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## Dirty old coal has no place in a sustainable energy future

Despised and romanticised, inspirer of poetry and politics – for generations men and women have eked out a hard living hauling coal from beneath the ground – to be burned in the furnaces of industry and homes.

But coal's worst legacy is yet to be fully realised. Through the massive pollution of the earth's atmosphere with carbon dioxide, humans are causing global warming and climate change. Rising sea levels, retreating glaciers, species extinction, devastating new weather patterns and migrating pests and disease are just some of the impacts.<sup>1</sup>

For this reason the age of coal needs to come to an end. Coal, oil and gas are "fossil-fuels" – dirty relics of the industrial revolution that need to be phased out and replaced with modern, clean, efficient and renewable energy sources such as wind.

But the coal industry continues to lobby for more coal-fired power stations to be built and tries to portray modern coal burning methods as clean, despite coal still being in essence a dirty old polluting fuel.

### Health and environmental nightmare

Coal burning is one of the dirtiest ways to generate energy. Coal releases the most CO<sub>2</sub> (carbon dioxide) of any fossil fuel – 72% more CO<sub>2</sub> than burning gas,<sup>2</sup> and CO<sub>2</sub> is the most important global warming pollutant.

Burning coal is responsible for about 60 per cent of soot creating sulphur dioxide

<sup>1</sup> Intergovernmental Panel on Climate Change, Climate Change 2001: Impacts, Adaptation and Vulnerability.

<sup>2</sup> Based on figures taken from *New Zealand Energy Information Handbook*, 1993, edited by J.T. Baines.



*Huntly power station. Coal burning emits atmospheric pollutants and coal mines destroy landscapes and poison waterways.*

emissions in the US and is also a major source of smog-forming nitrogen oxide pollution and the single biggest source of toxic mercury pollution.<sup>3</sup> The burning of coal for energy significantly contributes to acid rain.<sup>4</sup>

Extracting coal from the ground also causes extensive degradation to natural ecosystems such as forests. Coal mines can scar the landscape irreparably. Sulphuric acid is created when crushed or exposed coal gets wet. This drains into waterways and kills aquatic life. Up to 125km of waterways on the north and central West Coast of the South Island are already contaminated from acid mine drainage from historic and current coal mines.<sup>5</sup> Such toxic residues can plague nearby environments and communities for many decades.

Coal mining is traditionally very dangerous work with a history of high casualty rates. Coal miners can also develop respiratory illnesses such as emphysema, black lung disease and chronic bronchitis.<sup>6</sup>

Alternative power sources such as wind-farms can provide more employment than

<sup>3</sup> U.S. Environmental Protection Agency (USEPA), Office of Water, "Air Pollution and Water Quality: Atmospheric Deposition Initiative: Where is the Air Pollution Coming From?". See also USEPA, Mercury Report to Congress, 1997, Vol. 1.

<sup>4</sup> USEPA website:

[http://www.epa.gov/oar/oaqps/peg\\_caa/pegcaa05.html](http://www.epa.gov/oar/oaqps/peg_caa/pegcaa05.html)

<sup>5</sup> Water Quality of Streams Draining various Coal Measures in the North-Central West Coast, T. I. James, West Coast Regional Council.

<sup>6</sup> 1-Up-Health website: [www.1uphealth.com](http://www.1uphealth.com)

coal mines<sup>7</sup> and the work is clean and safer. Notably a number of New Zealand's poorer regions are identified as having high wind energy development potential, such as the Far North.<sup>8</sup>

### **'Clean coal' is a myth**

Despite billions of dollars being spent in the US on research into how to make coal less toxic to the environment<sup>9</sup> efforts have failed to make coal anything like 'clean' in comparison with renewable energy sources.

Industry players are finding that 'clean coal' technology doesn't work. In the summer of 2001, American Electric Power's Gavin plant in Chesire, Ohio, using 'clean coal' equipment, released sulphuric acid into the air, posing a serious health risk to the community.

The operators of the \$297 million Healy Clean Coal project, in the USA, intend to retrofit the current clean coal plant with traditional technologies. The plant has been closed since January 2000 because safe, reliable and economical operation was not possible with the experimental 'clean coal' technology.<sup>10</sup>

Claims by industry that it may be possible in the future to eliminate carbon dioxide emissions from coal burning are extremely far fetched. The economics alone of capturing and storing carbon dioxide make the prospect ludicrous, particularly when energy solutions already exist that coal can never compete with for cleanliness and efficiency.<sup>11</sup>

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<sup>7</sup> Onshore wind farms create approximately 13 jobs / GWh compared to approximately 5 jobs / GWh from coal fired power stations, Ralph Sims, Centre for Energy Research, Massey Uni.

<sup>8</sup> Locations most suitable for wind energy development include Far North, Taranaki Coast, Foveaux Straight and SE Hills, EECA, Review of NZ's wind energy potential to 2015, May 2001, Pg 10.

<sup>9</sup> Can Coal Be Clean?, 'Clean Coal' Technologies & their potential impact on global warming, Mark Ellis, Energy Consultant for Greenpeace and Aid/Watch, June 1997.

<sup>10</sup> Golden Valley Electric Association (2004) Healy Clean Coal Plant, [www.gvea.com/projects/healycoal.php](http://www.gvea.com/projects/healycoal.php), viewed 1/12/04; AIDEA/AEA (2004) Project Fact Sheet: Healy Clean Coal Project (HCCP), <http://www.aidea.org/PDF%20files/HCCPFactSheet.pdf>, viewed 1/12/04.

<sup>11</sup> *Ibid.*

### **The Power of Wind**

People have harnessed wind energy for centuries. Development of the technology over the last decade has proven wind can reliably generate huge amounts of electricity. Wind is clean, powerful and renewable – meaning there is an endless supply.

Our own Energy Efficiency and Conservation Authority (EECA) states "the total long-term potential [for wind energy generation] has been assessed to be in the order of 100,000 gigawatt hours per year, three times our present generation."<sup>12</sup>

Wind energy is the fastest growing energy source in the world. Global wind capacity has quadrupled over the past five years growing from 7,600 Mega Watts (MW) at the end of 1997 to more than 31,000 MW at the end of 2002 – enough to power 16 million average European homes.<sup>13</sup> 18% of Denmark's electricity comes from wind energy.

In 2001 some 6,500 MW of new wind energy generation was installed internationally, representing annual growth of almost 40 per cent!

### **Wind versus coal in New Zealand**

New Zealand is at a crossroads in energy generation. Already 65% of our energy comes from renewable hydro sources but the recent energy crisis and the projected end of the Maui gas reserves have brought the question of how we meet future energy needs into the spotlight.

New Zealand has one of the most under utilised wind resources for power generation in the world<sup>14</sup> yet the coal industry is lobbying hard to grow its share of future power supply.

We need strong policies to drive renewable energy development and for the Government to stop the building of new coal fired plants.

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<sup>12</sup> EECA, Review of NZ's wind energy potential to 2015, May 2001, Pg 8.

<sup>13</sup> European Wind Energy Association website: <http://www.ewea.org/>

<sup>14</sup> A 1987 report for NZ Energy Research and Development Committee found that NZ is one of the most favourable parts of the world for large-scale introduction of wind energy.