



No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	03 May 2011 18:18  Email	Eric Mair African Alternative Technologies Research and Development Director	<p>COMMENTS ON THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT</p> <p><i>(Please refer to page numbers where possible.)</i></p> <p>The assertion that “As far as power generation technologies are concerned, nuclear generation and coal-fired power generation are the only proven base-load technologies.” “Renewable energy sources such as solar and wind energy do not provide the guaranteed base-load generation capacity that is required.” is entirely inaccurate.</p> <p>Renewable technology, particularly in the solar thermal field has advanced now to the point where it is capable of providing dispatchable or base load power. CSP is also capable of co-firing with natural gas or even biomass for additional back-up to the integrated thermal storage systems.</p> <p>Also, our company is about to construct a power storage demonstration plant which will enable the same dispatchability to wind and PV.</p> <p>It is simply no longer true to say that renewables cannot deliver base load</p>	<p>Thank you for your comment.</p> <p>Whilst progress has been made with regard to CSP with storage, this technology is still in demonstration phase and has only been implemented on a small scale when compared with coal and nuclear units of 800 – 1600 MW. Quality of supply is very important to South Africa when considering the reliability that all commercial activities require in order to run their businesses efficiently and effectively. You are also referred to EPRI (2010) referred to in Chapter 5 of the Revised Draft EIR Version 1. CSP does indeed hold potential for base load generation in future, but this has not yet been proven on a large scale comparable to the capacity of a 4 000 MW base load power station.</p> <p>In light of the above, coal-fired and nuclear power stations are currently still considered to be the only feasible options globally for base load electricity generation.</p> <p>Wind generation is limited by the erratic availability of wind. Wind power, as indicated in Chapter 5 of the EIR Verdition1 (based on research undertaken for the Integrated Resource Plan) to have a capacity factor of 29.1 % to 40.6 % (EPRI 2010) – meaning that wind is available at this percentage of the time. Wind power therefore cannot guarantee a sustained source of power Photovoltaic (PV) electricity generation is limited to daytime hours and currently large scale overnight storage of electricity for base load power is not viable with current technology.</p>

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			<p>power.</p> <p>Secondly, I find it sad and extremely worrying that it has been seen fit, in specifying the parameters of this study, to ignore:</p> <ul style="list-style-type: none"> <li>• The environmental impact of the mining, transportation and processing of the fuel required to power this facility.</li>   <li>• The security operation which surrounds anything nuclear, which must surely have an impact on our environment?</li> </ul>	<p>This application for Environmental Authorisation considers the suitability of the Duynefontein, Bantamsklip and Thyspunt sites for the construction, operation and decommissioning of a single nuclear power station and in terms of the listed activities contained within Government Notice numbers R 386 and 387 of 2006. Whilst the Revised Draft EIR Version 1 discusses fuel required to power the facility in Chapter 3 of the report it does not, as a project-specific and activity-specific tool, consider the mining, transportation and processing of fuel for the power station. These issues will fall under separate applications for authorisations and permits, e.g. the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) and the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999), once it is known if the project will proceed and at which site.</p> <p>The information provided to GIBB by the Applicant confirms that Emergency Planning Zones (EPZs) of 800 m and 3 km will be applicable to the proposed Nuclear-1 power station. No private development will be allowed within the 800 m EPZ and development restrictions would apply within the 3 km EPZ.</p> <p>Furthermore, a security exclusion zone would also apply to Nuclear-1, as is the case with all power stations in South Africa, as they are regarded as Key Points under the National Key Points Act, 1980 (Act No. 102 of 1980). It is likely that a security exclusion zone of 1 to 2 km from the coast will be</p>

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			<ul style="list-style-type: none"> <li>Inevitably, the problem of nuclear waste. How can this very real problem possibly skate past a conscientious ENVIRONMENTAL impact assessment of a nuclear power station?</li> </ul>	<p>applied to Nuclear-1, although a final decision in this regard will be made by the National Intelligence Agency. No public access will be allowed within this security exclusion zone. However, as is the case currently at the Koeberg Nuclear Power Station, the nature reserve around the power station will be accessible to the public.</p> <p>Radioactive waste management practices envisaged for the Nuclear-1 Power Station is consistent with the International Atomic Energy Association (IAEA) guidelines for a Radioactive Waste Management Programme for nuclear power stations as is described in Chapter 3 of the Revised Draft EIR Version 1. The Nuclear-1 Power Station will further strive to minimise production of all solid, liquid and gaseous radioactive waste, both in terms of volume and activity content, as required for new reactor designs. Systems are lastly designed to store processed solid radioactive waste for a period of up to three years within the facility. The storage containers are consistent with the requirements for the disposal of solid waste at the radioactive waste disposal facility at Vaalputs. The High-level waste unsuitable for disposal at Vaalputs will be stored safely on site until a suitable facility is available in South Africa. With the implementation of appropriate mitigation measures all potential impacts are expected to be of low significance.</p> <p><u>COMMENT FROM INDEPENDENT NUCLEAR SPECIALIST:</u></p> <p>In addition to what has been said see also responses to IRR 1 issue 6 above and IRR 5 issue 13 - it must also be noted that the primary responsibility for off site emergency planning lies with the relevant local authorities and not with the applicant.</p>

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2	22 May 2011 08:34  Email	Len Handler Neuro-Radiologist Retired	<p>The article, "Unsafe at any Dose" from the Opinion Pages had been opened and I have again copied what I found on the bottom of your reply to me Len Handler</p> <p><b>Subject:</b> Fw: NYT1-5-11:Radiation Damage</p> <p>Hello Len and Mike, Picked this up in the weekend edit of the NY Times. It's nothing new and is standard medical dogma and an article of faith for radiologists and radiotherapists.</p> <p>You may well find some ammunition in it. At a public EIA meeting beyond Milnerton on a golf estate I was unable to coax the experts to explain how they would evacuate the citizenry of CPT in the event of an accident at Koeberg.</p> <p>The N7, N1 and N7 are all downwind should a Westerly or North-Wester be blowing</p>	<p>The GIBB Nuclear-1 Public Participation confirms that the attachment in Mr Handler's email received on 03 May 2011 was not in a compatible format to open. Therefore, Mr Handler re-sent the email and pasted the attachment (article in New York Times) in the body of his latest reply.</p> <p>Thank you for your comments. Issues related to the impact on human health are discussed in the Human Health Risk Assessment (Appendix E24 of the Revised Draft EIR Version 1) but will also be dealt with in detail as part of NNR licensing process.</p> <p>Koeberg has been safely operating for the past 27 years and as per legislation Koeberg is required to have an Emergency preparedness and response plan. This is submitted to the NNR for approval and the regulator conducts emergency preparedness drills/excises every 18 months to ensure that the emergency plan is executed effectively and efficiently.</p> <p>Furthermore the Koeberg emergency planning team consisting of members from Eskom, the Local Authorities and other support organisations are available around the clock to handle any emergency at the power station. In the unlikely event of an emergency at Koeberg, Eskom will notify the City of Cape Town Disaster Risk Management immediately. Eskom will recommend appropriate protective actions as per the requirements of the NNR to the relevant authorities. Representatives of National, Provincial and Local Government</p>

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			<p><u>Article: New York Times on 1-5-11</u>                      SIX weeks ago, when I first heard about the reactor damage at the Fukushima Daiichi plant in Japan, I knew the prognosis: If any of the containment vessels or fuel pools exploded, it would mean millions of new cases of <u>cancer</u> in the Northern Hemisphere.</p>	<p>will authorized the appropriate protective actions to be implemented. Emergency response personnel and resources from all spheres of government will carry out these actions.</p> <p>An emergency calendar is also sent to the area surrounding Koeberg every year. This calendar gives details of the emergency plan for those people living closest to the station.</p> <p>Lastly the NNR requires evacuation of the 5km precautionary Action Zone (PAZ) within 4 hours, and the downwind affected sector of the Urgent Protective Action Planning Zone (UPZ) between 5km and 16km to be evacuated within 16 hours. The City of Cape Town Disaster Risk Management would utilise the My Citi Busses as well as other public transport resources to evacuate people in the relevant emergency planning zone who do not have their own transport.</p> <p><u>COMMENT FROM INDEPENDENT NUCLEAR SPECIALIST:</u></p> <p>The comment makes little sense except for the implied question in the penultimate paragraph re evacuation. Which has been answered - please also refer to the response to IRR 6 issue 1 relating to the responsibilities for emergency planning.</p> <p>On 18 Jan 2012 (NucNet) News reported; “About 30 workers at the Fukushima-Daiichi nuclear power plant in Japan received between 100 millisieverts (mSv) and 250 mSv of radiation exposure, which would have increased their chances of cancer by about one percent to 2.5 percent, a parliamentary committee in the UK was told. Her Majesty’s chief inspector of nuclear installations, Mike Weightman, told the House of Commons Energy and Climate Change Committee that in terms of the</p>

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			<p>Many advocates of nuclear power would deny this. During the 25th anniversary last week of the Chernobyl disaster, some commentators asserted that few people died in the aftermath, and that there have been relatively few genetic abnormalities in survivors' offspring. It's an easy leap from there to arguments about the safety of <u>nuclear energy</u> compared to alternatives like coal, and optimistic predictions about the health of the people living near Fukushima.</p> <p>But this is dangerously ill informed and short-sighted; if anyone knows better, it's doctors like me. There's great debate about the number of fatalities following Chernobyl; the <u>International Atomic Energy Agency</u> has predicted that there will be only about 4,000 deaths from cancer, but a <u>2009 report published by the New York Academy of Sciences</u> says that almost one million people have already perished from cancer and other diseases. The high doses of radiation caused so many <u>miscarriages</u> that we will never know the number of genetically damaged foetuses that did not come to term. (And both Belarus and Ukraine have group homes full of deformed children.)</p>	<p>workers, "there don't appear to be any acute radiation effects".</p> <p>He said 30 of them have had "a significant dose", but it is not in the sense of an immediate life-threatening dose. In a declared nuclear emergency, the recommended limit is 100 mSv. The International Commission on Radiation Protection is mandated to sanction a maximum accumulated dose of 250 mSv in extraordinary circumstances. Mr Weightman said public evacuation was well-organised and exposure countermeasures for the public have been "effective so far", and there will be a longer-term health monitoring programme."</p> <p><u>COMMENT FROM INDEPENDENT NUCLEAR SPECIALIST:</u></p> <p>In addition to what is said regarding the specific impact of the Fukushima event- the article focusses on various countervailing views of the science of radiation protection as was also discussed in the response to IRR 1 above. The international community of Radiation Protection practitioners base the basic fundamentals of radiation protection on the observed science and adopt a conservative approach in the setting of standards practices and limits - the ICRP is the principle independent international body responsible for the assessment of scientific evidence and associated recommendations which are ultimately adopted and promulgated via the IAEA in regulatory guides which are then incorporated in national legislation and regulations - this system has proved itself robust in its ability to protect both workers, the environment and public in the face of contrarian views but has always been able to countenance such possibilities and adapt as new information has emerged.</p>

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			<p>Nuclear accidents never cease. We're decades if not generations away from seeing the full effects of the radioactive emissions from Chernobyl.</p> <p>As we know from Hiroshima and Nagasaki, it takes years to get cancer. <u>Leukaemia</u> takes only 5 to 10 years to emerge, but solid cancers take 15 to 60. Furthermore, most radiation-induced mutations are recessive; it can take many generations for two recessive genes to combine to form a child with a particular disease, like my specialty, <u>cystic fibrosis</u>. We can't possibly imagine how many cancers and other diseases will be caused in the far future by the radioactive isotopes emitted by Chernobyl and Fukushima.</p> <p>Doctors understand these dangers. We work hard to try to save the life of a child dying of leukaemia. We work hard to try to save the life of a woman dying of metastatic <u>breast cancer</u>. And yet the medical dictum says that for incurable diseases, the only recourse is prevention. There's no group better prepared than doctors to stand up to the physicists of the nuclear industry.</p>	

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			<p>Still, physicists talk convincingly about “permissible doses” of radiation. They consistently ignore internal emitters — radioactive elements from nuclear power plants or weapons tests that are ingested or inhaled into the body, giving very high doses to small volumes of cells. They focus instead on generally less harmful external radiation from sources outside the body, whether from isotopes emitted from nuclear power plants, medical X-rays, cosmic radiation or background radiation that is naturally present in our environment.</p> <p>However, doctors know that there is no such thing as a safe dose of radiation, and that radiation is cumulative. The mutations caused in cells by this radiation are generally deleterious. We all carry several hundred genes for disease: cystic fibrosis, <u>diabetes</u>, <u>phenylketonuria</u>, <u>muscular dystrophy</u>. There are now more than 2,600 genetic diseases on record, any one of which may be caused by a radiation-induced mutation, and many of which we’re bound to see more of, because we are artificially increasing background levels of radiation.</p> <p>For many years now, physicists</p>	

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			<p>employed by the nuclear industry have been outperforming doctors, at least in politics and the news media. Since the Manhattan Project in the 1940s, physicists have had easy access to Congress. They had harnessed the energy inside the centre of the sun, and later physicists, whether lobbying for nuclear weapons or nuclear energy had the same power. They walk into Congress and Congress virtually prostrates itself. Their technological advancements are there for all to see; the harm will become apparent only decades later.</p> <p>Doctors, by contrast, have fewer dates with Congress and much less access on nuclear issues. We don't typically go around discussing the latent period of carcinogenesis and the amazing advances made in understanding radiobiology. But as a result, we do an inadequate job of explaining the long-term dangers of radiation to policymakers and the public.</p> <p>When patients come to us with cancer, we deem it rude to inquire if they lived downwind of Three Mile Island in the 1980s or might have eaten Hershey's chocolate made with milk from cows that</p>	

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			<p>grazed in irradiated pastures nearby. We tend to treat the disaster after the fact, instead of fighting to stop it from happening in the first place. Doctors need to confront the nuclear industry.</p> <p>Nuclear power is neither clean, nor sustainable, nor an alternative to fossil fuels — in fact, it adds substantially to <u>global warming</u>. Solar, wind and <u>geothermal</u> energy, along with conservation, can meet our energy needs.</p> <p>At the beginning, we had no sense that radiation induced cancer. Marie Curie and her daughter didn't know that the radioactive materials they handled would kill them. But it didn't take long for the early nuclear physicists in the Manhattan Project to recognize the toxicity of radioactive elements. I knew many of them quite well. They had hoped that peaceful nuclear energy would absolve their guilt over Hiroshima and Nagasaki, but it has only extended it.</p> <p>Physicists had the knowledge to begin the nuclear age. Physicians have the knowledge, credibility and legitimacy to end it.</p>	

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			<p>Helen Caldicott, a founder of Physicians for Social Responsibility, is the author of "Nuclear Power Is Not the Answer." <b>A version of this piece appeared in print on May 1, 2011, on page WK10 of the New York edition with the headline: Unsafe At Any Dose.</b></p>	