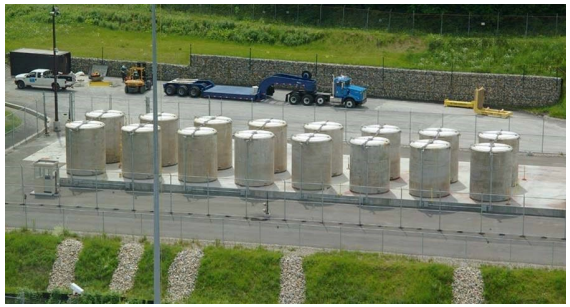
in 100 years radiation levels will have dropped by 90%.The remaining 10% will degrade to natural back-ground levels within 200 - 400 years.

To put the volume of 'once-used-nuclear-fuel' from our current plants into perspective, the photograph below shows all that remains from a now decommissioned Generation II nuclear power station which generated power for 31 years.



This is a minuscule amount compared to the waste from our current fossil fuel power stations, which release the equivalent of 5000 Gulf of Mexico oil spills into the atmosphere **every single day.**

Q8.Does nuclear power emit more CO2 than renewables?

When generating electricity, nuclear power emits no CO2.

When construction, mining and decommissioning of the various technologies are accounted for, nuclear emits far less CO2 than any other electricity generation technology, or mix of technologies, that can meet our demand for electricity.

If we ignore the emissions from the back-up fossil fuel plants required to meet demand when winds are low, then wind power emits, like nuclear power, virtually no CO2. When we include them, wind power emits about the same as efficient gas generation.

Q9. Is nuclear energy fast enough?

It's the fastest option we have. With a supportive population, and a little inspiration from France, we could replace our coal base load with nuclear power in 15 years. At its peak France was building 3500 MWe of nuclear power, or around four to six nuclear power stations, per year. Despite valiant attempts in some countries, no nation has ever come close to installing this much wind or solar in such a short time frame.

A changing tide in nuclear power support

Around the world environmentalists and climate scientists are beginning to take a critical look at nuclear power in the context of climate change. Many of them are changing their long held anti-nuclear positions. Here is a list of some of the more prominent identities:

Stephen Tindale – Former Director of Greenpeace. UK

Chris Goodall – UK Green Party member.

Stewart Brand – Editor of the Whole Earth Catalog. USA

Mark Lynas – former UK Green Party member, Environment editor "New Statesman" and author of "Six Degrees". UK

George Monbiot – Journalist for "The Guardian" and author of "Heat". UK (he supports nuclear as a potential part of the low-carbon energy mix)

James Lovelock – Scientist, conservationist and originator of the Gaia hypothesis. UK

James Hansen – Head of NASA Goddard Institute for Space Studies (popularly known as the grandfather of climate science). USA

Tim Flannery – Zoologist, conservationist and author of "The Weather Makers". AUS

Barry Brook – Environmental Scientist and Sir Hubert Wilkins Chair of Climate Change, University of Adelaide. AUS

Visit the FAQ and climate action pages at: www.bravenewclimate.com

"Lets put all our energy cards on the table to fix climate change fully." Environmental scientist, Barry Brook.

The BraveNewClimate Real Climate Action FAQ

Our Primary Goal:
Avert dangerous climate change.

Our secondary Goal:
To remove the ban on zero emissions nuclear power in Australia and ensure all zero emissions technologies may be included in our climate change mitigation strategy.

Q1.How urgent is it to address climate change?

To have a 50:50 chance of avoiding 2°C or more global warming, carbon emissions must be slashed by around 80% by 2050 and essentially eliminated in the few decades after that. It will take decades to make this massive, worldwide transition to new energy sources. The longer we delay, the more we will 'lock in' the build-up of long-lived greenhouse gases like carbon dioxide. We have no time to lose!

Q2.Why bother with nuclear power when we've got renewables?

. Non-hydro* renewables have failed to replace a single fossil fuel power station worldwide. This is despite extensive renewables build-outs by several dedicated nations. For example, Denmark represents the worlds best effort to convert to renewables. The last 20 odd years has seen Denmark aggressively pursuing wind power, yet it still only supplies between 5% and 20% of their electricity needs. In twenty years the Danes have been unable to replace a single fossil fueled power station with zero emissions power. At 650 g CO2 per kilowatt hour, Denmark's emissions are more than 7 times greater than nuclear-powered France.

. Nuclear power is the only zero emissions energy source which *has* replaced fossil fuel power stations. In just ten years, France almost completely replaced their fossil fueled stations with 34 nuclear power plants. Nuclear power currently supplies 78% of electricity to the French grid.

*Hydro has the potential to replace some fossil fuel generators, but many countries are constrained by a lack of suitable dam sites and water availability.

. Renewables are reinforcing the building of new fossil fuel plants. For those countries which refuse nuclear power or lack a potential for large scale hydro expansion, renewables are reinforcing the building of new fossil fuel plants, to "back-up" their intermittency and variability. Germany's refusal to build nuclear has led to plans for 26 new coal-fired power stations in the coming decades.

. Nuclear power is preventing the building of new fossil fuel plants. Finland recently voted to scrap plans for more coal plants and to build two more nuclear power stations instead. Once completed 80% of their electricity will come from zero emissions nuclear power. Even Denmark avoids building new fossil fuel plants by importing electricity from its nuclear power neighbours.

. Renewables are failing to meaningfully reduce emissions. At just 90g CO_2 per kilowatt hour of electricity, France now has the lowest emissions from electricity generation of any non-hydro, developed nation in the OECD. Compare this to the three countries in the EU with the highest renewable uptake: Denmark @ 650g, Spain @ 443g and Germany @ 539g.

. Renewables are proving more costly than nuclear power. Finland's newest 1600MW nuclear power plant will have a capacity factor* of 80-90% and is coming in at a cost of around $7 billion (expensive by world standards). Denmark's newest and largest 400MW wind farm will have a capacity factor of between 30-40% and is costed at $2.3 billion . To meet the average capacity of the Finland plant, 9 more of these wind farms would need to be built. That means 10 plants in total at $23 billion or 16 billion dollars more than the nuclear option.

On top of this, the countries with the highest renewable uptake – Denmark, etc – have some of the highest electricity prices in the EU for little appreciable emissions reductions.

High reliance nuclear nations such as France, Sweden and Switzerland have some of the lowest electricity prices in the EU... and the lowest emissions in the developed world.

*capacity factor refers to how much of a plants potential power output it is expected to achieve over one year.

"We need bridging low-carbon technologies and nuclear power should be one of them." Greenpeace Executive Director UK 2001-2006, Stephen Tindale

Q3. Isn't it more important for us to scale down our energy requirements through energy efficiency and conservation?

Population increase, a switch to electric vehicles, climate change adaptations (e.g. desalination) and the continuing electrification of the developing world, will all conspire to make conservation little more than a smoke screen – half measures and empty action that allows even weak adherents to feel a dangerously misplaced confidence while the planet continues to die. They cannot be relied upon as anything more than peripheral emissions reduction strategies.

Q4. Aren't renewables our safest option?

Our foremost reason for pursuing renewable energy is to avoid dangerous climate change. Therefore the 100% renewable option can only be considered our safest option if it adequately addresses climate change. Unlike nuclear power, renewables have so far proven unable to prevent new fossil fuel stations being built, and unable to replace existing coal and gas . We are deeply concerned that placing our sole faith in technologies, yet to prove their efficacy in replacing fossil fuels, is a climate disaster waiting to happen. Effective action is our safest option.

Is nuclear power Safe ?

Q5. Isn't radiation a concern?

Radiation is all around us. People, animals, plants, water, rocks and the Sun all emit radiation. The average radiation dose we receive each year is 360 millirems. But, depending on where you live in the world, what your life style is like, what your favourite foods are, etc., you may be exposed to a natural and completely harmless background radiation dose of anything from, about 200 millirems per year, to more than 5000 millirems/yr. For example:

Poland is low at – 240 millirem/yr

Grand Central station, NY – 540 millirem/yr (It's built from granite)

Kerala, India – 900 millirem/yr

Pripyat, Chernobyl (1992) – 2500 millirem/yr (non-natural)

Certain beaches in Brazil – 3000 millirem/yr.

Tamil Nadu, India at – 5,300 millirem/yr

A nuclear power station's radiation is indistinguishable from natural background radiation levels. At about 0.005% of our average radiation dose it's equivalent to the radiation dose we'd receive from eating one banana per year and around 100 times below that emitted by our current coal plants.
The developed nations with the highest reliance on nuclear power have life expectancy, under 5 year old, and infant mortality rates equal to any other developed nation. There is little evidence to suggest nuclear power stations pose increased health risks. Numerous studies have been undertaken to determine the effects of living near nuclear power plants and the overriding evidence demonstrates no rise in cancer rates, or other problems, for communities who live close to nuclear power plants, compared to those who do not.

Ask yourself this: If we accept the science on climate change, why shouldn't we accept the science on nuclear power?

Q6.What about meltdowns?

Compare Chernobyl with Three Mile Island, Pennsylvania. Chernobyl didn't have a containment dome, Three Mile Island did. Not a single person died or fell ill as a result of the Three Mile Island meltdown. Containment domes work.

Risk assessment studies show that nuclear power is the safest of all the electricity generation technologies. Nuclear is 10 to 100 times safer than our current coal electricity generation. Coal plant safety varies but nuclear power is at least 10 times safer than the safest coal power plant. Nuclear power is the only universally deployable, zero emissions technology that has proven able to replace a fossil fuel power station. This alone makes it safer than intermittent renewables such as wind and solar.

Current generation III nuclear power stations are even safer than the already incredibly safe Generation II designs. They have passive safety systems, controlled not by human operators but by the unchanging and immutable laws of physics. These designs are fail safe. They cannot melt down. If something goes wrong they simply shut themselves down. Not a single human operator need be present in the plant for this to occur.

Q7. What about the waste?

All technologies create waste – even wind and solar require the disposal of long lived toxic waste such as cadmium (which never breaks down). For nuclear power the long lived waste issue has been solved through generation IV technology. In reality, nuclear waste is much better thought of as 'once-used-nuclear-fuel', of which only about 1% to 10% of the energy has been used. The new Generation IV nuclear power plants use this 'waste' as fuel, consuming over 99% of the remaining energy. In fact. Generation IV nuclear power plants are the ONLY way we can get rid of existing long-lived nuclear waste – by burning it as fuel.

The final waste product from a next-generation nuclear power plant (with fuel recycling) has a half-life of 30 years. This means,