



# URANIUM MINING

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# URANIUM

## weighing benefits and problems

### **BENEFITS**

Jobs

Export revenue

Climate change?

### **PROBLEMS**

Environmental impacts

'Radioactive racism'

Nuclear weapons proliferation

Nuclear power risks e.g. reactor accidents, attacks on nuclear plants

## **JOBS**

1750 = <0.02% of all jobs in Australia

## **EXPORT REVENUE**

\$751 million in 2009-10

Uranium accounts for about one-third of one percent of Australian export revenue ...

0.38% in 2007

0.36% in 2008/09

Approx. 0.25% in 2009/10

# **CLIMATE CHANGE BENEFITS OF URANIUM AND NUCLEAR POWER?**

## **Greenhouse emissions intensity**

(Grams CO<sub>2</sub>-e / kWh)

Coal 1200

Nuclear 66

Wind 22

## **Does Australian uranium reduce global greenhouse emissions?**

The answer depends on whether Australian uranium displaces

- i) alternative uranium sources
- ii) more greenhouse-intensive energy sources (e.g. coal)
- iii) less greenhouse-intensive energy sources (e.g. wind power)

# **CLIMATE CHANGE BENEFITS OF URANIUM AND NUCLEAR POWER?**

## **OLYMPIC DAM MINE**

Greenhouse emissions projected to increase to 5.9 million tonnes annually. This will make it impossible for South Australia to reach its legislated emissions target of 13 million tonnes annually by 2050.

# URANIUM

## weighing benefits and problems

### BENEFITS

Jobs <0.02%

Export revenue \$ ~0.33%

Climate change? benefits compared to fossil fuels but not renewables

### PROBLEMS

Environmental impacts

Nuclear weapons proliferation risks

'Radioactive racism'

Nuclear power risks e.g. reactor accidents, attacks on nuclear plants

# Olympic Dam mine fire, 2001







Radioactive tailings, Olympic Dam



Radioactive tailings, Olympic Dam



## **Leaking tailings dam, Olympic Dam, 2008**

BHP Billiton threatened  
“disciplinary action”  
against any workers  
caught taking photos of  
the mine site.

The 2003 Senate References and Legislation Committee inquiry into the regulation of uranium mining in Australia reported "a pattern of under-performance and non-compliance", it identified "many gaps in knowledge" and found "an absence of reliable data on which to measure the extent of contamination or its impact on the environment."

It concluded that changes were necessary "in order to protect the environment and its inhabitants from serious or irreversible damage".

*[www.aph.gov.au/senate/committee/ecita\\_ctte/completed\\_inquiries/2002-04/uranium/report/index.htm](http://www.aph.gov.au/senate/committee/ecita_ctte/completed_inquiries/2002-04/uranium/report/index.htm)*



Mound Spring, Arabunna land, SA



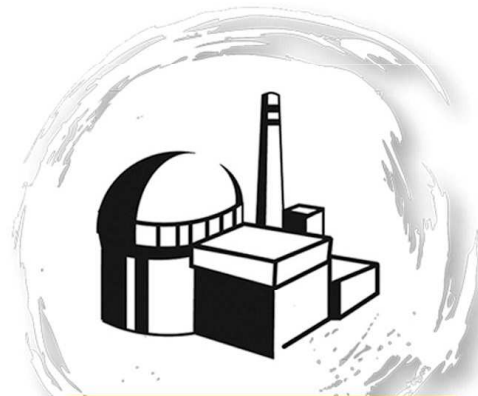
**Kevin Buzzacott  
Arabunna Elder**



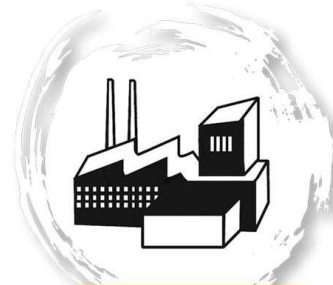
**URANIUM MINING**



**ENRICHMENT**



**NUCLEAR POWER REACTOR**

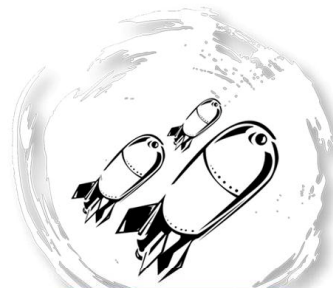


**REPROCESSING**

Spent fuel

Highly enriched uranium

Plutonium



**WEAPONS**



# **COUNTRIES WHICH HAVE USED 'PEACEFUL' NUCLEAR FACILITIES FOR NUCLEAR WEAPONS PRODUCTION**

- **Israel, India (research reactors / plutonium)**
- **South Africa, Pakistan (highly-enriched uranium)**
- **North Korea ('experimental power reactor' / plutonium)**
- **Also links between civil and military nuclear programs in the other five nuclear weapons states – USA, Russia, China, UK, France.**

*More info: [choosenuclearfree.net/power-weapons](http://choosenuclearfree.net/power-weapons)*



**"For eight years in the White House, every weapons-proliferation problem we dealt with was connected to a civilian reactor program. And if we ever got to the point where we wanted to use nuclear reactors to back out a lot of coal ... then we'd have to put them in so many places we'd run that proliferation risk right off the reasonability scale."**

**-- *Al Gore***



# THE 'SAFEGUARDS' SYSTEM

Periodic inspections of a sample of nuclear facilities.

The former Director General of the International Atomic Energy Agency, Dr. Mohamed El Baradei, has noted that

- the IAEA's basic rights of inspection are "fairly limited"
- the safeguards system suffers from "vulnerabilities" and it "clearly needs reinforcement"
- efforts to improve the system have been "half-hearted"
- the safeguards system operates on a "shoestring budget ... comparable to that of a local police department".

*More info: [choosenuclearfree.net/safeguards](http://choosenuclearfree.net/safeguards)*



# RADIOACTIVE RACISM

Racism in the uranium mining industry in Australia typically involves:

1. Ignoring the concerns of Traditional Owners insofar as the legal and political circumstances permit.
2. Divide-and-rule tactics.
3. Bribery.
4. Humbugging Traditional Owners – exerting persistent, unwanted pressure until the mining company gets what it wants.
5. Providing Traditional Owners with false or misleading information.
6. Threats, most commonly legal threats.



**“The Government would not listen and forced the Ranger uranium mine on us, but the old people were right and today we are dealing with everything they were worried about.”**

**"None of the promises last. But the problems always so."**

***Yvonne Margarula***  
***Mirarr Senior Traditional Owner***





**Kupa Piti Kungka Tjuta**

# NUCLEAR POWER

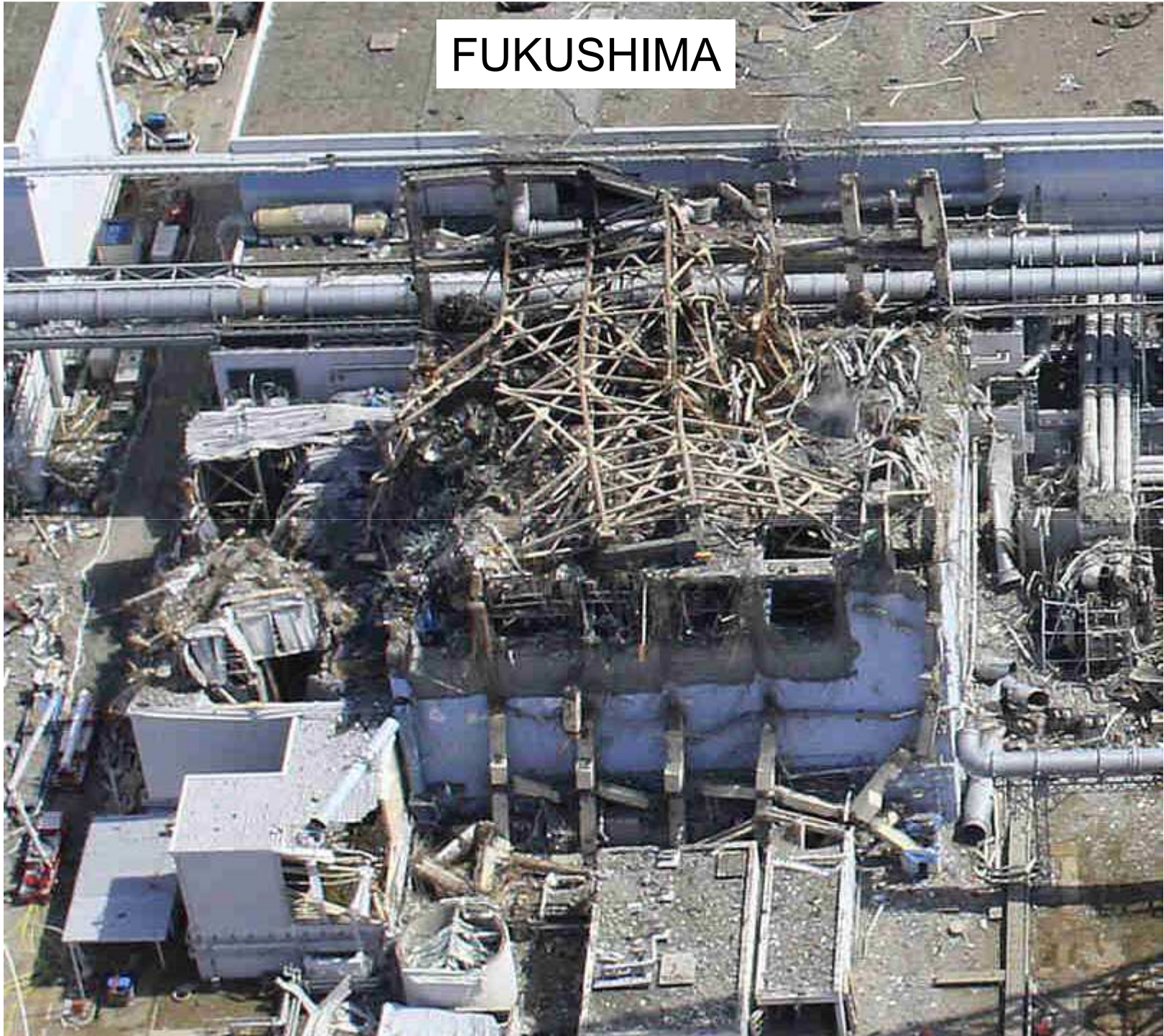
- climate change
- weapons connection
- accidents / attacks
- radioactive and nuclear waste





WORLD NUCLEAR ASSOCIATION

# FUKUSHIMA



# NUCLEAR WASTE

Small volumes of high-level nuclear waste; large volumes of low-level radioactive waste.

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One power reactor for one year:

- 30 tonnes high-level waste (spent fuel)
- 716,000 tonnes low-level tailings waste (assuming U sourced from Olympic Dam)

# REPOSITORIES FOR HIGH-LEVEL NUCLEAR WASTE

- none

Yucca Mountain, Nevada, USA  
\$10 billion wasted, 20+ years behind schedule  
Yucca Mountain dump plan has been abandoned



# Asse, West Germany

Low- and intermediate-level  
waste repository

126,000 barrels to be exhumed





**Martin Ferguson**  
Federal minister for  
resources & energy



Dianne Stokes



**Dianne Stokes:**

**"All along we have said we don't want this dump on our land but we have been ignored. Martin Ferguson has avoided us and ignored our letters but he knows very well how we feel. He has been arrogant and secretive and he thinks he has gotten away with his plan but in fact he has a big fight on his hands."**



## PROTEST AT TENNANT CREEK



See the 'Muckaty Voices' video at [beyondnuclearinitiative.com](http://beyondnuclearinitiative.com)

# Comparing benefits and problems

## **BENEFITS**      **MEAGRE**

Jobs      <0.02%  
Export revenue \$      ~0.33%  
Climate change?

## **PROBLEMS**      **SIGNIFICANT**

Environmental impacts  
Nuclear weapons proliferation  
'Radioactive racism'  
Nuclear power risks e.g. accidents, attacks



# **Anti-nuclear & Clean Energy (ACE) Campaign**

**web: [www.foe.org.au](http://www.foe.org.au)**

**see also [www.anfa.org.au](http://www.anfa.org.au)**

**[www.choosenuclearfree.net](http://www.choosenuclearfree.net)**

**[jim.green@foe.org.au](mailto:jim.green@foe.org.au)**



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Extra slides ....

# THE SCALE OF THE PROBLEM

- Nuclear power reactors have produced enough plutonium to build over 160,000 nuclear weapons.
- So if 99% is safeguarded to prevent its use in weapons, the remaining 1% will suffice to build 1600 nuclear weapons – each of them as destructive as the plutonium bomb that destroyed Nagasaki.
- Australian uranium has produced over 120 tonnes of plutonium, enough to build over 12,000 nuclear weapons. If 99% is safeguarded to prevent its use in weapons, the remaining 1% will suffice to build over 100 nuclear weapons.

# **COUNTRIES WHICH HAVE USED 'PEACEFUL' NUCLEAR FACILITIES FOR WEAPONS RESEARCH**

**20-25 countries**

**Algeria, Argentina, Australia, Brazil, Egypt,  
India, Iran, Iraq, Israel, Libya, North Korea,  
Norway, Pakistan, Poland, Romania, South  
Africa, South Korea, Sweden, Switzerland,  
Syria, Taiwan, and Yugoslavia.**