gas, and the algae does the rest," he said.

Giles Parkinson is editor of reneweconomy.com.au

9. SMART PLANET

| 13 August 2012

Fusion: The quest to recreate the Sun's power on Earth



Gaia Vince

<http://www.bbc.com/future/story/20120810-the-quest-to-recreate-the-sun/1>

Gaia Vince watches the construction of the world's biggest fusion energy reactor and wonders whether this ambitious and expensive project will actually work.

Cadarache: In the dusty highlands of Provence in southern France, workers have excavated a vast rectangular pit 17 metres (56 feet) down into the unforgiving rocks. From my raised vantage point, I can see bright yellow mechanical diggers and trucks buzzing around the edge of the pit, looking toy-like in the huge construction site. Above us, the fireball Sun dries the air at an unrelenting 37C.

These are embryonic stages to what is perhaps humankind's most ambitious scientific and engineering project: to replicate the Sun

here on Earth.

When construction is complete, the pit will host a 73-metre-high machine (240 feet) that will attempt to create boundless energy by smashing hydrogen nuclei together, in much the same way as stars like our Sun do. Physicists have dreamed of being able to produce cheap, safe and plentiful energy through atomic fusion since the 1950s. Around the world, researchers continue to experiment with creating fusion energy using various methods. But as people within the field have said the dream has always been "30 years away" from realisation.

The need for a new energy source has never been more pressing. Global energy demand is expected to double by 2050, while the share coming from fossil fuels – currently 85% – needs to drop dramatically if we are to reduce carbon emissions and limit global warming.

Fusion, many believe, could be the answer. It works by forcing together two types, or isotopes, of hydrogen at such a high temperature that the positively charged atoms are able to overcome their mutual repulsion and fuse. The result of this fusion is an atom of helium plus a highly energetic neutron particle. Physicists aim to capture the energy released by these emitted neutrons, and use it to drive steam turbines and produce electricity.

When the reaction occurs in the core of the Sun, the giant ball of gas applies a strong gravitational pressure that helps force the hydrogen nuclei together. Here on Earth, any fusion reaction will have to take place at a tiny fraction of the scale of the Sun, without the benefit of its gravity. So to force hydrogen nuclei together on Earth, engineers need to build the reactor to withstand temperatures at least ten times that of the Sun – which means hundreds of millions of degrees.

Heated doughnuts

It's just one of the huge number of challenges facing the designers of this groundbreaking project. The concept was discussed and argued over for several decades before finally being agreed in 2007 as a multinational cooperation between the European Union, China, India, Japan, South Korea, Russia and the US – in total, 34

countries representing more than half of the world's population. Since then, the budget of 5 billion euros has trebled, the scale of the reactor has been halved, the completion date has been pushed back, and the project has somewhat lost its shine – which is somewhat ironic given the project is called Iter, meaning 'the way' in Latin.

But despite the difficulties, some progress is being made. The parts are being manufactured and tested by the participating nations, many of whom hope to develop the expertise to compete in any new fusion energy market that would be expected to follow a successful outcome at Iter.

Since they don't have access to the special conditions available in the Sun, physicists have designed a doughnut-shaped reaction chamber, called a tokamak. Hydrogen isotopes are heated to the point to which they lose electrons and form a plasma, and this is held in place for fusion but held away from the reactor walls, which could not withstand the heat. The tokamak deploys a powerful magnetic field to suspend and compress the hydrogen plasma using an electromagnet made of superconducting coils of a niobium tin alloy.

Once the reaction is initiated by a laser shot, the heat produced by the atomic fusion will help to keep the core hot. But unlike a fission reaction that takes place in nuclear power stations and atomic bombs, the fusion reaction is not self-perpetuating. It requires a constant input of material or else it quickly fizzles out, making the reaction far safer. And unlike what you might have seen in a recent Batman movie, the chamber cannot be transformed into a nuclear bomb.

The walls of Iter's tokamak will be coated in beryllium to withstand the harsh temperatures, but the divertor, which channels the energetic neutrons out of the reactor, will also be actively cooled using liquid helium and cooling towers.

Because one of the hydrogen isotopes used, tritium, is radioactive (with a half-life of 12 years), the entire site must conform to France's strict nuclear safety laws. And to complicate matters further, the site is also moderately seismically active, meaning that the buildings are being supported on rubber pads to protect them from earthquakes.

These issues, plus the logistics of dealing with multiple nations with their own fluctuating domestic budget constraints, mean that the site won't be ready for the first experiments until 2020. Even then, they will just be testing the reactor and its equipment. The first proper fusion tests, reacting deuterium (a hydrogen isotope abundant in sea water) and tritium (which will be made from lithium), won't take place until 2028.

Power up

Those will be the key tests, though. If all goes to plan, the physicists hope to prove that they can produce ten times as much energy as the experiment requires. The plan is to use 50 megawatts (in heating the plasma and cooling the reactor), and get 500 MW out. Larger tokamaks should, theoretically, be able to deliver an even greater input to output power ratio, in the range of gigawatts.

And that is the big gamble. So far, the world's best and biggest tokamak, the JET experiment in the UK, hasn't even managed to break even, energy-wise. Its best ever result, in 1997, achieved a 16 MW output with a 25 MW input. Scale is an extremely important factor for tokamaks, though. Iter will be twice the size of JET, as well as featuring a number of design improvements.

If Iter is successful in its proof of principle mission, the first demonstration fusion plants will be built, capable of actually using and storing the energy generated for electricity production. These plants are slated to begin operation in about 2040 - around 30 years away, in fact...

Despite the seductive promise of finally getting a supply of electricity that's "too cheap to meter", the long wait to readiness and the fact that the technology remains unproven, means that many politicians are hesitant or even hostile to the expensive project. Additionally, because fusion energy won't be ready for decades, even if it works, other low-carbon energy sources must still be pursued in the short-term at least.

But if we do manage to replicate the Sun on Earth, the consequences would be spectacular. An era of genuinely cheap energy – both environmentally and financially, would have far reaching implications for everything from poverty reduction to

conflict easement.

It's exciting to think that the next generation could in some way be fusion powered – perhaps even within the lifetimes of the workman digging below me. But I can't help but remember the 30-year rule.

10. 'Cold fusion' scientist Martin Fleischmann dead at 85

By Amy Joi O'Donoghue, Deseret News

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<http://www.deseretnews.com/article/865560186/Cold-fusion-scientist-Martin-Fleischmann-dead-at-85.html>

SALT LAKE CITY — Dr. Martin Fleischmann, one-half of an electrochemist duo that ignited the scientific world with claims of discovering cold fusion, has died at age 85 at his home in Salisbury, England.

Several energy publications as well as Forbes are reporting the Aug. 3 death of the world-renowned scientist, who with the University of Utah's Dr. Stanley Pons sparked an international, intellectual uproar among researchers with their tabletop cold fusion experiment.

The announcement in March of 1989 of the experiment's results turned the world's collective scientific eye on Utah, as researchers rushed to duplicate its breakthrough results, including researchers at the Los Alamos National Laboratory, which did much of the groundwork on the atom

bomb.

Failure to replicate the pair's lab experiment — which they said had produced a nuclear fusion reaction at room temperature and could be the boon for the production of clean energy — led to their ostracization in the conventional scientific community and gave Utah a wounding black eye.

At the time, however, the "discovery" of cold fusion was landmark, a never-before-achieved scientific achievement that touched off a clamor because of the wide-reaching implications.

Until their announcement, scientists assumed that fusion of hydrogen atoms, which power the sun, stars and hydrogen bombs, occurs only in extremely high temperatures and pressure. The two said in their experiment, the release of thermal energy occurred under conditions at room temperature, giving rise to the possibility of energy absent fossil fuels and without nuclear power, which leaves radioactive waste.

In the aftermath, however, other researchers who failed to duplicate the results attacked the two men as frauds, accusing them of sloppy, incomplete and unethical work.

Within several years, Fleischmann and Pons were in France, quietly continuing their research through contracts with a subsidiary of Toyota. Japan committed to spend more than \$20 million on cold fusion research and while traditional scientists remained hostile to the theory, research continued on multiple fronts.

Japan pulled the plug on the duo's research in 1997. By a year later, the University of Utah announced it would no longer pursue research patents.

In a 2009 interview with "60 Minutes," Fleischmann said he regretted calling the nuclear effect "cold fusion" — a name coined by a competitor — and should have resisted making the announcement at a press conference, departing from the tradition of sharing the research first in scientific journals.

The cold-fusion debacle was costly for Utah's reputation and wallet.

Utah lawmakers convened a special session and sunk \$5 million into cold fusion and the National Cold Fusion Institute was established, only to see its first director resign from its board of trustees after a financial scandal erupted. In 1993, the University of Utah went onto secure the patents to cold fusion, spending more than \$1 million in attorney fees and licensing those patents to a private energy company. The private company later abandoned its efforts, citing prohibitive research costs.

Dr. [Chase N. Peterson](#), the U.'s then-president and an early booster of cold fusion, resigned amid the scientific and financial furor.

In the years since, however, researchers dedicated to the science have continued the work of cold fusion experiments.

Ephraim resident Sterling Allan is the chief executive officer of Pure Energy News, which extensively tracks research and corporate advances

in the field.

He said there has been an uptick in activity, and despite the naysayers who would still discredit Fleischmann today, cold fusion is continuing to capture attention in both the business and energy fields.

Several companies are pioneering technology in what is now called the low-energy nuclear reaction movement and a high school science class in Rome built, tested and patented a device similar to what Fleischmann and Pons used in 1989.

"People will say cold fusion has never been replicated, but there's been 17,000 replications worldwide since Pons and Fleischmann," he said.

The Rome high schoolers have called their device the Athanor LENR Reactor, which is reported to be an electrolytic cell that produces a coefficient power of 400 percent.

"You commit academic suicide if you use the words 'cold fusion,'" Allan said.

Fleischmann, London-educated and one of that country's most distinguished scholars, died Friday after battling diabetes and Parkinson's disease.

11. Z, the diamond-melting machine with lightning veins

01 August 2012 by [Jacob Aron](#)
Magazine issue 2876. [Subscribe and save](#)

[http://www.newscientist.com/article/mg21528766.](http://www.newscientist.com/article/mg21528766)

[200-z-the-diamondmelting-machine-with-lightning-veins.html](#)

PRESSURE that can melt diamond, an electromagnetic pulse that can kill, and enough current to light 100 million light bulbs. Such are the extremes within the Z machine at Sandia National Laboratories in Albuquerque, New Mexico. In this image, artificial lightning spread like a wave through Z's 33-metre-wide interior.

Designed to research nuclear fusion, Z can also help explore the behaviour of materials at ultra-high pressures and temperatures, and act as a source of intense X-rays. These abilities spring from the machine's massive pulses of current.

First the current is fired at hundreds of tiny tungsten wires, vaporising them to form a cloud of charged particles, or plasma. The plasma produces a magnetic field that forces the particles to line up at the centre of the machine, so that they point out of the horizontal plane of its surface, along the vertical or z-axis - hence the machine's name. This arrangement causes the particles to collide, producing exceptionally powerful X-rays.

Z's magnetic field can also be harnessed to accelerate metal plates and squish materials. In fact, Sandia researcher Marcus Knudson was able to apply over 5 million times atmospheric pressure to squeeze diamond, turning the precious stone into a puddle.

The magnetic field is invisible, of course. Shown here is lightning that sparks out of metal protrusions inside Z when the current is switched on. Blink and you'll miss it: this image was taken within a split second of the machine's firing.

If you are thinking about visiting Sandia to see the light show in person, you are out of luck. The top of the machine is now almost completely covered with instruments.

In any case, Z is dangerous. "There is a huge electromagnetic pulse produced that would likely kill anyone that was trying to observe a firing of the accelerator," says Knudson. "So I have only seen this in pictures."

12. **Onagawa plant 'remarkably**

undamaged,' says IAEA

10 August 2012

http://www.world-nuclear-news.org/RS-Onagawa_plant_remarkably_undamaged_says_IAEA-1008124.html

The Onagawa nuclear power plant on Japan's northeastern coast - the closest plant to the epicentre of the massive earthquake and tsunami of 11 March 2011 - suffered remarkably little damage, a mission from the International Atomic Energy Agency (IAEA) has concluded.



The 19-strong mission - comprising IAEA staff, members of national regulators and external experts - has delivered its initial report following a two-week visit to Japan, which included a visit to the three-unit plant in Miyagi Prefecture. The team's objective was to observe how different structures, systems and components of the plant responded to the earthquake.

All three boiling water reactors at Onagawa automatically shut down, as designed, when the earthquake occurred. Onagawa 1 briefly suffered a fire in the non-nuclear turbine building. They have since remained offline. The plant sustained far less damage than expected, considering the magnitude of the earthquake and the height of the subsequent tsunami. A major contributing factor to this is that the plant sits on an elevated embankment almost 14 metres above sea level. Although the earthquake knocked out four of the five external power lines, the remaining line provided sufficient power for the plant's three reactors to be brought to cold shutdown.

The team, led by Sujit Samaddar, the head of IAEA's International Seismic Safety Centre (ISSC), held discussions with the plant operators, reviewed log books and repair reports documented after the earthquake, as well as carrying out a visual investigation of the site.

In its draft report, the team said, "The plant experienced very high

levels of ground shaking - among the strongest of any plant affected by the earthquake - and some flooding from the tsunami that followed, but was able to shut down safely." However, it noted, "The structural elements of the nuclear power station were remarkably undamaged given the magnitude of ground motion experienced and the duration and size of this great earthquake." While presenting information collected by the team to the Japanese government, the IAEA recommended that follow-up missions be conducted at Onagawa and reviews be conducted at other Japanese nuclear power plants that have experienced varying magnitudes of earthquake.

The IAEA said that the mission's findings will be added to a database being compiled by the ISSC to provide knowledge for member states about the impact of external hazards on nuclear power plants.

"The data we are collecting will make an important contribution to improving safety," Samaddar said. "Information in the database will allow IAEA member states to measure the performance of their nuclear power plants in the face of external hazards. We are also seeking such data from member states of the IAEA other than Japan."

He noted, "This is an initial step in a much longer process. The level of cooperation and frank sharing of information that we received from the staff at Onagawa nuclear power station and its owner, Tohoku Electric Power Company, sets a very good example."

Researched and written by World Nuclear News

13. **SMR firsts and fanfares**

02 August 2012

http://www.world-nuclear-news.org/NN-SMR_firsts_and_fanfares-0208127.html

Companies competing for US federal funds to support the development of operational small modular reactors (SMRs) have been keen to report progress in their respective projects, including a first control room simulator and the launch of a fuel technology centre.

NuScale Power is claiming a world first with the commissioning of a control room simulator to model the operation of its SMR design. The full-scale simulator boasts 12 independent work stations, each of which simulates the operation of one SMR module and an associated turbine generator: 12 modules would make up a standard 540 MWe power plant. The new simulator scales up a test facility that has been in operation at Oregon State University since

2003.

NuScale submitted a proposal to the US Department of Energy (DoE) earlier this year seeking federal funds to match up to \$226 million in costs associated with engineering, design certification and licensing for the plant. The DoE has already agreed a public-private partnership with NuScale to build a demonstration unit at the Savannah River site in South Carolina.

CEO Paul Lorenzini said the company had "changed the game in commercial nuclear power" with the plant's inherently safe design and "dramatically" lowered business risk compared to building and operating conventional nuclear power plants.

B&W fuels development

Meanwhile, Babcock & Wilcox (B&W) has formally launched a new fuel technology centre to develop the fuel fabrication capabilities for its mPower SMR. The facility, in Lynchburg, Virginia, will develop and demonstrate key fabrication technologies and processes for reactor fuel and related components, fabricate representative fuel assembly prototypes and components to support the fuel design, testing and licensing process, and serve as the materials test facility to evaluate the mechanical performance of fuel assemblies and components. The facility will not use any nuclear material.

Virginia state governor Bob O'Donnell applauded the opening of the new facility, the third major development related to the mPower program following a dedicated design office set up in 2010 and an integrated system test facility in 2011.

Like NuScale, B&W has applied for DOE funding to support the development of its reactor. B&W subsidiary Generation mPower recently signed a memorandum of understanding with FirstEnergy on studies on the potential deployment of the SMR in First Energy's service territory, which stretches across the USA's Midwest and Mid-Atlantic regions. The move was publicly welcomed by Ohio senators Sherrod Brown and Rob Portman, with Portman noting the benefits that "one or more" SMRs would bring to the state both in terms of supplying "safe, reliable, and cost-effective" energy and in supporting advanced energy careers.

O'Donnell, Brown and Portman are not the only politicians keen to add their support to SMR projects. Earlier this year Missouri governor Jay Nixon lent his support to the bid by Westinghouse to develop and manufacture its SMR in the state. Westinghouse and the Missouri Electric Alliance have signed up a group of twelve utilities and power suppliers including Exelon, Dominion Virginia and FirstEnergy to join the NexStart SMR Alliance to help secure DOE investment funds for its reactor.

The fourth major runner in the race for the DoE funding is Holtec's SMR-160. DOE has also agreed to host the first-of-a-kind reactor at Savannah River, and the company has announced that it is ready to launch the detailed design phase for the reactor.

14. Thirst for facts should override myths about water and climate

BY:BJORN LOMBORG From: The Australian August 16, 2012

12:00AM

<http://www.theaustralian.com.au/national-affairs/opinion/thirst-for-facts-should-override-myths-about-water-and-climate/story-e6frgd0x-1226451260496>

"EVERYONE knows" that you should drink eight glasses of water a day. After all, this is the advice of a multitude of health writers, not to mention authorities such as Britain's National Health Service. Healthy living now means carrying water bottles with us, sipping at all times, trying to drink our daily quota to ensure that we stay hydrated and healthy.

Indeed, often we drink without being thirsty, but that is how it should be: as beverage maker Gatorade reminds us, "Your brain may know a lot, but it doesn't know when your body is thirsty."

Sure, drinking this much does not feel comfortable, but Powerade offers this sage counsel: "You may be able to train your gut to tolerate more fluid if you build your fluid intake gradually."

Now the British Medical Journal reports that these claims are "not only nonsense but thoroughly debunked nonsense". This has been common knowledge in the medical profession at least since 2002, when Heinz Valtin, a professor of physiology and neurobiology at Dartmouth Medical School in the US, published the first critical review of the evidence for drinking lots of water. He concluded that "not only is there no scientific evidence that we need to drink that much but the recommendation could be harmful, both in precipitating potentially dangerous hyponatremia and exposure to pollutants and also in making many people feel guilty for not drinking enough".

So why do we keep hearing (and believing) that more water is better? Well, obviously, Gatorade and Powerade would like us to drink more of their products, and getting us to gulp more than we would naturally like seems a brilliant marketing move. Likewise, the latest Hydration for Health science gathering, a British initiative that promotes drinking more water, has been sponsored by Danone, which sells bottled water under brand names such as Evian.

The drink-more-water story is curiously similar to how "everyone knows" that global warming makes climate only more extreme. A hot, dry summer (in some places) has triggered another barrage of such claims. And, while many interests are at work, one of the players that benefits the most from this story is the media: the notion of "extreme" climate simply makes for more compelling news.

Consider Paul Krugman, writing breathlessly in The New York Times about the "rising incidence of extreme events" and how "large-scale damage from climate change is happening now".

He claims that global warming caused the current drought in the US midwest and that supposedly record-high corn prices could cause a global food crisis.

But the UN climate panel's latest assessment tells us precisely the opposite: for "North America, there is medium confidence that there has been an overall slight tendency toward less dryness (wetting trend with more soil moisture and runoff)".

Moreover, there is no way Krugman could have identified this drought as being caused by global warming without a time machine: climate models estimate that such detection will be possible by 2048, at the earliest.

And, fortunately, this year's drought appears unlikely to cause a food crisis. According to The Economist, "price increases in corn and soybeans are not thought likely to trigger a food crisis, as they did in 2007-08, as global rice and wheat supplies remain plentiful".

Moreover, Krugman overlooks inflation: prices have increased sixfold since 1969 so, while corn futures did set a record of about \$US8 (\$7.60) a bushel last month, the inflation-adjusted price of corn was higher throughout most of the 1970s, reaching a

whopping \$US16 in 1974.

Finally, Krugman conveniently forgets that concerns about global warming are the main reason that corn prices have skyrocketed since 2005. Nowadays 40 per cent of corn grown in the US is used to produce ethanol, which does absolutely nothing for the climate but certainly distorts the price of corn at the expense of many of the world's poorest people.

Bill McKibben similarly frets in *The Guardian* and *The Daily Beast* about the midwest drought and corn prices.

Moreover, he confidently tells us that raging wildfires from New Mexico and Colorado to Siberia are "exactly" what the early stages of global warming look like.

In fact, the latest overview of global wildfire incidence suggests that, because humans have suppressed fire and decreased vegetation density, fire intensity has declined during the past 70 years, and is now close to its pre-industrial level.

When well-meaning campaigners want us to pay attention to global warming, they often end up pitching beyond the facts.

And while this may seem justified by a noble goal, such "policy by panic" tactics rarely work and often backfire.

Remember how, in the wake of Hurricane Katrina in 2005, Al Gore (and many others) claimed that we were in store for ever more devastating hurricanes?

Since then, hurricane incidence has dropped off the charts; indeed, by one measure, global accumulated cyclone energy has decreased to its lowest levels since the late 70s. Exaggerated claims merely fuel public distrust and disengagement.

That is unfortunate because global warming is a real problem, and we do need to address it. Warming will increase some extremes (it is likely that droughts and fires will become worse towards the end of the century). But warming will also decrease other extremes; for example, leading to fewer deaths from cold and less water scarcity.

Similarly, there are real health problems and many of them. But

focusing on the wrong ones such as drinking a lot of water diverts our attention from more important issues. Telling tall tales may benefit those with a stake in the telling, but it leaves us all worse off.

Bjorn Lomborg is the head of the Copenhagen Consensus Centre.