

# Energy Management News



Sponsored by Eskom and the  
Department of Science & Technology

VOLUME 15 NUMBER 4

www.erc.uct.ac.za

DECEMBER 2009

## ERC selected as Regional Designated Centre in Energy Planning

The Energy Research Centre (ERC) has been selected as the African Regional Co-operative Agreement for Research, Development and Training related to Nuclear Science and Technology (AFRA) Regional Designated Centre (RDC) in the field of Energy Planning.

This follows a process that has been ongoing for over a year, and included a visit by a two-man evaluation team to the ERC last year.

As an RDC, the ERC will help the International Atomic Energy Agency (IAEA) to provide training to African energy planners and provide general support in the area of energy planning to the AFRA member states (i.e. most African countries). It also means, amongst other things, that there will be money available to offer training to energy planners from around Africa and the IAEA will pay the costs.

● *Contact: Alison Hughes  
Energy Research Centre  
University of Cape Town  
Tel: +27 (0)21 650 3895  
E-mail: Alison.Hughes@uct.ac.za*

## Measuring electricity consumption during the soccer draw period

The Cape Town International Convention Centre (CTICC) gave Eskom permission to install 36 meters and modems from 30 November to 7 December 2009 to monitor the centre's energy consumption in real time. This data would be translated into environmental information, made accessible for viewing via an online energy dashboard and updated every 60 seconds.

The energy saving initiative, known as 'Measure 2 Manage', would measure energy consumption in real-time, monitoring the pre-draw and final-draw activities taking place at the venue. With the information collated from this event, both parties would be able to review the centre's

energy consumption peaks and patterns on a minute-to-minute, hour-to-hour or day-to-day basis, in order to make recommendations on how to curb it in the future for similar events.

### Sustainable initiatives

In addition to being able to monitor and translate energy consumptions in real time and making this information easily accessible to external parties, the remote meter reading system can also isolate and monitor various rooms or sections of a building making it even more practical for businesses to find ways to curb energy consumption.

As one of the industry leaders in sustainability, the centre is committed

## IN THIS ISSUE

ERC selected as Regional Designated Centre in Energy Planning . . . . .	1
Measuring electricity consumption during the soccer draw period . . .	1
Researching the size of the SA clean industries sector . . . . .	2
Durban Industry Climate Change Partnership Project . . . . .	3
Why global warming is a minimal threat . . . . .	4
Eight out of ten people will battle to cope with the mooted electricity price rises . . . . .	10
Interactive workshop on energy efficiency uncertainty and multi-criteria decision analysis . . . . .	11
Langalinaland community involvement questionnaire . . . . .	12
Vineyard Hotel goes green . . . . .	13
Precious drops . . . . .	13
SAEE Hall of Fame . . . . .	14
Renewable Energy Trust nurtures intellectual capital . . . . .	15
International conference: Towards sustainable energy, solutions for the developing world . . . . .	16
Wind Power Africa 2010 Conference and Renewable Energy Exhibition . . . . .	17
Concentrating solar power – status and application . . . . .	19
Energy events 2010 . . . . .	19

to transforming the events industry to one that is socially, economically and environmentally sustainable. According to CEO, Rashid Toefy, 'CTICC is continually thinking of new and innovative ways to implement sustainable initiatives throughout the centre and to encourage event greening. We are partnering with Eskom on this initiative to monitor and reduce our energy consumption.'

### Keep an eye on CTICC's energy consumption

He added that through a concerted effort of switching off unnecessary plant and equipment during December 2008, the centre made a significant saving on electricity, which shows the difference that can be made if one is cognisant of how to reduce ones carbon footprint.

It is one of the only convention centres in Africa that has had its processes certified according to the internationally recognised systems standards ISO 9001 (Quality Assurance), ISO 14001 (Environmental Management) and OHSAS 18001 (Occupational Health and Safety Systems).

By visiting the project site on [www.measure2manage.co.za](http://www.measure2manage.co.za), interested parties will have access to the CTICC's energy consumption; carbon emissions and energy demand over the draw period, as well as energy saving tips and links to further energy saving information. Visitors to the site will also have the option of registering for periodic energy saving e-mail alerts.

*With acknowledgements to Bizcommunity.com*

*Website: [www.measure2manage.co.za](http://www.measure2manage.co.za)*



# Researching the size of the SA clean industries sector

The Environmental Goods & Services (EGS) Forum is a voluntary, unincorporated association, registered as a Non Profit Organisation, with legal personality under the common law of the Republic of South Africa and is not a registered VAT vendor.

The EGS Forum's main purpose is to provide a common platform to promote the South African environmental goods and services and its interests. Members of the Forum identify their priority needs, create appropriate enabling structures and take action that will increase business opportunities, trade, skills, knowledge and jobs in the South African environmental sector.

The EGS Forum was launched by the Department of Trade and Industry (DTI) in August 2007, following the recommendations of a 2006 Nedlac/DTI report on the potential of -and barriers to- the growth of the South African EGS sector.

In 2010, the EGSF will focus mainly on collecting and disseminating market information and policy advice in support of work by national government work on:

1. "Green jobs" (under the lead of the Departments of Environmental Affairs and Economic Development) as part of an economic crisis response/stimulus and
2. "Green industry" (under the lead of the DTI, with support from the Department of Science and Technology - DST) as part of the review of the DTI's Industrial Policy Action Plan.

The Industrial Policy Action Plan sets out actions with timeframes which the DTI and government in general will undertake in support of industrial development.

The DTI has publicly expressed its interest in including green industries in a reviewed IPAP and has welcomed

input from industry through the EGS Forum. This input was required by November 2009.

The EGS Forum has commissioned The Enviropaedia to develop a comprehensive database of EGS companies and high-level information about these companies, specifically estimates of turnover and employment.

The information provided by willing participants will be used for research purposes only. Only sector and sub-sector-level information will be included in the assessment; information on individual companies or projects will not be included.

● *Contact: Peet du Plooy  
Chair: EGS Forum  
Ground Floor, WWF Building  
Pinmill Farm  
164 Katherine Street  
Sandown 2031  
Tel: +27 (0)11 262 9460*

*David Parry-Davies  
Eco-Logic Publishing cc  
PO Box 425  
Simonstown 7995 South Africa  
Tel: +27 861 000 810  
E-mail: [info@enviropaedia.com](mailto:info@enviropaedia.com)  
Website: [www.enviropaedia.com](http://www.enviropaedia.com)*



## OVERVIEW AND AIM OF THE PROJECT

The aim of the Durban Industry Climate Change Partnership Project (DICCPP) is to create a mechanism for Industry in Durban to respond to climate change risks and opportunities. This will be achieved through a sustained partnership of the industrial and public sector in Durban to effectively contribute towards climate change mitigation and adaptation.

The programme is being implemented by the United Nations Industrial Organisation (UNIDO) in partnership with the Durban Investment Promotion Agency (DIPA), the eThekweni Municipality and the Durban Chamber of Commerce Industry (DCCI).

The project has 3 core components, namely industry specific interventions, institutional support and outreach.

## 1. INDUSTRY SPECIFIC INTERVENTIONS

Three priority sectors have been identified in the Durban area, with these being, automotive, petroleum and chemicals, and maritime and logistics.

The DICCPP has begun engaging with existing sector structures such as the Durban Automotive Cluster, the Durban Chemical Cluster (DCC) and the eThekweni Maritime and Logistics Cluster (EMLC) to assist in the implementation of the project in the various sectors.

### Learning fora

The primary activity of the project will be the facilitation and hosting of a series of workshops (known as learning fora). The learning fora will be held over the period November 2009 to June 2010 and will be facilitated by the DICCPP. The topics covered by the learning fora include:

### Greenhouse Gas (GHG) Assessment

This will include Carbon Footprint Calculations, Life Cycle and Supply Chain Analysis and emission Target Development.

# Durban Industry Climate Change Partnership Project

### Financial implications

This will include the carbon taxes, cap and trade and the carbon market, funding streams and investment opportunities.

### New technologies

This will include new technologies and markets that are developing in response to climate change.

### Waste management

This will include sustainable disposal, advanced waste recovery and recycling CC Response strategy development and implementation.

Key industry experts within each sector will be identified to contribute to the learning fora and assist industry in addressing climate change. If needed, individual consultations with key industry stakeholders in each sector will be conducted in order to refine industry specific implementation plans.

The findings from learning fora and individual consultation will then be used to develop an operational model for roll-out of sectoral approach to other sectors in the city.

## 2. INSTITUTIONAL SUPPORT

The project will also focus on developing the necessary institutional mechanism in industry to actively drive and monitor industry climate change response activities in the city. This will be achieved by working with the 'Durban Climate Change Partnership' and organised business to ensure that the relevant institutional structure is established and capable to coordinate the industry climate change response model.

The DICCPP has also begun working closely with the eThekweni Energy Office to facilitate a 'mitigation' competency in the municipality. The DICCPP has together with the energy office begun developing a carbon credit project identification notes for various municipal infrastructure EE projects and has begun investigating the drafting of an energy efficiency by-law for the city.

## 3. OUTREACH

There is also a strong focus on outreach through the project. The DICCPP is currently developing a carbon footprint video with the eThekweni communications department to assist businesses to quantify their carbon footprint and is working with Imagine Durban in promoting the Durban Business Energy Saver Competition.

The project will ultimately result in the establishment of a forum for industry to meet regularly to engage with climate change mitigation and adaptation activities. The forum will facilitate investment and technology transfer between Durban and China and, once established, to regularly meet with the government and other stakeholders.

- *Contact: Derek Morgan  
Local Project Officer  
Durban Industry Climate Change Partnership Project  
Tel: +27 31 201 8958  
Fax: 088 031 201 8958  
Cell: +27 83 419 0240  
Website: <http://durbanportal.net/ClimateChange/>*



Durban  
Investment  
Promotion  
Agency

On 17 July 2003, Dr. David Kelly, CMG, an expert in biological warfare and a former United Nations weapons inspector in Iraq, committed suicide. It seemed likely that he was depressed when he was accused of leaking information to the press which showed that, in spite of a media storm to the contrary, there were no weapons of mass destruction in Iraq. President Bush and Prime Minister Blair stood accused of lying. History has shown that there were no such weapons, and that thousands have since died in vain.

Today we have another media storm, called 'climate change'. Politicians from every side of the political spectrum have leapt on the bandwagon, claiming to be able to save the world from mass destruction. The media have devoted hours of time and kilometres of newsprint to support the issue. An essential element of democracy is the tension between politicians and the media. When they act in concert, danger is imminent – the invasion of Iraq showed this.

My thesis is simple. I accept that the world is warming, and has been warming for about 150 years. I accept that carbon dioxide is increasing in the atmosphere, and that it has been increasing for about 150 years. The rise in carbon dioxide may be the cause of the warming, but it may not be – the evidence is equivocal.

What I do not accept is that warming is likely to cause mass destruction. We have had 150 years of warming. Any climate signals that we are likely to receive should have been received by now. If we haven't seen them yet, or if they are so small as to be insignificant, we should not believe the tales of ruinous climate change. Yet tales of imminent disaster abound.

Claims that global warming will cause mass destruction are based largely on reports put out by the Intergovernmental Panel on Climate Change [IPCC]. These reports have been given undue credibility, because they are supposed to be based on science and to have adopted scientific principles of peer review. Both these hypotheses are questionable.

Much of what is used by the media is based upon IPCC's Summaries for Policymakers. These Summaries are published before the scientific reports on which they are supposed to be based. There is therefore no means of checking that they represent what the

# Why global warming is a minimal threat

scientists actually said. Moreover, before completion they go through political review, not scientific review. The IPCC is a UN agency, so political review is essential. A truly major discrepancy was apparent in the Second Assessment Report, the Summary of which claimed that there was little doubt that human activity was responsible for global warming. Such a claim was nowhere to be found in the actual Report.

Even the process of producing the IPCC reports is flawed. In a scientific peer review, the reviewers are anonymous, and report to the editor who acts on their advice. In the IPCC process, the 'reviewers' are an integral part of the process, known to the drafters and acknowledged in the final publication. So the IPCC reports are not 'peer reviewed' in the accepted sense.

The effect of this became apparent during a recent whistle-blowing incident when documents from the University of East Anglia were leaked. One of the documents was a review of sections of a draft of Chapter 6, Paleoclimate, of the Fourth Assessment Report.<sup>1</sup> The reviewer raised a perfectly valid objection to the inclusion of material which was published too recently to be allowed to be included, in terms of the IPCC's own rules. In spite of being forbidden by the IPCC's rules, the material appears in the published text. Moreover, the material itself has since been

found to be flawed, which was precisely why the IPCC introduced a cut-off rule. You need time after something has been published for its assessment. Suffice it to say that the author of the flawed paper was one of the lead authors of the chapter.

## SEA LEVEL

Let us take a typical impact from the IPCC assessment, flawed as it might be. There is a claim that the sea levels are rising due to global warming. Now sea levels have been measured by tide gauges all over the world for the past 150 years. It has been warming for the past 150 years, so there may well be a connection between the two. The tide gauge record reveals a rise of about 2.8mm per year over this period. There is considerable variation from place to place – Figure 1, for instance, gives monthly data for New York, a record starting before 1860,<sup>2</sup> which shows on average about 2.79mm rise per annum. Monthly data for over a century for Galveston, USA, shows a rate of sea-level rise of about 6mm/a.<sup>2</sup> The sea rises at about 1mm/a in Auckland, New Zealand, while in Stockholm it is dropping at a rate of about 2mm/a.<sup>2</sup> The differences are largely due to changes in the rate of movement of the land – in Galveston, the land is dropping by about 4mm/a, in Auckland the land is rising by about 2mm/a, and in Stockholm it is rising by about 5mm/a.

A feature of Figure 1, which is common with most of these records, is that there is little evidence for a change in the rate of sea level rise over the past 150 years. Some, to be true, do show a sudden increase; some show a decrease with time; but there is little general evidence for a change of rate.

A further feature is the 'noise'. Figure 1 shows monthly data, and the sea level changes with the season – in the summer, the sea arms up and the level rises. Because it is monthly data, the moon-driven spring and neap tides are smoothed out. So the peak level during the month is several metres above the peak levels shown on the graph. Then there are the waves, the instantaneous rise and fall in the sea level, which adds a few metres more. So our defences against the sea are built typically 5 metres or more above the mean sea level. For this reason we are almost unaware of the global increase in sea level – it shows itself in a slight increase in the frequency with which a single wave overtops our existing

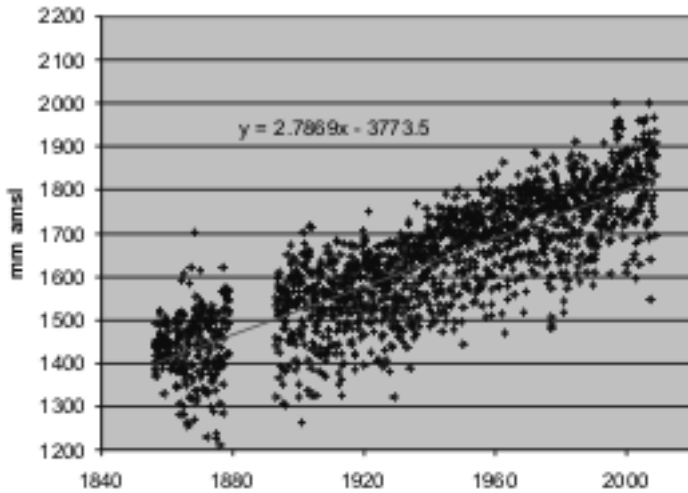


Figure 1: Average monthly sea level over 160 years at New York<sup>2</sup>

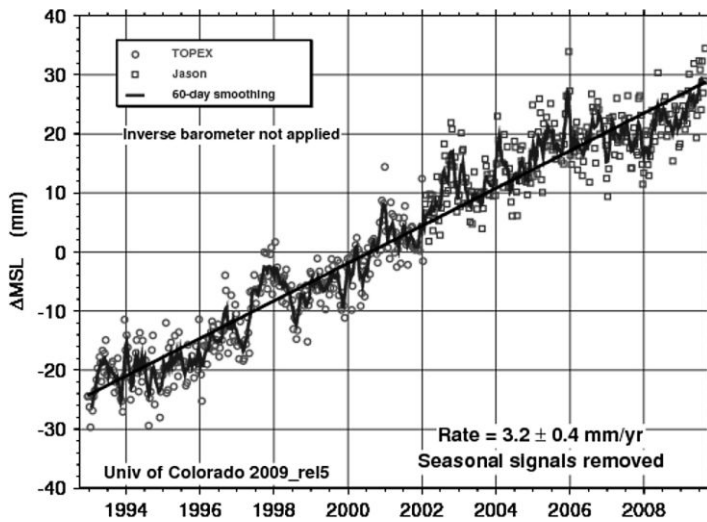


Figure 2: Global sea level over 15 years determined from satellites

defences. It is therefore nonsense to conclude that the rise in sea level implies that we will all be swamped tomorrow.

Recently it has become possible to estimate the global sea level from satellite data. Figure 2 shows a typical result.<sup>3</sup> The average sea level rise over the past 15 years is  $3.2 \pm 0.4$  mm/a.

The obvious question is whether the  $3.2 \pm 0.4$  mm represents an increase in the rate. The record is only 15 years long, and there are many 15-year periods in the 150 years during which the level at New York has been closer to 4 mm/a than to 3 mm/a. Interestingly, the satellite measurements are calibrated against tide gauges, so the tide gauges still have their uses!

However, the IPCC makes a claim that the global rate has changed:

Global average sea level rose at an average rate of 1.8 [1.3 to 2.3] mm

per year over 1961 to 2003. The rate was faster over 1993 to 2003: about 3.1 [2.4 to 3.8] mm per year. Whether the faster rate for 1993 to 2003 reflects decadal variability or an increase in the longer-term trend is unclear. There is high confidence that the rate of observed sea level rise increased from the 19th to the 20th century. The total 20th-century rise is estimated to be 0.17m [0.12 to 0.22].<sup>4</sup>

Why did the IPCC decide to take such a short baseline? Why did it compare 1961-2003 with 1993-2003 when there was up to 150 years of data available (As Figure 1 illustrates)? Where did the 'average' of 1.8 [1.3 to 2.3] mm/a come from? I have searched the literature, and found a single paper on which the claim is based.<sup>5</sup> The paper is from the journal *Geophysical Research*

*Letters*, and as its name suggests, it is a vehicle for the rapid publication of preliminary findings. Moreover, one of the authors of that paper, J. Church, was also an author of the IPCC Chapter 5 from which the above quotation is taken. The scientific basis for the IPCC's claim is weak, and anyone can go to the original data (as I have done) and see for themselves that the claimed increase in rate is not apparent in the data.

Note I am not saying the IPCC is wrong. I am saying that the evidence for a change in rate is very weak, and that the evidence for no change is quite strong. But even if we accept the IPCC's claim, it is clear that the rate of change of sea level is such that there is no reason for panic. The people of Galveston, who have seen the land sink and the sea rise nearly a metre in the past 150 years, have adapted to that fact without any obvious stress. The sea level has been changing for a long while – as long as we have been able to measure it reasonably accurately – and few of us have noticed anything amiss. Yet media events such as Al Gore's *An Inconvenient Truth* would have us believe that the risk of major flooding of coastal areas is such that we should immediately divert huge resources to mitigating the risk.

When I have argued this way in the past, the case of Hurricane Katrina has always been raised. I point to an article in *Scientific American* in October 2001, which said: 'A major hurricane could swamp New Orleans under 20 feet of water, killing thousands. Human activities along the Mississippi River have dramatically increased the risk, and now only massive reengineering of south-eastern Louisiana can save the city.'<sup>6</sup>

The risks were fully appreciated. Many factors had combined to make New Orleans vulnerable. Prime sources of risk were the destruction of the ecology of the Mississippi delta, underground water withdrawal that had resulted in New Orleans physically sinking, and the failure to reinforce the century-old levees. The rise in the ocean level was not a feature. The US Government voted huge sums to resolve the problem, but somewhere between Washington and New Orleans those sums were diverted to apparently more pressing problems. Then, nearly 4 years after the *Scientific American* article, during 28-29 August 2005, it all came true, every last detail of the pre-

diction. This was not the result of sea-level rise caused by human-induced global warming. It was the result of the failure of the political system to deliver essential repairs to the infrastructure.

There is still the question of the low-lying islands, particularly those in the Pacific. Few have long enough records of tide gauges to be really confident of the rate at which the sea level is rising in their vicinity, but most appear to face a sea-level rise of the order of 1mm/year. At that rate, they have at least 100 years to raise their defences.

Throughout history, mankind has always found it cheaper to win land from the sea than to allow the sea to take over. Sea defences are relatively cheap, and land is valuable. In Cape Town, for instance, the sea used to lap at the walls of the Castle, and Strand St. ('Beach St.' in Afrikaans), ran next to the sea. Today the ocean is nearly a kilometre distant. In creating the Fore-shore, about 300ha of valuable land in the city centre has been reclaimed from the sea. Keeping the sea at bay will be much cheaper than trying to reduce our greenhouse gas emissions – the defences are already in place, and only need to be raised by a few mm per year.

**VIOLENT AND FREQUENT STORMS**

Could New Orleans have been the result of an increasingly violent storm? There is a perception that storm violence is increasing because of global warming. There is even a plausible thesis that increasing sea temperatures feed more warm, moist air into a storm system. However, the World Meteorological Organization has said that 'to date no firm conclusion can be made' on whether tropical cyclones are more violent or more frequent.<sup>7</sup>

This may come as a surprise, but when you go into the question, two difficulties arise. First is the shortness of the record. Satellites have only been available to observe the weather patterns since the mid-1970's, so there are only about 30 years of global records. These, to be true, show an increase in intense storms over that period.<sup>8</sup> However, there is a longer record of the incidence of cyclones in the northwest Pacific going back to the late 1950's. This region is responsible for about half of all tropical cyclones. It too shows an increase since the mid-70's which exactly parallels the satellite picture, but then shows that the incidence was far higher in the late 1950's and

dropped to a minimum in the mid-1970's.<sup>9</sup> Just to complicate things, there is general agreement that there is a degree of cyclicality in the incidence of cyclones, which may well be related to El Nino types of events.<sup>10</sup> These cycles are of the order of ten years, so a satellite record of only 30 years is really too short to capture long-term trends reliably. The World Meteorological Organization was justified in being cautious.

The perception that the storms are getting more violent is enhanced by the increased damage that is observed. There is little doubt that the storms are causing more damage than they used to. But the density of human structures at risk has increased enormously. It is thus a valid question as to whether the increasing damage is the result of increasing storms or increasing structures. This question has been addressed,<sup>11</sup> and the results are shown in Figure 3 (Note in this Figure that the 1900-05 data is doubled to represent the decade 1896-1905). While the damage in the decade 1996-2005 was the second highest on record, it may have been perceived as exceptional because the earlier two decades 1976-85 and 1986-95 were low. The average damage is \$106bn/decade ± \$106bn, so the 1996-2005 damage is within the expected levels, and significantly less than the record of 1926-35.

It is thus not surprising that the World Meteorological Organisation (the parent body of the IPCC) should conclude:<sup>7</sup> 'The recent increase in societal impact from tropical cyclones has largely been caused by rising concentrations of populations and infrastructure in coastal regions.'

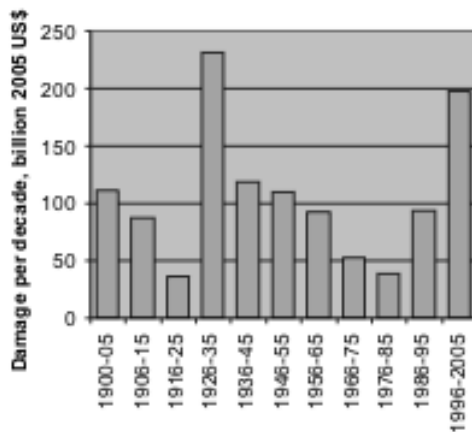


Figure 3: Hurricane damage in the US normalised to 2005 dollar value<sup>10</sup>

**ICE**

The retreat of the glaciers of Kilimanjaro has become a symbol of global warming. Unfortunately, like so many symbols, it is misleading. Kilimanjaro's glaciers have been retreating since at least 1880.<sup>12</sup> It is reasonably clear that the retreat is the result of a drier climate since the mid-19<sup>th</sup> century, so that the present glaciers are more a reminder of past climatic conditions than the result of man's use of fossil fuels.

There is, however, a warmer world, and many other glaciers are indeed retreating. Much of the retreat can undoubtedly be traced to the warming that has taken place over the past 150 years. The glaciers of particular concern are those of the Himalayas and other high Asian mountain ranges. They are the world's largest ice mass outside of the polar caps and Greenland. They feed the rivers that supply some 40% of the world's population with water.<sup>13</sup>

However, the fact that they are in retreat is not necessarily a disaster. A glacier acts as a store of water. In winter, the snow that falls is retained; in summer, there is melting and some of the stored water is released. If melting exceeds precipitation, as seems to be happening now, there is greater flow during the summer months than there would otherwise have been. If all the high altitude ice were to disappear, the winter flow would increase and the summer flow decrease. Populations that relied on summer irrigation would face a growing problem unless they built some store for the additional winter flow. That is, of course, what happens in Mediterranean climates, where sufficiently large dams are built to provide irrigation during the dry summer months.

On this analysis, the melting of the glaciers actually provides those who rely on the rivers with more water than they would otherwise have. This may sound trite, but consider the alternative, that it became cooler and there was less flow than otherwise. This is precisely what is happening in the Karakoram and Hindu Kush ranges, where it has cooled by about 1°C since about 1960.<sup>14</sup> The summer flow in the two major rivers, the Hunza and Shyok, has dropped by about 20%. They feed the Tarbela Dam, which supplies one of the world's largest irrigation schemes. It is now struggling to meet the demand.

That melting of glaciers may have little to do with human activity and fos-

sil fuels is clear from earlier (1962) reports<sup>15</sup> of one of the largest glaciers in the Karakoram region, Chogo Lungma, 45 km long with sidewalls that rise as much as 2 km above the surface of the glacier: 'Since the last maximum in the last third of the 19<sup>th</sup> c. the Chogo Lungma as a whole and all its 18 side glaciers have decreased – at an average of some 0.64m/year.'

Since the 1960's, as noted above, the Karakoram has cooled and the Chogo Lungma is no longer decreasing.

But if the glacier story is not as clear-cut as is often assumed, what about those other disaster areas, Greenland and the polar ice caps? There has only been concern about Greenland since the 1990's, so the database is not very long. The present best estimate from satellite altitude measurements is that Greenland is melting at the edges but growing higher in the centre, so that overall it is slightly gaining mass.<sup>16, 17</sup> However, some recent satellite gravity measurements have contradicted this finding, but they only started in 2002, so it is too soon to tell if they really contradict the altitude measurements. In summer it is obvious that there will be a degree of melting, and many of the dramatic pictures showing rivers flowing into the ice demonstrate this. However, in winter it is really cold in Greenland, and the rivers of water then stop solid. It is dangerous to confuse the photo-op with science.

In Antarctica, the story is very similar. The continent is so huge, that it is difficult to determine whether it is growing or shrinking. At the edges, it is losing ice, as the graphic pictures of the break-up of the Larsen Shelf show. It seems, however, that the Larsen area only froze about 2 000 years ago.<sup>18</sup> All climate models predict a thickening of the ice in the huge central region as the world becomes warmer and wetter in this century – warmer is purely relative in Antarctica, so that 'wetter' will reveal itself as more snow.

To turn now to the Arctic, the ice is quite different from that over Greenland or Antarctica, not least because it is floating on the sea. As such, it is prone to warming from below as well as above. It is also highly seasonal, with the ocean freezing over during the long winter. Figure 4 shows the seasonal nature of the global sea ice.<sup>19</sup> The upper line gives the measurements; the lowest line gives the difference

between the measurement on any one day and the average of all measurements on that day over the period 1979-2009. There is clearly a period between 2004 and 2007 when the ice cover was consistently low by as much as 3 million km<sup>2</sup>. Since then it appears to have recovered, although it is really too soon to say this with confidence. It remains questionable whether the Arctic faces destruction.

One cannot leave the Arctic without addressing the question of the polar bears. Yes, their population was decreasing – the Canadian Government had issued too many hunting licences to red-blooded Americans.<sup>20</sup> 'The current sustainable harvest of the Western Hudson Bay population is estimated to be 55 bears.' In 1996 there were quotas for 635 bears, but the kill was 'only' 529.

#### DROUGHT

A further source of fear is that of water shortage. A UN environmental report spells it out:<sup>21</sup> 'Severe water shortages already hamper development in many parts of the world, and the situation is deteriorating.

However, this does not necessarily mean that there is less water available – it can also mean that the situation is deteriorating because there is greater demand (possibly because there are more people, or more development, or both). Al Gore tells us that, the more we understand global warming, 'the more it looks as if we may be the real culprits' behind the drought in the Sahel.<sup>22</sup> But the Sahara has turned into desert within the last few centuries.

There are once-thriving towns, now abandoned for lack of water. In the Middle Ages, from about 600 to 1500AD, there was significant traffic across the Sahara, via towns such as Timbuktu, Djado, Assode and Tezirzek, the last three of which are abandoned today.<sup>23</sup> Assuredly, human activities on a global scale were not responsible for the desert.

In a similar vein, it is salutary to reflect that large parts of the Amazon Basin were savannah rather than tropical forest less than 15 000 years ago.<sup>24,25</sup> This was during a rather cold, very low carbon-dioxide period. Perhaps the Amazon forests are all the better for a warmer, carbon-dioxide-rich atmosphere.

It is reasonably clear that the IPCC's climate models do a poor job of predicting local effects. This is largely the result of the grid size necessarily employed in global models. Many attempts have been made to use a smaller grid to model local conditions, and then to control the local grid by meshing it to the larger external grid.

Some of the difficulties may be judged from the comparison shown in Figures 5 and 6.<sup>26</sup> Figure 5 shows the changes in precipitation across the United States during the 20<sup>th</sup> Century. Over most of the country the change was in the range between -20 and +20%, with large areas where there was, statistically, no measurable change. There were, however, two small regions towards the west where the rain had increased by over 50%.

Figure 6 shows the results of a model of what might occur during the 21<sup>st</sup> Century, within an 'average' scenario of climate change. The shading is identical to that used in Figure 5. It shows that a large area of the West Coast might have an increase of as much as 75%, whereas the lower Mid-West could see up to a 50% drop. There might be a large swathe across the Northern regions where there was about a 25% increase in rain.

In any comparison of these two Figures, it is immediately obvious that the characteristics of Figures 5 and 6 are quite different. Figure 5 is 'patchy', with increases and decreases recorded over quite small areas. In contrast, Figure 6 has broad swathes of increase and decrease. A question which needs to be asked, and to which I have yet to find an answer, is why the characteris-

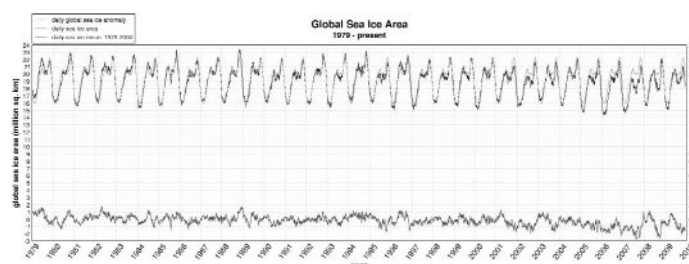


Figure 4: Variation in the global sea-ice cover, 1979-2009<sup>19</sup>



Figure 5: Changes in precipitation across the US during the 20th Century<sup>26</sup>

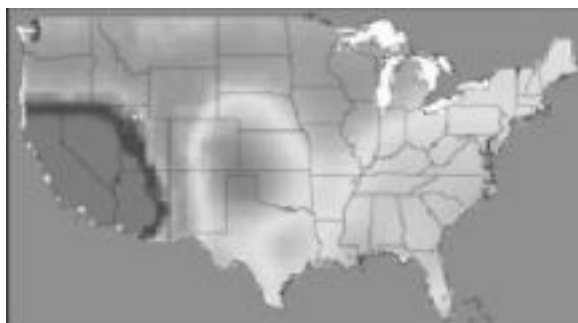


Figure 6: Possible changes in precipitation over the US during the 21st Century<sup>26</sup>

tics should change in this way. It became warmer in the 20<sup>th</sup> Century; why would a similar warming in the 21<sup>st</sup> result in different behaviour? With nearly a decade of the 21<sup>st</sup> Century behind us, have the predictions of a huge increase in rain over the Southern West Coast, and a drought over the South West, been borne out? The answer to both is unequivocally 'No!'

Part of the problem is that the IPCC models do a very poor job of assessing the effects of clouds. It would seem obvious that to understand rain, you have to understand clouds. Clouds also affect the reflection of sunlight into space. The lack of good cloud models is therefore one of the major uncertainties in global warming estimates.

As a result, virtually all the predictions of rainfall change that rely on models are suspect. This the IPCC accepts:

Atmosphere-Ocean General Circulation Models remain the primary source of regional information on the range of possible future climates.- - Advances have been made in developing probabilistic information at regional scales from the AOGCM simulations, but these methods remain in the exploratory phase.<sup>27</sup>

Nevertheless, the IPCC makes bold to describe its rainfall predictions as 'likely' or 'very likely'. It is difficult to

take such statements seriously. Clearly the IPCC itself has doubts about the methodology. Any scientific method described as 'exploratory' can hardly be the basis for confident action. The extent to which climate modelling is an improvement on the crystal ball has yet to be determined.

#### DISEASE

From the First Assessment report onwards, the IPCC has predicted that global warming will cause an increase in the incidence of malaria and other insect-borne diseases. It is clear that warming may increase the range slightly (slightly, because the anopheline mosquito is already known to have existed as far north as 64°N).<sup>28</sup>

However, the range of an insect that can bear a disease has little to do with the transmission of the disease. Many public health interventions are available to control most insect-borne diseases, and so limit its transmission. For instance, large areas of Europe and North America were malarial as recently as the 1950's.<sup>29</sup> More than an estimated 600 000 cases of malaria occurred in the U.S. in 1914, according to the Centre for Disease Control and Prevention in Atlanta, Georgia. 1947 saw the launch of a pilot project for the control of malaria by spraying with DDT. By 1951, malaria had been essentially eradicated across the whole of the United States.<sup>30</sup>

When it undertook the Fourth Assessment, the IPCC was far more guarded about the possibility that climate change might increase the incidence of malaria: 'Climate change is expected to have some mixed effects, such as a decrease or increase in the range and transmission potential of malaria in Africa.'<sup>31</sup> Which is probably as Delphic a conclusion as it is possible to reach.

#### CONCLUSIONS

The world has become warmer over the past 150 years. All manner of natural phenomena reflect this. However, the changes in those natural phenomena have not been such as to suggest that mankind faces a crisis. Indeed, in most cases we are not certain that the observed changes are greater than natural variability.

There are many claims that we are likely to see mass destruction caused by climate change. If these claims are to be believed, the Four Horsemen of the Apocalypse are saddling up even now. The analysis of what has happened over the past 150 years shows clearly that the claims should not be granted credence.

There are models that purport to be able to show that in future we face ever more extreme conditions. Unfortunately the models have not yet reached that level of reliability where they can demonstrate any reasonable degree of foresight. They are not even able to describe macroscopic changes in the global climate, such as occurred during the last ice age. Less than perfect hindsight makes for very suspect predictions about the future.

We are therefore in a quandary. Should we act on a thesis that carbon dioxide is causing global warming? To do so would cost a lot of resources which might well be deployed elsewhere to far greater effect. The English economist, Lord Stern, has argued that the costs of not acting, and so risking the impact of the forces of nature, will far outweigh the costs of containing carbon dioxide levels. However, as I have shown in this paper, the impacts of the forces of nature seem to be significantly overstated. We should be suffering from those impacts already, because global warming has already taken place. Once population growth and economic development are taken into account, the impacts of nature are surprisingly invisible.

Some advocate using the Precau-

tionary Principle. This is altogether too glib. It requires a level of proof that is unattainable – you cannot prove that an action will not cause harm any more than Saddam Hussein could prove that he did not have weapons of mass destruction.

Instead it seems more rational to quantify the impacts where they are demonstrable, and devote resources to mitigating those impacts. For instance, we could reduce carbon dioxide emissions at considerable cost. It might reduce the incidence of malaria (but then again, it might not). Or we could address malaria by the widespread use of DDT, as most of the developed nations did. The cost of eradicating malaria this way would be a tiny fraction of the cost of controlling carbon dioxide emissions, and the huge impact of malaria would be mitigated far faster. The result of not addressing the carbon dioxide issue would be a significant increase in human happiness.

This is the essential conclusion of this paper. We can spend a lot trying to mitigate what might happen, but until we have clear evidence that the impact of what we do exceeds our ability to adapt to the changes, there is a real risk that what we spend will be wasted. It is more effective to mitigate what is demonstrably happening than to try to mitigate something which might occur.

## REFERENCES

1. IPCC Working Group I Fourth Assessment Report; Expert and Government Review Comments on the Second-Order Draft, Reviewers Comments 6-1114, -5 and -6. File 4RSOR\_BatchAB\_Ch06\_KRB\_1stAug in FOI2009/FOIA/documents Downloaded November 2009.
2. [www.pol.ac.uk/psmsl/psmsl\\_individual\\_stations.html](http://www.pol.ac.uk/psmsl/psmsl_individual_stations.html), Accessed Dec.2009.
3. [http://sealevel.colorado.edu/current/sl\\_noib\\_ns\\_global.jpg](http://sealevel.colorado.edu/current/sl_noib_ns_global.jpg), Accessed Dec. 2009.
4. Fourth Assessment Report, Working Group 1, Summary for Policy Makers Version 2, pp5-6, IPCC, 05-06-2007.
5. Church, J.A., and N.J. White, 2006: A 20th century acceleration in global sea-level rise. *Geophys. Res. Lett.*, 33, L01602, doi: 10.1029/2005GL024826.
6. Fischetti, M., 2001: Drowning New Orleans. *Scientific American* 285 (4) pp68-77 October 2001.
7. WMO 2006: Summary statement on tropical cyclones and climate change. 6th Intl. Workshop on tropical cyclones, World Meteorological Organization, Geneva.
8. Emmanuel, K. 2005: Increasing destructiveness of tropical storms over the past 30 years. *Nature*, 436(7051), pp 686-688.
9. Chan, JCL, 2006: Comment on 'Changes in tropical cyclone number, duration and intensity in a warming environment'. *Science*, 311(5768), p1713.
10. Chan, JCL and Zhou, W. 2005: PDO, ENSO and the early summer monsoon rainfall over south China. *Geophys.Res.Letters*, 32, L08810, doi: 10.1029/2004GL022015.
11. Pielke, RA, Gratz, J, Landsea, CW, Collins, D, Saunders, MA and Musulin, R, 2008: Normalized hurricane damages in the United States 1905-2000. *Natural Hazards Review*, 9 (1) pp29-42, doi.org/10.1061/(ASCE) 1527- 6988.
12. Kaser, G, Hardy, DR, Molg, T, Bradley, RS and Hyera, TM, 2004: Modern glacier retreat on Kilimanjaro as evidence of global warming; observations and facts. *Intl.J.Climatology*, 24 (3), pp329-339.
13. Barnett, TP, Adam, JC and Lettenmaier, DP, 2005: Potential impacts of a warming climate on water availability in snow-dominated regions. *Nature* 438 (7066) pp 303-309.
14. Fowler, HJ and Archer, DR, 2006: Conflicting signals of climate change in the Upper Indus Basin. *J.Climatology* 19 (17) pp 4276-4293.
15. Kick, W, 1962: Variations of some central Asian glaciers. IASH Publications, <http://iahs.info/redbooks/a058/05824.pdf> Accessed December 2009
16. Cazenave, A, 2006: How fast are ice sheets melting? *Science*, 314 (5803) pp1250 – 1252.
17. Johannessen, OM, Khvorostovsky, K, Miles, MW and Bobylev, LP, 2005: Recent ice sheet growth in the interior of Greenland. *Science*, 310 (5750) pp 1013-1016.
18. Pudsey, CJ, Murray, JW, Appleby, P and Evans, J, 2006: Lee shelf history from petrographic and foraminiferal evidence, Northeast Antarctic Peninsula. *Quaternary Science Reviews* 25 (17-18) pp 2357-2379.
19. <http://arctic.atmos.uiuc.edu/cryosphere/IMAGES/global.daily.ice.area.withtrend.jpg> Accessed December 2009.
20. IUCN Species Survival Commission, 2001: Polar Bears; Proceedings of the 13th Working Group of the IUCN/SSC Polar Bear Specialist Group, 23-28 June 2001, Nuuk, Greenland. <http://pbsg.npolar.no/en/meetings/> Accessed December 2009.
21. UNEP 2000: Global Environmental Outlook 2000. Earthscan Publications, London, p362
22. Gore, A & Mechler Media, 2006: *An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It*. Rodell Press, PA. p117.
23. [http://en.wikipedia.org/wiki/Trans-Saharan\\_trade](http://en.wikipedia.org/wiki/Trans-Saharan_trade). Accessed December 2009.
24. Markgraf V. 1993: Climatic history of Central and Southern South America since 18,000 yr BP. Ch.14 p.357-385 in; (eds) H.E. Wright et al. *Global Climates Since the Last Glacial Maximum*. University of Minnesota Press, USA.
25. Rancy A. (1991). Pleistocene mammals and palaeoecology of the western Amazon. PhD thesis (unpublished). University of Florida USA. 149 pp.
26. National Assessment Synthesis Team, US Global Change Research Program 2003: Climate Change Impacts on the United States – The Potential Consequences of Climate Variability and Change, [www.usgcrp.gov/usgcrp/Library/nationalassessment/overviewlooking.htm](http://www.usgcrp.gov/usgcrp/Library/nationalassessment/overviewlooking.htm). Accessed December 2009.
27. Fourth Assessment Report, Working Group 1, Chapter 11, Regional Climate Assessments, p849, IPCC, 2007.
28. Prokopenko LI, Dukhanina NN, Sarikian SI and Zhukova TA, 1977: The spread and eradication of tropical malaria in the USSR *Med Parazitol (Mosk)*. 46(6): pp 643-7.
29. Desowitz, RS, 1991: *The Malaria Capers – More Tales of Parasites and People, Research and Reality*. Norton & Co., NY.
30. The eradication of malaria in the United States (1947-1951). [www.cdc.gov/malaria/history/eradication\\_us.htm](http://www.cdc.gov/malaria/history/eradication_us.htm) Accessed December 2009.
31. Fourth Assessment Report, Working Group 2, Summary for Policy Makers, p12, IPCC, 2007.

● Contact: Philip Lloyd  
Energy Institute  
Cape Peninsula University of Technology  
E-mails: [plloyd@mweb.co.za](mailto:plloyd@mweb.co.za) and [lloyd@cput.ac.za](mailto:lloyd@cput.ac.za)

# Eight out of ten people will battle to cope with the mooted electricity price rises

After initially asking for three annual electricity price increases of 45%, on 1 December Eskom reduced this request to 35% a year for three years. This comes in the wake of pressure from all political parties as well as Cosatu, with significant concerns being raised about the inflationary effects of such large price rises, as well as the impact on an economy still struggling to cope with the current recession.

However, this price hike reduction also brings with it an increased risk of load shedding in 2011 and beyond, as well as a delay in implementing certain infrastructure developments. Many still feel that a 35% price rise is well beyond the means of ordinary people. Cosatu's Patrick Craven summed up the feelings of many by saying, 'We are not impressed – 35% over three years is still a huge amount to expect consumers to have to pay.'

But how do ordinary citizens actually feel about such high price increases? Do they understand the reasons behind these increases?

The study was conducted amongst 2 000 adults (1260 blacks, 385 whites, 240 coloureds and 115 Indians/Asians) in the seven major metropolitan areas: it has a margin of error of under 2.5% for the results found for the total sample. The study was conducted by TNS Research Surveys (Pty) Ltd as part of their ongoing research into current social and political issues and was funded by TNS Research Surveys.

Over eight out of ten people feel that these price increases will be very difficult to cope with and only a quarter feel that the prices are justified by the need for greater power capacity. These are the results of a study released today by TNS Research Surveys, South Africa's leading marketing and social insights company. The study, conducted in November 2009 amongst 2 000 adults living in metro areas, showed that, across the board, such high price increases are of concern to people, with only those without electricity relatively unconcerned.

### THE INCREASE IN THE PRICE OF ELECTRICITY WILL BE VERY HARD TO COPE WITH

People were asked to agree or disagree with the statement 'The increase in the price of electricity will be very hard to cope with'. Whilst, overall, 84% agreed with this statement (10% disagreed and only 7% gave a 'don't know' response), older people (88%) and the most affluent (90%) are amongst the most worried. Not surprisingly, those in shacks and informal areas are the least concerned (68%), mainly because many do not have electricity yet. However, there are considerable variations between cities with Pretoria and Cape Town having the highest levels of concern.

### THE PRICE RISE IS NOT JUSTIFIED

People were asked to agree or disagree with the statement 'The rise in

the price of electricity is fair because Eskom needs to build more power stations'. Just under a quarter (24%) agreed with this statement, whilst 67% disagreed and 9% gave a 'don't know' response. Interestingly, middle income groups and those aged under 34 years are more accepting of the price rise (27%) than poorer groups (20%), the more affluent (19%) and those aged 50 years and over (16%). Blacks, at 30%, are the most accepting; all other race groups average 14%. There are again some differences by city with Pretoria, Cape Town, Durban and Port Elizabeth being the least likely to feel the increases are justified.

### OUR TAKE-OUT

It is easy to see that this is a very emotive issue with most people feeling that it will affect them most significantly, whilst, at the same time, not feeling that the increases are justified. Whilst this is, no doubt, partly a result of years of very low cost electricity, it may be that the current situation has not been well handled. There are several implications for Eskom, NERSA and possibly even the Government in taking this issue forward:

- People do not buy into the reasons for the increases. This must be seen as a signal failure of communication by all parties to the problem.
- It may seem that the need for more capacity has been aired at length in the media but it is clear

		%	
		Hard to cope with	Price rise is justified
Gauteng	Johannesburg and environs	82	29
	Johannesburg excl Soweto	79	31
	East Rand	82	23
	West Rand	74	29
	Soweto	87	42
	Vaal Triangle/South Rand	82	39
	Pretoria	78	35
Cape Town		90	14
Durban		83	19
Eastern Cape	Port Elizabeth	81	22
	East London	83	18
Bloemfontein		75	29
		85	45

that people do not yet truly understand the full consequences of a failure to build this capacity.

- In addition, it is likely that people do not feel the increases are fair coming so high and in such a short space of time. No doubt, if increases had been implemented earlier and more gradually, this might not be an issue: it is the sudden need for price rises that is part of the problem.
- People may well feel that the necessary money should come from elsewhere, such as Government or via the raising of loans.
- People may well feel that the cost of the new capacity required is over-estimated.
- That this will lead to hardship for many is an almost unanimous view. It will also add inflationary pressures, creating a second round of hardship, as well as slowing economic growth, a third ripple effect.
- This can only be minimised by a very active campaign to show people how to save electricity.
- The use of practical alternative energy sources needs to be much more proactively championed. In particular, Eskom's solar geyser programme needs to be made as simple, accessible and cost effective as possible. The Sasol/UJ solar panel initiative assumes a new importance.
- All this has the positive knock-on effect of reducing South Africa's greenhouse gas emission problem – due to our low-grade coal, much of South Africa's emission problems come from Eskom's electricity generation.

These findings show that electricity has become a political hot potato. It is also one that affects service delivery – it may be that the provision of power to those still without will slow significantly – another headache for Government with less than two years before local government elections.

With acknowledgements to Bizcommunity.com

- *Contact: Neil Higgs  
TNS Research Surveys (Pty) Ltd  
Tel: 011 778 7500  
Cell: 082 376 6312  
Websites:  
www.tnsresearchsurveys.co.za and  
www.tnsglobal.com*

# Interactive workshop on energy efficiency uncertainty and multi-criteria decision analysis

The Energy Research Centre and the Department of Statistical Sciences, UCT, held an Interactive workshop in October on energy efficiency uncertainty and multi-criteria decision analysis.

## WHAT THE AIM IS

To build a model framework for evaluating interventions aimed at reducing electricity consumption. A completed framework could be useful in comparing and choosing between prospective interventions, or for evaluating the success/failure of a single actual intervention – in a way that is systematic, transparent and justifiable, and that can accommodate different perspectives.

## WHAT IT INVOLVED

Essentially a series of short workshops/discussions to do the following:

### Session 1

Identify all of the criteria which should be included in an assessment of whether an intervention has been successful or not – this may be more complex than just maximising the reduction in demand.

### Session 2

Consider the relative importance of criteria, and to explore preferences for trade-offs that might have to be made if criteria conflict with one another.

Possibly consider how different interest groups may differ in the trade-offs they are willing to accept. This can be done either by their direct involvement, or more indirectly by stepping into their shoes – and then exploring if and how the preferences of these different interest groups could be reconciled into a final framework.

### Session 3

To use the model to evaluate an actual intervention (e.g. Prince Albert) or to compare possible interventions.

## OUTCOMES

This is beneficial to people interested in contributing to such a project, or who would be interested in learning a bit about how multi-criteria decision aid (MCDA) can be applied to help structure research problems.

The application can be used to get a better understanding of how best to model uncertainty about the future. Part of the reason why evaluating an intervention is difficult is because its outcome is uncertain (possibly even after the intervention has happened).

Research involves asking which ways of representing uncertainty are most beneficial to decision makers. The main focus, though, is on the energy application – and in the final session the workshop evaluated an intervention using two different approaches regarding uncertainty, and undertook some form of comparison.

- *Contact: Ian Durbach  
Department of Statistical Sciences  
University of Cape Town  
Tel: 021: 650 5058  
E-mail: Ian.Durbach@capetown.gov.za*

*Stephen Davis  
Energy Research Centre  
University of Cape Town  
E-mail: Stephen.Davis@uct.ac.za*



University of Fort Hare  
Together in Excellence

# Langalinamandla community involvement questionnaire



## INTRODUCTION

The Fort Hare Institute of Technology is working on projects that deal with energy efficiency and renewable energy options in the residential sector. As a case study, they have designed and constructed a utility (Eskom) grid-independent solar house, aptly named Langalinamandla. The energy efficient solar house has the following attributes:

### a) Building integrated photovoltaics

The solar panels mounted on the north facing roof convert solar radiation to electrical energy. All the electrical appliances in the house use electricity produced by the 3 800W photovoltaic generator and the 408Ah-48V battery bank system. The house has been occupied since March 2009 and the electrical energy has more than met the household demand. As a result, the house is operating independent of Eskom grid electricity.

### b) Domestic solar water heaters

Solar water heater panels installed on

the north facing roof convert solar radiation into thermal energy used to heat water. The hot water is stored in a storage tank for immediate and future use. The use of solar energy to heat water has proven to be a cheaper and environmentally friendly alternative to the use of electrical geysers.

### c) Passive solar heating and cooling

To reduce the tendency to electrically heat/warm the indoor of the house in winter and cool the same in summer, clerestory windows were installed on the north facing roof of the house. The window array allows the lower winter sun to warm the indoor environment while the upper elevated summer sun is blocked by the overhangs. The results have shown that the indoor environment is thermally comfortable without using grid electricity for powering heaters or ventilators.

### d) Energy efficient appliances

Electrical appliances in the house are all energy-star rated ensuring energy

efficient consumption of solar electricity. The house was fitted with compact fluorescent lamps (CFL's) which produce the same light as incandescent bulbs but using 20 to 25% less electricity and lasting up to 10 times longer.

## CALL FOR PARTICIPATION

Following the commissioning of the solar house in March 2009 and excellent electrical and thermal performance results recorded thus far, they wish to invite stakeholders, companies, lodge owners and hoteliers to join them in this project by completing a short questionnaire. You will be given an opportunity to further participate in this project if you so wish.

● Contact: Sosten Ziuku  
Cell: 082 934 7712  
E-mail: [sziku@ufh.ac.za](mailto:sziku@ufh.ac.za)

Prof. E.L Meyer  
Cell: 083 963 4320  
E-mail: [emeyer@ufh.ac.za](mailto:emeyer@ufh.ac.za)

Spokhazi Mlumbi  
E-mail: [smlumbi@ufh.ac.za](mailto:smlumbi@ufh.ac.za)  
3rd Floor, Chemistry Building  
Institute of Technology  
University of Fort Hare  
Private Bag X1314  
Alice 5700  
Tel: 040 602 2086  
Fax: 040 653 0665  
Website: <http://fhit.ufh.ac.za/>



Langalinamandla, the energy efficient grid-independent solar house with solar panels and solar water heater panels on the north facing roof

## Vineyard Hotel goes green

**G**reenX Energy will supply Renewable Energy Certificates (RECs), which provide the Certification of Green Power for the Vineyard Hotel & Spa's Conference Centre in Newlands, Cape Town.

The Green Power strategy in the hotel's conference centre is a key component of the overall plan for more sustainable operations and carbon emission reductions at the hotel. Conference centre clients will be able to declare their event run on certified Green Power and reduced in carbon emissions associated with the energy consumption of the event, without having to resort to carbon offsetting.

The Renewable Energy Certificate (REC) approach is used in Europe and the US and the South African Department of Energy (DOE) is developing this approach for South Africa in association with the current Green Power suppliers and producers. The RECs provide a certified link between the conference centre and the renewable energy generator. One of the main renewable energy generators, which currently register and sells the Green Power certificates through GreenX Energy, is the Umzimkulu sugar mill in KwaZulu-Natal. The mill uses bagasse, the fibrous waste in the sugar industry, to generate renewable energy.

Every MWh of green power produced offsets and saves coal and water and prevents the emission of ash, air pollutants and carbon emissions that would otherwise be produced by South Africa's coal-powered power stations.

It is believed that the Vineyard Hotel is the first conference centre in Africa to run on certified 'Green Power' as from 1 September 2009.



With acknowledgement to Bizcommunity.com

Website: [www.greenxenergy.com](http://www.greenxenergy.com).

# Precious drops

**A**HCOR is a brand that is conscious of the world we live in and the times we are living in. The Lorenzetti product line of electric shower heads and Versatil heaters offer a practical solution to the current energy crisis in an 'Eco friendly' way.

Their product line is economically accessible to you, with technology that allows you to do your bit for the ecosystem by saving energy & water. Their innovative hot water on demand shower heads are well suited for any home, are cost effective (no geyser required) & SABS certified, whilst providing the luxury of a precious commodity & resource. Why not go green?

### WHO IS LORENZETTI?

Lorenzetti is an established company with an upstanding reputation in its line of business. They have a history that dates back 89 years, and have been producing quality household appliances since the company's inception in 1920.

Throughout these years, they have been creating products that feature innovative technology in their make and use. This has in turn made them the number one company for instantaneous Water Heaters. Their products have now made their presence felt in more than 40 countries to date, with more than 150 000 000 electric showers sold worldwide.

### LORENZETTI DESCRIPTION

*Instant Electric Showers vs. Geysers Calculator (Comparing Blinducha to Regular Shower) (\*based on Nelspruit rates)*

1. To heat 1 kg of water 1 degree centigrade (°C) you need an amount of energy of 4 200 Joules, which is so called Specific Heat Capacity.
2. Specific Heat Capacity (water): 4 200 J/kg/°C or 4.2 KJ/kg/°C (4.1868 for the purpose of calculations we will round to 4.2)
3. 1 Watt – 1 Joule/second or 1kW/second, therefore 1kWh – 3600 KJ/s = 3.6  
\*To rewrite the definition 1 kW = 1 KJ/second
4. Energy (required) = Mass of water (kg) x Specific Heat Capacity x Change in Temperature.....(1)

### BLINDUCHA

Current cost of electricity kW/Hr:	R 0.6031*
Blinducha (kW usage per hour)	7.5
Average Water usage per minute	6
Average Minutes per shower	10
Number of people showering	4
Cost per month (kW usage x minutes per shower x number of people x cost per hours / 60 min * 30.41 average days per month)	R91.70
kW usage per month	152

### GEYSER

Current cost of electricity: *0.6031kW./ Hr. (Cost vary in different areas)	R0.6031*
Energy Required (KJ)	18900
1kW = 1kJ/second, therefore 1kWh=3,600 KJ/s = 3.6	5.25
Cost per shower	R3.17
Cost for showering per month (x 4 people)	R385.15
kW usage per month	639

### ENERGY-EFFICIENCY & SAVINGS COMPARISON

Electricity – Annual Savings per shower head using Blinducha	R3,521.33
Electricity – 3 years Savings per shower head using Blinducha	R10,564
kW usage efficiency using Blinducha vs. Geyser	320%
Current cost of water per kilo Litre	R14.45*
Water – Annual Shower head using Blinducha (max 6 litres for optimal temp)	R1,266
Water – Annual Shower head using Geyser	R2,110
Water – Annual Savings shower using Blinducha	R843.88
Water – 3 years Savings per shower head using Blinducha	R2,532
Water usage efficiency using Blinducha vs. Geyser	40%
Total water & electricity savings per month using Blinducha	R363.77
Total water & electricity savings per annum using Blinducha	R4,365.21
Water & electricity savings per 3 years	R14,186.94

● Contact: Ahcor  
Tel: +27 (0) 13 752 3430  
Fax: +27 (0) 86 602 3889  
Website: [www.ahcor.co.za](http://www.ahcor.co.za)



# SAEE Hall of Fame

The Southern African Association for Energy Efficiency (SAEE) is proud to announce that the Hall of Fame award was presented to The Late Prof Ian Ernest Lane. The Hall of Fame Committee and SAEE Board also decided to name the Hall of Fame after Prof. Lane.



## HALL OF FAME

Since August 2009 the SAEE has been receiving nominations for the Hall of Fame. Nominations has been reviewed and evaluated by the SAEE Board and the Hall of Fame committee.

Dr. Lane sadly passed away November 3rd 2008, after being known for his service, dedication, commitment and selfless hours given to the energy industry.

## CONSULTING

Formerly a Director of Megkon Inc. a multi-disciplinary engineering consultancy. Later Managing Member of Energy Efficiency Enterprises AND director of Energy Cybernetics. Consulting work was done for:

- Eskom
- Iscor
- Aeci
- Anglo American Corporation
- Atlas Aircraft
- Saaf
- Sasol

- Soda Ash Botswana
- Gencor
- Dept of Mineral and Energy Affairs
- Randburg Town Council
- Winkelhaak Mine
- City Council Of Pretoria
- International Institute for Energy Conservation
- Old Mutual Properties
- Richards Bay Minerals
- Hartbeespoort Local Authority
- Anglo Platinum
- Goldfields
- Unido

Dr. Lane was contracted on a long-term basis through Energy Efficiency Enterprises to do consulting on integrated electricity planning to Eskom. He led an energy efficiency development project for the Sasol group of companies. This involved investigation into all types of energy saving opportunities, including electricity, steam, coal and fuel gas. The purpose of the project was to set up an energy management strategy and system for the management of energy commodities by this international company.

Dr. Lane was also an Executive Director of the Energy Training Foundation, a group that is actively involved in training of individuals towards com-

petence in the energy field. The Energy Training Foundation has an agreement with the AEE to present their Certified Energy Manager qualification in Africa. In addition to this course, he presented the Energy Solutions Training Program to practicing technologists. Dr. Lane has been actively performing research and consulting work in the energy field for more than 20 years.

Dr. Lane was Chairman of the Energy Engineering Standards Generating Group. This is the official body developing unit standards for assessment of learner energy professionals in South Africa. Dr. Lane was very occupied with the development of skills and technical competence in the energy field. He was a member of the United Nations International Energy Expert Group. He facilitated UNIDO activities regarding the Clean Development Mechanism in South Africa.

Dr Lane has been nominated to chair TC101, the South African Bureau of Standards body that develops Energy Efficiency related Standards for South Africa. He represented the SABS on PC 242, the ISO project committee tasked with development of energy management standards. He chaired the SABS working group on energy management standards. Dr Lane was a member of the Strategic Advisory Group for Energy appointed by ISO to advise on the development of standards for energy efficiency and renewable energy.

He was chairman of the Energy Practitioner's Steering Committee, a group tasked by the DME to help ECSA study the feasibility and to draft regulations for the certification of competence of energy practitioners.

- Contact: Annelie Deysel  
Administration Manager  
SAEE  
E-mail: [annelie@saaee.org.za](mailto:annelie@saaee.org.za)



Mr Sydney Zeederberg presented the award to his wife, Annette Lane and their son, Ian Lane

# Renewable Energy Trust nurtures intellectual capital

## DOUG BANKS RENEWABLE ENERGY VISION TRUST AWARDS FIRST SCHOLARSHIP

### ABOUT DBREV

The Doug Banks Renewable Energy Vision (DBREV) Trust was formed in 2008 after the death of Dr Doug Banks, engineer, scientist and a remarkable figure in the South African renewable energy community. A particular passion of Doug's was the recruitment and mentorship of bright young engineers in the field of Renewable Energy. Doug's friends and colleagues set about creating a living memorial to perpetuate his passion and vision through stimulating and nurturing the intellectual capital in the renewable



*Gabrielle Coppez, a young engineering graduate of UCT is the first recipient of the DBREV scholarship for post-graduate study in Renewable Energy*

energy sector. The purpose of the Trust is to raise and manage funds to support at least one post-graduate student each year from fields such as engineering, accounting and economics or the life sciences to study towards a Masters or PhD in Renewable Energy.

### THE FIRST SCHOLARSHIP RECIPIENT

Gabrielle Coppez, a young engineering graduate of the University of Cape Town (UCT) is the first recipient of the Doug Banks Renewable Energy Vision (DBREV) Scholarship. The scholarship will cover fees and living expenses for a two year period at a South African university, with additional funding for equipment, field work and research related travel.

The DBREV Trust intends to award the scholarship on an annual basis to a young graduate who exhibits not only strong academic ability, but a passion for realising the potential of renewable energy in meeting Africa's energy needs. By stimulating the intellectual capital in the local Renewable Energy sector, the DBREV Trust hopes to perpetuate the vision of Dr Banks for greater use of appropriate and sustainable energy supplies, particularly in rural areas.

'The thing that really excites me about this is that it's not just about funding someone's studies, but that it's about them being mentored, about them catching the dream, about them seeing how other people are already involved in this area and learning from them. I think that that makes this a really special scholarship' Coppez enthuses. Dave Gale, chairman of the DBREV Trust confirms this: 'a diverse group of renewable energy experts, some of whom knew Doug well, have committed themselves to make time available to give guidance and encouragement to the recipient.' Many of the nearly 30 applicants stated that it was this in particular which drew them to the scholarship.

Coppez (24) graduated with honours from UCT in 2006 with a B Sc

(Mechatronics). She has been employed since then as an Automation and Instrumentation Engineer with Marine and Mineral Projects in Cape Town. Through her community work with The Warehouse, a Cape Town based non-profit organisation and outreach work in Rwanda, Ms Coppez came to see the potential for renewable energy to impact on the lives of the disadvantaged in Africa.

'We are confident that in Gabrielle, we have found someone who will pick up the torch that Doug carried and carry the flame. The selection panel were impressed by the quality of the applicants. 'The contest between the final shortlist was tight', reports Gale, 'but it was Gabrielle's track record with community work, her empathy for rural Africa and her willingness to in turn mentor others that clinched it for her'.

Ms Coppez will be registering for a thesis based M Sc at UCT. She intends developing a modelling tool to assist in determining the most appropriate mix of renewable energy solutions in any given rural area. She will be expected to publish the results of her work during the course of her studies, and participate in the annual Doug Banks Memorial lecture, as well as being involved in relevant projects which will enhance and support her research.

The DBREV mentorship programme has yet to be finalised, with the Trust exploring various options for developing and expanding this resource. To date, funds have been donated by private individuals, the Centre for Renewable and Sustainable Energy Studies (CRSES), the Anglo American Chairman's fund, E+Co, Restio Energy, SetSolar and Kraftwork. Anyone wishing to contribute through mentorship or funding should contact the Trust through their website.

- *Contact: Dave Gale  
Chairman – DBREV Board of Trustees  
Cell: +27 82 467 2400  
E-mail: dave@gale.za.net  
Website: <http://doughbanks.co.za>*



International conference

# Towards sustainable energy, solutions for the developing world Domestic Use of Energy

29-31 March 2010

Cape Peninsula University of Technology, Cape Town, South Africa

Supported by  Eskom

## CONFERENCE THEME

Energy Efficiency Drivers.

## OBJECTIVES

The 18th international conference on the 'Domestic Use of Energy' (DUE) presents a forum for professionals and practitioners in all fields of domestic energy to discuss the latest developments in the effective use of energy in the residential sector. The importance of energy conservation is widely recognised as South Africa has run out of excess generating and distribution capacity.

The world, South Africa and the rest of Africa in particular, face many challenges in the effective use and generation of household energy. DUE therefore focuses on the response to the looming threats of another energy crisis. Related issues addressed include sustainable energy provision; smart control systems, appropriate legislation; the role of renewables; off-grid electricity supply and feed-in tariffs. These challenges are particularly marked in the rural and remote areas of developing countries.

Papers and workshops are targeted at establishing problem-solving partnerships where suppliers, distributors, generators and users of energy, together with academia, will identify challenges in the provision and use of residential energy. They will then strategise to promote the effective use of energy in the home. Energy efficiency, consumer attitude and behaviour, education and marketing are but a few of the factors that will be discussed in detail at the conference.

## WORKSHOPS

Participation is invited from end users, researchers, policy makers, ESCOs etc. to the following workshops:

1. Electricity Resellers
2. Small Scale Sustainable Generation

## CONFERENCE TOPICS

1. Customer needs
2. Domestic Appliances
3. Energy Efficiency in the home
4. Electrification
5. Demand-Side Management
6. Energy Policies
7. Energy Audits and M&V
8. Renewable Energy (Solar, wind & bio)
9. Water Heating, Airconditioning, Heat pumps
10. Smart Home Technology
11. Tariffs and Metering

## CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD)

Attendance qualifies for CPD points with ECSA for professional registration.

## SUBMISSION OF PAPERS

22 January 2010: Submission of final papers in accordance with DUE guidelines  
(For guidelines go to <http://active.cput.ac.za/energy>)  
Acceptance of paper: Four weeks after submission  
Powerpoint presentation due 14 March 2010.

## EXHIBITORS

Companies interested in exhibiting at the conference are invited to contact the Conference Secretariat. Early registration will secure a good exhibition site.

## PROGRAMME

29 March 10:00 Industrial visit  
29 March 18:00 Meet & Greet Function  
30 – 31 March Conference  
30 March Conference dinner

## REGISTRATION FEE

Full Fee: R3 000/\$400  
Industrial visit R150/\$20  
Members of AMEU, IEEE, SESA,  
SAIEE, SAEE, BESCO or SAAEs: R2 550/\$370  
Presenting Authors/Students R2 200/\$300

10% discount if paid before 6 February 2009.  
50% discount to students and academics from educational institutions in Africa. Limited funds are available for the registration fees of deserving delegates in financial need.

Conference fees are payable before or on 8 March 2010.

## CONFERENCE VENUE

Lecture Theatre Complex, Cape Town Campus, Cape Peninsula University of Technology

Contact: Domestic Use of Energy Secretariat

Tel: +27 21 460-3660

Fax: +27 21 460-3728

E-mail: [due@cput.ac.za](mailto:due@cput.ac.za)

Website: [www.windenergyafrica.com](http://www.windenergyafrica.com)

The Wind Power Africa 2010 Conference and Renewable Energy Exhibition is taking place in Cape Town, South Africa, from 12 -14 May 2010.

Africa faced with a serious lack of and dwindling fossil fuel resources, and large parts of the continent suffering from severe droughts and floods, is desperate for alternative energy sources.

The agenda for the global gathering in Copenhagen has placed renewable energy as the future high priority obligation for the international community in the transition from fossil fuels and atomic energy to clean energies. This will particularly benefit the many millions living in the remote areas in developing countries and are suffering the most from the affect of global warming.

Wind energy has become widely recognised as a source of energy that can contribute substantially to a clean, affordable and sustainable energy supply system. Astonishing technological progress has been made by way of constantly improved, economically efficient, multi-megawatt wind turbines as well as new, innovative small scale off-grid applications. This has given wind energy a status as a future primary energy carrier, which will enable developing countries to leapfrog the negative effects of the fossil fuel dominated economies of the developed countries, which has resulted in serious degradation of the global environment.

Wind Power Africa 2010 will tackle the full range of wind energy subjects and will especially focus on developing strategies and instruments for wind energy in less- and non-industrialised countries of the world. The adaptation of successful technologies and strategies to specific regional and local conditions will be the central theme of this conference. The conference will address not only technology issues but also policy and regulatory aspects, funding, return on investment and environmental impact. Since wind alone cannot be seen to stand for rapid change in energy supply, a major Renewable Energy Exhibition will run alongside the conference, demonstrating synergies with and joint projects of a variety of renewable energy technologies.

The timing of this international event in South Africa is ideal in view of the recently introduced feed-in tariffs in South Africa, which in particular is acknowledged to be globally the most



## Wind Power Africa 2010 Conference and Renewable Energy Exhibition

preferred partner country for CDM projects due to its high fossil fuel content of its electricity generation. In addition to countries in North Africa, there are also presently significant developments of large wind farms in Kenya, Tanzania and Ethiopia.



### ABOUT THE HOST

The African Wind Energy Association (AfriWEA), a non-profit organisation, was founded in 2002 in order to encourage manufacturers, developers, governments, renewable energy owners and individuals to promote and support wind energy development on the African continent. In 2003 AfriWEA hosted the 2<sup>nd</sup> World Wind Energy Conference in Cape Town, which was a great success with more than 600 delegates from all over the world. With close to 700 members, AfriWEA is offering a powerful world-wide network for the wind energy sector in Africa.

### EVENT OVERVIEW

Wind Power Africa 2010 is the premier international event on wind energy in Africa hosted by the African Wind Energy Association in partnership with other African and international organisations. A powerful networking platform, the event will bring together key African and international stakeholders from the public and private sectors with the aim to unlock Africa's wind energy potential.

The opportunities for wind power in Africa and South Africa in particular are immense due to a favourable investment climate offering profitable feed-in tariffs for wind energy, tremendous CDM project potential, ideal natural conditions as well as increasing energy demand and capacity shortages in growing economies. Wind Power Africa 2010 will examine the current and future wind energy markets in Africa and highlight attractive business opportunities, with in depth analysis and country case studies.

Wind Power Africa 2010 will take place from 12-14 May 2010 at the Cape Town International Convention Centre in Cape Town, South Africa, featuring a high-profile Conference & Renewable Energy Exhibition, Site Visits, a Networking Cocktail, Gala Dinner and Spouses Programme over the 3-day period.

### WHY AFRICA?

#### Africa's wind energy potential

There is considerable potential for large scale wind energy development, especially in the north and south of the continent. Africa boasts a coastline of more than 30 000 km and vast land areas, offering ideal conditions suited to harness wind energy. Apart from its large scale project potential, Africa is also an important market for small turbine manufacturers as close to 80% of the continent's population is not connected to grid electricity.

#### Increasing energy demand and capacity shortages

South Africa – Africa's largest economy and the gateway to Sub-Saharan Africa – is enjoying sustained GDP growth of approximately 5% per annum. It is estimated that the electricity infrastructure must grow at 4% per annum to sustain anticipated GDP growth. To try to alleviate the country's reliance on coal, the South African government has incorporated into its plans new and cleaner generation technologies like biomass, wave, solar and wind power. To accel-

erate the growth of power generation capacity and spread financial risk, the South African government is encouraging the participation of Independent Power Producers (IPP) in the sector.

### Great investment opportunities for independent power producers

While 95% of the electricity used in South Africa, and about 60% of the electricity consumed on the African continent is generated by the state-owned utility Eskom, the private sector is set to play an increasingly important role in the generation of electricity in South Africa in coming years. IPPs are expected to generate 30% of total power capacity required for the country's future.

### Profitable feed-in tariffs for wind energy

South Africa's National Energy Regulator (NERSA) announced on March 31, 2009 the introduction of a favourable system of feed-in tariffs designed to produce 10 TWh of electricity per year by 2013. Similar models are already in place or are expected to be applied soon by other African countries. The tariffs, differentiated by technology, will be paid for a period of 20 years and are based on the cost of generation plus a reasonable profit. The tariffs for wind energy are among the most attractive worldwide at 1.25 ZAR/kWh (€0.104/kWh).

### Attractive opportunities for CDM projects

IPP projects can also include Clean Development Mechanism components to increase profitability. South Africa in particular is acknowledged to be the most preferred partner country due to its high fossil fuel content of its electricity generation.

### PROGRAMME AND CALL FOR PAPERS

The 3-day Wind Power Africa 2010 conference programme will consist of a number of plenary and break-away sessions. Themes that will be addressed include:

1. Unlocking Africa's Wind Energy Potential
2. Creating an Enabling Environment for Wind Energy in Africa
3. Regulatory Frameworks (Country Case Studies)
4. Wind Energy Feed-in Tariffs and Quotas

5. Wind Power Measuring, Forecasting & Site Selection
6. Technical Requirements for Grid-Integration
7. Off-Grid and Specialised Applications for Wind Power
8. Commercial Utilisation of Wind Energy and Opportunities for IPPs
9. Funding Wind Energy Projects (Subsidies, Loans, Private Investors)
10. Wind Energy Technology and Equipment
11. Climate Change and CDM for Wind Power Projects
12. Human Capacity Building in the Wind Energy Sector
13. Case Studies of Public and Private Wind Energy Projects in Africa
14. Relevant Case Studies from other Developing Countries

Should you be interested in speaking at the event, they invite you to send a presentation proposal (title plus a brief abstract of not more than 150 words, and a short profile of yourself). Please also indicate under which of the above session themes your topic would best fit. You are also welcome to propose an additional session theme not mentioned above.

Please submit your proposals by 15 January 2010. The programme committee will evaluate all proposals received, and they will notify you in early February about the success of your application.

### WHO SHOULD ATTEND?

Wind Power Africa 2010 will bring together key players in the wind energy sector and provide the platform for networking with peers, government stakeholders, investors and potential clients.

- Wind project developers
- Wind farm owners/operators
- Private and Institutional Investors
- Government and regulatory bodies
- Energy and utility companies
- Transmission system operators and planners
- Wind power integrators and installers
- Municipalities
- Wind technology developers and manufacturers – wind turbine manufacturers, wind component manufacturers
- Wind measuring and assessment organisations
- Law firms, engineering and consulting firms
- Certified Emission Reductions (CERS) Buyers

- Wind technology research and development companies
- Energy analysts
- Environmental interest groups
- Media representatives

### THE VENUE

Situated at the foot of Table Mountain, Cape Town is considered by many to be one of the most beautiful cities in the world.

Centrally located on Cape Town's foreshore, the Cape Town International Convention Centre (CTICC) offers state-of-the-art facilities providing a venue above all expectations.



### ABOUT THE ORGANISERS

Omega Investment Research is an international marketing, communications and event management firm focussing on Africa. With offices in Cape Town and London, and representatives in major international centres including Washington DC, Munich, Zurich, Singapore, Hong Kong, Beijing and Dubai, Omega has been assisting corporate and public sector clients around the world with services including trade & investment promotion and facilitation, global conferencing and trade missions, fundraising, political risk analysis and international business development. In over 18 years, Omega has conceptualised, initiated and managed over 200 events in 20 countries around the world.

- *Contact: Denise Spaul*  
*Wind Power Africa 2010*  
*Tel: +27 21 689 7881*  
*Fax: +27 21 686 4361*  
*E-mail: denise@windenergyafrica.com*  
*Website: www.windenergyafrica.com*

CTICC  
Convention Square  
1 Lower Long Street  
Cape Town 8001  
Tel: +27 (0) 21 410 5000  
Website: www.cticc.co.za

**OMEGA**  
Investment Research

## Concentrating solar power – status and application

The extent to which concentrating solar power, also termed solar thermal electric power, has grabbed the attention of people world-wide can be seen in articles such as 'The technology that will save humanity' by Joseph Romm and 'Can Concentrating Solar Power Outshine Fossil Fuels?' by Sean Sullivan.

Concentrating Solar Power (CSP) has woken over the past couple of years to move from a small base of 354 MW installed in the Nevada Desert in the US, to thousands of MW in planning or under development throughout the world.

Barry MacColl, Manager – Technology Strategy and Planning technologies, Eskom, is investigating the technologies comprising the family of CSP options, looking at developments taking place internationally, and is responsible for Eskom's activities in this regard.

He heads the Technology, Strategy and Planning Section in Eskom's Corporate Division. He is responsible for the management of the Research Programme as well as the roll out of the Demonstration and Pilots projects Eskom is pursuing such as Underground Coal Gasification and Concentrated Solar Power amongst others. He is also accountable to define and set technical direction for Eskom by working with and through the divisional technology sections.

Barry is Chair of the South African Centre for Carbon Capture and Storage, an Executive Member of the International Energy Agency Clean Coal Centre and is on the Executive Committee of the EPRI Power Delivery and Utilisation Sector Council.

● *Contact: Barry MacColl  
Manager – Technology Strategy  
and Planning  
Eskom  
E-mail:  
Barry.MacColl@eskom.co.za*

# Energy events 2010

## MARCH 2010

24 – 24

**PUTTING A PRICE ON CARBON: ECONOMIC INSTRUMENTS TO MITIGATE CLIMATE CHANGE IN SOUTH AFRICA AND OTHER DEVELOPING COUNTRIES**  
University of Cape Town, Cape Town, South Africa

*Contact: Ms Meagan Jooste, Energy Research Centre, University of Cape Town  
E-mail: [erc-climatechange@uct.ac.za](mailto:erc-climatechange@uct.ac.za)*

29 – 31

**DOMESTIC USE OF ENERGY CONFERENCE, Cape Peninsula University of Technology, Cape Town Campus, South Africa**

*Contact: Domestic Use of Energy Secretariat  
Tel: +27 21 460 3660  
Fax: + 27 21 460 3728  
E-mail: [due@cput.ac.za](mailto:due@cput.ac.za)  
Website: <http://active.cput.ac.za/energy>*

30 – 31

**STRATEGIES FOR COMMERCIAL SUCCESSFUL DEEPWATER WIND PARKS AND A TRANSNATIONAL SUPERGRID**

Hamburg, Germany  
*Website: [www.greenpowerconferences.com](http://www.greenpowerconferences.com)*

## APRIL 2010

13 – 14

**UNLOCKING LATIN AMERICA'S TRUE CARBON MARKET POTENTIAL**

Sao Paulo, Brazil  
*Website: [www.greenpowerconferences.com](http://www.greenpowerconferences.com)*

## MAY 2010

12 – 14

**WIND POWER AFRICA 2010 CONFERENCE & RENEWABLE ENERGY EXHIBITION**

Cape Town, South Africa  
*Contact: Denise Spaul  
Tel +27 (021) 689 7881  
E-mail: [denise@windenergyafrica.com](mailto:denise@windenergyafrica.com)  
Website: [www.windenergyafrica.com](http://www.windenergyafrica.com)*

## AUGUST 2010

10 – 12

**INDUSTRIAL AND COMMERCIAL USE OF ENERGY CONFERENCE**  
The Vineyard Hotel, Newlands, Cape Town, South Africa

*Contact: Industrial & Commercial Use of Energy Secretariat  
Tel: +27 21 460 3660  
Fax: + 27 21 460 3728  
E-mail: [icue@cput.ac.za](mailto:icue@cput.ac.za)  
Website: <http://active.cput.ac.za/energy>*

## SEPTEMBER 2010

13 – 15

**PLANNING AFRICA 2010 BEYOND CRISIS: OPPORTUNITIES & ACTIONS**

International Convention Centre, Durban, KwaZulu-Natal, South Africa  
*Contact: Precision Conference Organisers, PO Box 20602, Durban North 4016  
Tel: 086 010 9962  
Fax: 086 672 7484  
E-mail: [sapi@precisionconferences.co.za](mailto:sapi@precisionconferences.co.za)*

Visit [www.erc.uct.ac.za](http://www.erc.uct.ac.za) for further events and details

# Energy Management News

The newsletter is published quarterly by the Energy Research Centre (ERC) of the University of Cape Town. (ERC is an amalgamation in 2004 of two organisations at the University: the former Energy Research Institute and the Energy and Development Research Centre.)

Energy Management News is available free of charge. The articles do not necessarily reflect the views of the editor or of ERC.

Enquiries, comments, articles, and information on energy events are welcome, and should be sent to:

Richard Drummond  
Energy Research Centre  
University of Cape Town  
Private Bag  
Rondebosch 7701  
South Africa.  
Tel: 021 650 3894  
Fax: 021 650 2830

E-mail: [richard.drummond@uct.ac.za](mailto:richard.drummond@uct.ac.za)

## Subscribe to

# JOURNAL OF ENERGY

IN SOUTHERN AFRICA

The *Journal of Energy in Southern Africa (JESA)* has been running for fourteen years, and has proved to be of a consistently high standard and to have a widening subscription base. The key receivers of this quarterly journal are researchers, consulting engineers, energy producers, energy consumers and decision makers.

The publication is balanced, representative, up to date and authoritative. It is becoming increasingly known in other countries especially in Africa.

The JESA is a successful vehicle for the dissemination of information on the latest results and activities in the Southern African energy field, publicising results achieved and stimulating future activities. The potential impact in terms of distribution is the whole of sub-Saharan Africa. It covers matters of local and regional interest as opposed to the internationally high technology content of other journals serving energy interests.

It is the intention to keep the subscription rate relatively low to allow as many people as possible to have access to the JESA.

### ANNUAL SUBSCRIPTION RATES (FOUR ISSUES)

Individuals (Africa): R134 (single copy R51)  
Individuals (beyond Africa): US\$109 (single copy US\$39)  
Corporate (Africa): R321 (single copy R103)  
Corporate (beyond Africa): US\$218 (single copy US\$77)

Cost includes VAT and airmail postage.

Cheques should be made payable to the University of Cape Town and sent to the address given below.

Contact: Ann Steiner, Energy Research Centre, University of Cape Town,  
Private Bag, Rondebosch 7701, South Africa.

Tel: 021 650 4646

Fax: 021 650 2830

E-mail: [ann.steiner@uct.ac.za](mailto:ann.steiner@uct.ac.za)