

Energy Management News



Sponsored by Eskom, the Department of Minerals & Energy, and the Foreign & Commonwealth Office

VOLUME 11 NUMBER 4

www.erc.uct.ac.za

DECEMBER 2005

Rethinking energy access: Integrating ICTs and gender for sustainable solutions

It is estimated that 900 million of the world's poorest people are concentrated in rural areas, and approximately 70% of these people are women (UNDP 2003). Why is this the case after decades of attempts at rural development, with many projects targeting women specifically? More recent attempts at reducing poverty include country level Poverty Reduction Strategy Papers and the Millennium Development Goals.

Often poverty alleviation policies and subsequent projects like these perceive the rural poor and women as a homogeneous group and adopt a 'paint by numbers model'. Yet these approaches frequently fail to comprehend the existence of a multitude of gender, social, political, economic and cultural circumstances prevalent in different rural communities.

Acknowledging these differences implies that not all people experience poverty in the same way and requires an analysis that points out how these inequalities are expressed across rural communities and within specific rural communities. Local skills, knowledge and resources need to be combined with the provision of appropriate services and information resources to allow rural communities to escape the poverty trap.

Energy is one of the basic services that may be a powerful catalyst for rural and remote rural development, if it is harnessed appropriately. Yet access to energy services is subject to disparities that exist in society. For instance, in South Africa, there is a

contrast between rural and urban electrification levels, where the percentage of rural households with access to grid electricity is approximately 54% in rural areas compared to urban households where the electrification level is closer to 79% (NER 2003). As part of an attempt to address the electricity disparity, the Department of Minerals and Energy (DME) designed an off-grid electrification programme that installed approximately 15 000 solar home systems as well as implementing several mini-grid pilot projects that provide basic electricity services to remote rural households (NER 2003).

However, the different levels of electrification provided by these systems¹ have the potential to enhance or undermine empowerment opportunities. These inequalities in energy access influence the manner in which energy for development programmes are conceptualised, planned and implemented, and the subsequent outcome.

Another weakness that has been highlighted is that energy projects usually focus on alleviating women's domestic burden and facilitating income generation (Anneke 2000), instead of combining access to energy with access to resources and information to empower women in a broader sense. Simply focusing on 'energy poverty' instead of the ability of such services to make a qualitative difference to the lives of the rural poor hampers development efforts. These complex challenges that rural people

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face requires a multi-dimensional approach to development efforts.

Led by a multi-dimensional approach to development, Jocelyn Muller from the Energy Research Centre (ERC) developed a research proposal that draws energy into the information and communication technologies (ICTs) and gender equation. ICTs in combination with appropriate levels of energy provision have the potential to facilitate access to:

- Long distance education opportunities
- Basic adult numeric and literacy training
- Telehealth / telemedicine opportunities
- Networking amongst women
- Government services
- IT training and coursework
- Public telephone, computer and internet use
- Career development and job preparation facilities
- Entrepreneurial support
- Digitisation of indigenous knowledge and resources
- Access to external markets

However, in rural South Africa the varying levels of energy services may undermine the extent to which ICTs may be accessed and used. Unequal access to either energy or ICTs, is further compounded by the gender disparities that exist in society. Stated differently, the quantity and quality of varying energy services have an impact on women's access to and use of ICTs.

In spite of these difficulties, women do use ICTs like cell phones to their benefit. But to what extent varying levels of electricity has promoted the uptake of ICTs requires investigation. If the triangular relationship between gender, energy and information and communication technologies in rural areas could be clarified and issues regarding their unequal access and use are addressed, combined they have the potential to contribute towards sustainable development objectives through empowering women. This is the main focus of the ERC study.

The ERC study outlined above is a sub-project of an exciting new research initiative that brings together African researchers to study Information and Communication Technologies (ICTs) and women's empowerment in Africa. The project is called the Gender Research in Africa into ICTs for Empowerment (GRACE). GRACE held its first researcher capacity-building



GRACE researchers from 12 African countries at a researcher capacity building workshop in Durban

workshop in Durban in July 2005, and researchers from all over the continent, including Jocelyn Muller from the ERC, honed their project proposals, sharpened their proficiency in qualitative research methods and fine-tuned networking skills. The GRACE research initiative brings together researchers from 12 countries in Africa, all focusing on the central question of ICTs and women empowerment.

The GRACE initiative is managed by the Association for Progressive Communications Women's Networking Programme (APC WNSP). It is a 2-year project funded by the International Development Research Centre (IDRC). The project is a huge endeavour, with 15 sub-projects, 14 research sites in countries including Kenya, Senegal, Uganda, Cameroon, Zambia, Zimbabwe, Mozambique, South Africa (ERC sub-project), Tanzania, Nigeria, Morocco and Egypt, whereby every research site is operated by its own team, making GRACE effectively 'a team of teams.'

Individual GRACE research topics vary, ranging from examining mobile telephone use to the ways in which women could use e-commerce barriers to ICT use and women's strategies to overcome these obstacles. Eventually GRACE hopes through its research efforts to influence the existing debates on gender and ICTs, as well as national and provincial policies.

The project has a strong capacity-building focus. It intends to provide researchers with the opportunities to

gain insight into their research thinking and evolve this through growing in self-knowledge and self-care; to build confidence and skills in the use of qualitative and participatory research methods and techniques, and to develop the capacity to use those ICT tools which would benefit their research journeys and the sharing of these journeys within the network and beyond.

The project is indeed quite unique, according to Ineke Buskens of Research for the Future, the GRACE Research Director: 'African researchers focusing on Africa, while living and working here, doing qualitative research on such a large scale together.... I do not know of any other research of this scope, or with this kind of a perspective.'

It is the intention of the ERC or GRACE SA to use the Energy, ICT and Gender lens to explore what women think are the limitations and potential benefits that may be realised with the provision of basic energy services in relation to their access to and use of certain information and communication technologies like cell phones, radios and TVs. In line with the GRACE empowerment objectives, the research project will adopt a people-centred development approach that centres on the integration of Energy, ICT and Gender concepts into a holistic capacity building experience for the research participants.

The approach acknowledges that whilst rural people, particularly women, may be poor, they have a wealth of

indigenous knowledge, resources and adaptive skills that need to be combined to allow rural communities to escape the poverty trap. They will share their stories about how they have used the energy sources available to them to access and use ICTs like radio, TV and cell phones.

By telling their life stories and reflecting on their lived experiences, they will express their perception of the effect that energy and certain ICTs have had on their lives. The primary objective of the study is for the women living in Lucingweni to communicate the ways that they visualize energy and ICTs contributing towards an improvement in their livelihoods.

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Note

1. United Nations Development Programme 2003. Human Development Report. New York: UNDP. Approximately 1kWh per day per household for the Lucingweni mini-grid pilot project, Eastern Cape, and approximately 6kWh per month per household for the solar home system.

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Has the time come for biofuels to help poverty alleviation?

There is nothing new about the propulsion of vehicles by fuels derived from plants. The first diesel engine was designed to use a vegetable oil fuel. The basic chemical engineering requirements for the manufacture of the fuels from a variety of vegetable matter are well known.

Some of the reasons why biofuels have not come into widespread use are claimed to be:

1. Cultivation of the plants by conventional, capital intensive, methods of farming is expensive and, itself directly and indirectly, consumes a considerable quantity of energy.
2. Biofuel plant cultivation is in direct competition with food crops for good quality arable land.
3. Water supplies for irrigation are frequently in short supply.
4. To produce any significant proportion of the fuel requirements of most nations requires a vast area of farmland.
5. The price of fuels from petroleum refining is lower than the production cost of biofuels.

Despite these formidable objections, biofuels and biodiesel in particular are used in substantial quantities. For example, the USA consumed about 150 million litres of biodiesel last year. Large volumes are used in Europe and Brazil. Small quantities are produced and used in South Africa.

Much of the driving force for the increasing interest in biofuels globally comes from the widespread concerns that exist regarding Greenhouse Gas (GHG) emissions, rising oil prices and fears on the security of petroleum supplies. These concerns are reflected in the policies of nations, particularly those nations that are signatories to the Kyoto Protocol. Many of the countries

that appear on Appendix 1 of that Protocol as being developed economies with commitments to reduce GHG emissions have introduced incentives and targets for the use of energy sources other than fossil fuels, including fuels for vehicle propulsion. Some countries that are not on Appendix 1 have also introduced policies for diversifying energy sources.

South Africa is one of those signatories who are not on Appendix 1 but has set itself the target to 'produce an additional 10 000GWh (0.8Mtoe) renewable energy contribution to final energy consumption by 2012, to be produced mainly from biomass, wind, solar and small scale hydro.' So far, little exists in the way of carrots or sticks for the promotion of this policy. It can be argued, with considerable justification, that promotion of alternative energy sources is not as yet a national priority despite the fact that

South Africa is the largest emitter of greenhouse gas in Africa. Concerns like poverty alleviation loom much larger. It is however possible to link job creation to biofuel production.

Dr. R.E. Robinson, speaking at a meeting of the Fossil Fuels Foundation in June of this year, suggested how this might be done. Dr Robinson's proposals largely overcome factors one to four listed above and, with recent help from crude oil prices, factor five as well.

How this is to be achieved is by the application of an agricultural technology widely used in Israel and other water short countries. This is sub-surface irrigation (SSI), also known as drip irrigation. The key feature of this is to feed the correct quantity of water containing the necessary nutrients at the stem of each plant individually. The root system of the plant then takes up the require-

ments for growth without having to extend widely and deeply. Many studies have been done on SSI of which those by the Pratt Research organisation in Australia have shown that in terms of water transpiration efficiency, SSI is about 85% efficient as compared with about 15% for the best of overhead systems. The water and nutrient demands of the different stages of the growth of the plant can be provided optimally. Plant spacing can be closer than that used in conventional farming and the growing time shorter. The total water and nutrient requirements are a fraction of those normally used. There are a considerable number of crops that are suitable for biofuel production - the optimum choice is likely to be dependent upon conditions in the area. Because of the ability to control the water and nutrient inputs on a small scale by using SSI, it becomes possible to have crops at different stages of development within the same field, thus farming ceases to be controlled entirely by seasonal rains and income can accrue to the farmer more regularly. Winter and summer temperature differences must obviously continue to influence growth rate. Because the requirements for plant growth are supplied directly to the plant, not from the soil, poor quality soils can be utilised and the objection of competition with existing food production largely fall away.

Successful examples of the application of SSI by rural communities have been established at a number of locations in South Africa under overall guidance from the Israeli Techno-agricultural Innovation for Poverty Alleviation programme. Dr. Robinson has calculated, using published growth rate data, that one farmer could, with modest training and support use, SSI to cultivate 1500 square metres. By growing biofuel crops on that land, he could make a living income. Dr Robinson has set the target of providing one million new jobs in the rural areas of South Africa in this way.

Moving beyond a basic application of drip irrigation, Dr Robinson proposes that cash flow from the crops could be supplemented in many ways, several of which have important environmental benefits. These enhancements include, (i) the use of sewage effluent and/or Acid Mine Drainage (ADM) water for irrigation and nutrient supply, (ii) Use can be made of all the products of agriculture such as the biomass in the form of leaves, cobs, stalks etc to produce

methane by anaerobic digestion. The methane can be used in a number of ways such as methanol and dimethyl ether manufacture. These enhancements, Dr Robinson suggests, could boost the income to the farmer and other stakeholders substantially. Space does not permit discussion of the enhancements here.

The question of funding must, however, be mentioned briefly. The Clean Development Mechanism is a system whereby countries on Appendix 1 of the Kyoto Protocol can off-set part of their GHG emissions reduction obligations by funding equal reductions in countries not on Appendix 1. Biofuels production in Africa fits the requirements. Stringent conditions apply and both national governments must be parties to the arrangement. Thus, for South Africa to tap into this source, the government must be convinced and supportive.

Although Dr. Robinson's work is not fully published, an immediate need is for critical review of the basic concepts so that it can be endorsed, or otherwise, by agricultural, engineering and economic professionals as having a realistic chance of becoming feasible. Only when that has been done, will it be possible to garner financial support for a demonstration scheme. It is the purpose of this article to provoke comments from readers of *Energy Management News*.

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DUE Conference

4 - 6 APRIL 2006, CAPE
PENINSULA UNIVERSITY OF
TECHNOLOGY, CAPE TOWN

After 13 most promising Domestic Use of Energy (DUE) Conferences, Cape Town is once again getting ready for an even better energy conference in 2006.

You are invited to present a paper at this conference by forwarding short abstracts and final papers to due@cput.ac.za by 17 February 2006.

The Domestic Use of Energy International Conference will be held at the Cape Peninsula University of Technology. Conference themes include: Domestic Demand Side Management and Re-distributor DSM; Impact of the new Financial Act on DSM/ ESCOs, contracts, maintenance, etc; Discussions on Hot Water Load Control; Energy Efficiency and Labelling and Renewable Energies.

SAEE members get 10% discount on the conference fees.

Getting to grips with the National Climate Change Conference

The National Conference on Climate Change, held in Johannesburg from 17 – 21 October 2005, should help South Africans to realize the long-term benefits and short-term opportunities that arise from a coordinated and integrated approach to the challenges of the 21st century.

Extracts from the presentation of the South African Climate Action Network (SACAN) Co-ordinator, Richard Worthington:

'Calling for action to address climate change causes serious consternation in some quarters, giving rise to suggestions of conspiracies and mysterious 'self-serving' agendas. Claims that the global response to climate change is exaggerated or even somehow damaging, are a sign that those most responsible for the problem are beginning to feel some constraint. The attribution of disingenuous motives to those suggesting that the mounting evidence of climate change should inform the path of human development is simply a sign of the weakness of opposing arguments.'

'South Africa's dependence on coal is not a necessary condition for improving the livelihoods of the majority, nor is it the product of rational planning or of our natural resource endowment, which is far richer in renewable energy. We can change the way we supply and use energy, to the benefit of all, if we make a concerted effort while we are ahead. There are also changes in agriculture that are needed for sustainability and broader participation in productive activity, that will both build resilience to the impacts of climate change and reduce greenhouse gas emissions.'

'The National Conference on Climate Change should initiate development of a coherent approach to climate change - to the challenges as well as the potential benefits of a rational national response. The sustainability of our life support system is at stake -

avoidance of dangerous climate change requires keeping mean global warming as far as possible below 2° C. There is a shrinking window of opportunity to initiate the necessary progression from business as usual, with growing consensus that a reversal of the global growth in greenhouse gas emissions is required within 10 to 15 years. South Africa and Africa can be winners rather than losers within an effective global climate change regime.'

The event and concluding declaration send a clear message, nationally and internationally, that South Africa is committed to action on climate change – both mitigation and adaptation – with government having made broad commitments across departments. As noted in the closing address, they lay the foundation for a comprehensive national approach.

The event and declaration are certainly overdue – it has taken seven years to get to grips with the science and our international commitments – and we will certainly be looking for more, particularly more quantified and concrete commitments from the business sector. However, this is a groundbreaking development and specifically provides a mandate for 'a participatory climate change policy development process'. Climate change and the urgent development of action plans for all sectors are now explicitly acknowledged as a leading priority for South Africa and Africa.

NGOs will hold government to account on the contents of the declaration, pushing for rapid development of the promised action plans and implementation strategies by a range of departments. The establishment of a National Energy Efficiency Agency is particularly welcome. We now have a firm process in place, including a work programme for the National Committee on Climate Change and a strengthened commitment to renewable energy.

We condemn the suggestion in the

business sector statement that the additionality requirements of the Clean Development Mechanism (CDM) be relaxed. This highlights the opportunistic approach of many industries to this market mechanism and a flagrant disregard for the environmental integrity of its operation. The inability to think beyond maximizing profits could remove the credibility and efficacy of the CDM. Establishing that emissions reductions achieved through this 'flexible mechanism' are indeed additional to what would have occurred without such finance is not an obstacle to implementation, but rather the most essential characteristic.

We welcome government's commitment to more progressive positions at international negotiations and denouncing of any attempts to undermine the multilateral approach to climate change and absolute and binding emissions reductions commitments for developed countries. We particularly note the strong words of the deputy minister of foreign affairs condemning those that reject a unified approach to climate change as 'taking us on a path of destruction.'

We understand this event and the 'Midrand Plan of Action' to be a commitment by government to live up to its slogan 'Climate Action Now.'

The following was noted in the SACAN submission:

SACAN and its member organizations are ready to offer advice and support in every way they can to take action - from among the many actions that can be taken over the next two years, SACAN proposes that the following be given priority:

1. Stronger measures are needed to drive energy efficiency including mandatory codes and standards for housing and other buildings, vehicles and industrial processes.
2. The government should increase its target for renewable energy includ-

ing a target of 20% for electricity by 2020 and a distinct target for solar water heating and biofuels. Independent research shows that a target of 15% will have net economic benefits over a 20 year period. The existing government target is inadequate as it does not even require an increase in the current renewable energy production.

3. Eskom should go beyond its standing commitment of reducing its coal dependence by 10% by 2012, with specific commitments to deployment of renewable energy. Independent research commissioned by a SACAN member organization confirms that this is an achievable goal. Complementary independent research has shown renewable energy will create tens of thousands of jobs.
4. Government should endorse the global objective of keeping global warming below 2°C. This will necessitate new commitments by South Africa along with other developing countries in the post 2012 period.
5. SACAN calls for clear recognition of the limitations of the CDM, review of the expectations and the emphasis placed on carbon trading in strategies for renewable energy and efficiency, and rigorous application of the sustainable development criteria by the designated national authority (DNA) to ensure that negative local impacts are not offset against global benefits.
6. Climate change will impact harshly on humanity and particularly the lives of the poor. SACAN would therefore like to see a wide ranging review of measures by which the poor can be protected from the worst impacts of climate change and also from the effects of the higher level of energy prices that may result from emissions reductions.
7. SACAN calls on government for urgent and immediate adaptation strategies to be implemented in an integrated and cross sectoral manner.
8. Government should set emission standards to facilitate our move towards commitments in the post 2012 period.
9. SACAN wants immediate action towards the development of a comprehensive public transport system and other measures to assist in the reduction of private vehicle use and

congestion.

10. SACAN calls for recognition within government related climate change policy of the important role that biodiversity and nature play in protecting human health
11. A significant increase in the resources allocated to education and awareness for ordinary South Africans to appreciate the need for urgent and immediate climate action, and embrace the important role that efficiency and renewable energy will play in improving livelihoods and health.

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Fire prevention in Southern Africa

An investigation of ethanol gel fuel as an alternative to paraffin for domestic use in low-income homes

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Abstract

The use and possession of paraffin is a leading cause of death, burns, and destruction in South Africa, specifically in low-income settlements. This article explores the possibility of replacing paraffin with ethanol gel. The gel is evaluated both in scientific and chemical terms, but also from the consumer's standpoint. Laboratory work was performed using an ethanol gel stove in comparison to both paraffin wick and pressurized stoves. Additionally, forty-four gel stoves were distributed in the Nyanga, Guguletu and New Cross Roads settlements in the Western Cape. A discussion of these results and recommendations for further research and entrepreneurship is included.

INTRODUCTION

The use and possession of paraffin is a leading cause of death, burns, and destruction in South Africa, especially in low-income settlements. The hazard to health and homes that paraffin has created, coupled with the estimated R104 billion that the government must spend every year to handle fire damage and rebuilding costs has created an urgent need to dramatically decrease paraffin use in townships [PDG, 2003]. Unfortunately, the oil-based fuel is affordable and readily available at 'spaza' shops throughout the most vulnerable areas of South Africa. The goal of this article is to explore the practicality of using ethanol gel as an alternative to paraffin.

In order to address questions concerning the comparative efficiencies of paraffin and ethanol gel, laboratory work has been conducted to serve as an independent source for comparison to previously established research about the gel and the gel stove's performances. The aspects of stove usage that have been considered are general

safety, ease of use, stability, emissions, endurance of both fuel and stove, efficiency of fuel, and amount of time and fuel required to boil one litre of water. Additionally, both fuels were ignited on various domestic materials to simulate how quickly flames would spread if either fuel were to catch fire in a home.

After the initial lab work, forty-four gel stoves were distributed to selected participants living in representative socio-economic conditions in the Nyanga, Guguletu and New Cross Roads settlements in the Western Cape. Each participant received two litres of gel fuel, a gel stove, a thorough explanation of the proper way to use the technology, and a consumer acceptability survey.

After two weeks the survey was collected, and the gel's performance was discussed with each participant. Finally, all persons received another litre of gel fuel for further use. The last goal of this article is to make recommendations for further research and pilot projects that seek to increase the availability and affordability of ethanol gel fuel.

PARAFFIN AND ETHANOL GEL

In 2001, South Africans experienced an estimated 46 517 paraffin-related fires. Further, 50 000 households suffer paraffin-related burns every year, where 63% of these burns result from a paraffin stove explosion. It is expected that these numbers are even higher today, when approximately 20 million South Africans rely on paraffin for cooking and heating [PASASA, 2003].

The Paraffin Safety Association of Southern Africa (PASASA) has performed extensive and informative research to document the current situation of paraffin-related social and health problems. However, published articles from PASASA have argued that paraffin should not be replaced with ethanol gel because it is not readily available, it is

more expensive than paraffin, it is more difficult to ignite, and it may extinguish in high winds.

First, it is true that the gel is not readily available in most areas. However, there is a 'Green Heat' production factory in Durban, so a distribution infrastructure would not be entirely difficult to construct. Additionally, such an endeavour would create many jobs. The Khayelitsha settlement near Cape Town, already has access to gel produced from the Durban facility; therefore, this distribution process could be used as an example for other settlements.

As for pricing, the cost of paraffin is based on several different factors that cause much fluctuation. In January 2000, the price for one litre of paraffin in the Western Cape was R1.57. In May 2005, the price was R3.67, an increase of 234% [DME, 2005]. By the time paraffin reaches the hands of consumers in townships, the cost will be approximately R4.50.¹ It can be inferred that the cost of paraffin will continue to rise, in the same fashion as petrol.

If a 15% subsidy is granted by the government for ethanol gel, it will be almost as inexpensive as paraffin, costing about R5.50. Next, based on our laboratory experiences, the gel is extremely easy to ignite: a match or a common lighter must simply touch the gel. Since the gel burns directly, whereas paraffin must be used in accompaniment with a wick, or a pressurized stove, it is easier to ignite and monitor than paraffin-fuelled apparatuses.

Finally, when a large quantity of gel is burning, for example, one full fuel reservoir in the gel stove (0.450 l), it is quite difficult to extinguish by wind or fanning the flame; it must be covered using the switch mechanism on the stove to deplete oxygen flow. However, it is true that small amounts can easily

be blown out. PASASA has provided an extensive list of solutions to the problems caused by uncontrolled paraffin use and distribution, but these solutions and the safe-proofing of paraffin and paraffin apparatuses could perhaps require more time, money, and political will than simply introducing ethanol gel fuel as the definitive alternative for paraffin.

COMPARATIVE SAFETY OF PARAFFIN AND ETHANOL GEL

Paraffin use is dangerous for a number of reasons. The fuel is both toxic and explosive, the wick and pressurized stoves that have been designed for paraffin use are dangerous, difficult to use, and productive of large amounts of indoor pollution and smoke. In addition, paraffin is not distributed in pre-packaged, child-safe containers but is collected by consumers in plastic or glass bottles. This last fact accounts for the high incidence of paraffin ingestions in children: 60 000 to 80 000 ingestions per year [Truran, 2004]. In fact, burns are the largest killer of children ages zero through four, and the second largest for children ages five through nine [Matzopoulos, 2003]. Also, paraffin stoves are unstable and unreliable.

Pressurized stoves, which cost approximately R150, are not favoured because of this expense. Wick stoves on the other hand cost R30 at the most, but are extremely dangerous, especially when knocked over. Both stoves are tall in structure, approximately eighteen centimetres tall and twenty-three centimetres wide, which gives them a tendency to tip over. Pressurized and wick stoves emit strong paraffin smells and large quantities of black smoke. The wick stove is very difficult to extinguish and often produces a burst of flame when it is blown out. The leaky fuel reservoir on the wick stove becomes increasingly hot as the stove is burned, which can raise the temperature of paraffin above its flashpoint [PASASA, 2003].

Ethanol gel, which is made in South Africa from sugar cane extract, is both non-toxic and non-explosive, as well as renewable. Because of its high viscosity, an amount of gel that is unintentionally ignited will spread at an extremely slow rate, whereas paraffin quickly spreads to anything nearby the flames. When a paraffin wick stove is knocked over while it is burning, it will inevitably burst into flames. Because the gel-fuelled stove is flat and square, only ten

centimetres in height, it will rarely flip over; if this happens, the gel will most likely extinguish itself before spreading to other objects. The high viscosity of the gel allows for minutes to pass before the fuel will spread from the stove to a surface.

During testing, the gel caused significantly less damage to wood, cotton fabric, and paper than paraffin did. The gel, even after five minutes, did not spread a single flame onto the cotton cloth nor the wooden surface, whereas the paraffin engulfed the materials in flames immediately upon ignition and left the objects charred. The gel did burn paper, but at a much slower rate than paraffin. Although gel promoters claim that the product is a non-smoke, non-smell fuel, when extinguished and while burning, ethanol gel does emit light vapours with a mild scent. This has not been reported as problematic by consumers. Ethanol gel can be easily interfaced with a common paraffin heater at the cost of one Rand for a small wire piece. This option is being investigated by the Khayelitsha Gel fuel Program.

FINDINGS

In the chart and graph on the next page, it should be clear that the gel far exceeds paraffin, both pressurized and wick in almost all aspects: safety, emissions, endurance, and efficiency. The pressurized stove failed ten South African Bureau of Standards (SABS) regulations, plus a combustion (measuring CO emissions) test executed by PASASA. The regulations which the pressurized stove failed include fuel capacity, stove assembly, fuel container, burner assembly, fuel inlet assembly, operating pressure range, appliance marking, container marking, combustion, instructions, and thermal efficiency [PASASA, 2003].

The wick stove also failed six SABS regulations. The regulations failed involve the design of the fuel container, fuel temperature, combustion (emissions), marking, instructions and thermal efficiency. This stove, along with all other paraffin wick stoves bursts into flames immediately when knocked over [PASASA, 2003].

The graph on the next page depicts the gel's weakness in comparison to paraffin when boiling water, or more generalizable, when cooking a standard meal.² The problem is not the ethanol gel, but the gel stove technology. The gel fuel reservoir on the stove is

approximately six centimetres deep and ten centimetres wide and can hold 0.40 litres of gel. Because the strength of the gel's heat is determined by how much surface area is burning, if the fuel reservoir was altered to eight centimetres by thirteen centimetres the speed at which the gel stove boils water or cooks a standard meal could improve by minutes.

CONSUMER ACCEPTABILITY

(A copy of the consumer acceptability survey with frequencies of participants' answers is shown in Appendix A.) Even more important than ethanol gel's performance in a laboratory setting is how acceptable the fuel is in the eyes of those whom it could possibly benefit or harm. Although ethanol gel pilot programs have come and gone since 2000, it is difficult to locate a specific study in which low-income participants have used gel stoves and expressed their opinions in an analyzable fashion.³

For this reason, forty-four gel stoves accompanied by two litres of gel were distributed to low-income homes in the Nyanga, Guguletu and New Cross Roads townships. Each participant used the gel for a two week trial period. Afterwards, all subjects completed a survey about the gel's acceptability and discussed with researchers how they felt about the new technology. The results were strongly in favour of the gel. All participants were pleased that the gel emitted little or no smoke, had no strong odour, and provided ample warmth for both cooking and heating.⁴

The only complaint, which was voiced by 10 – 12 participants, is that the fuel reservoir on the gel stove is too small. This caused problems when participants cooked heavier foods and stews in large pots because the gel reservoir would empty before food preparation was complete. Others claimed that because of the small size of the fuel container, they were only able to cook lighter foods, such as rice and pap.

These complaints could be rectified by enlarging the size of the fuel reservoir, which would allow for more gel to burn at once, thus producing enough heat for heavier foods, and increasing the burn time for one full reservoir. Nearly all participants expressed excitement over the new product and asked where to buy the gel. The ethanol gel stove costs R50, which

Comparative analysis of Paraffin (Pressurized), Paraffin (Wick), and Ethanol Gel¹

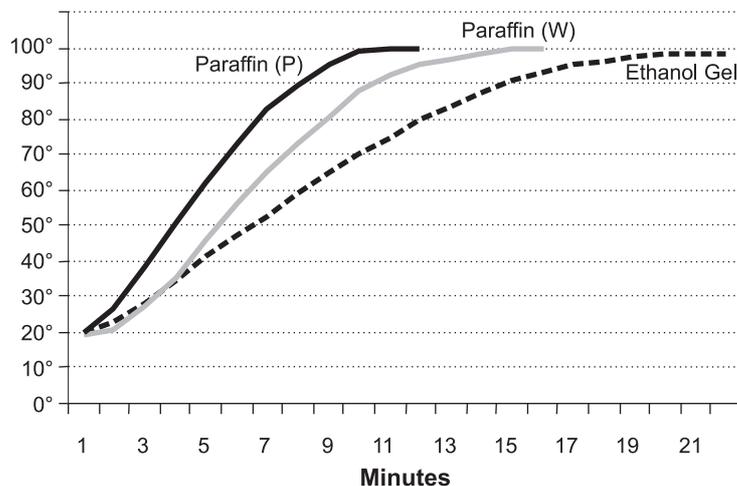
	Average time for boiling 1 L of water	Amount of fuel consumed in 1 hour of use	Amount of time to burn entire fuel reservoir	Amount of time to burn 1 L of fuel
Paraffin (P)	8 minutes	220 ml	4.2 hours (1 L)	4.2 hours
Paraffin (W)	9.6 minutes	250 ml	3.9 hours (1 L)	3.9 hours
Ethanol Gel	15.8 minutes	210 ml	1.83 hours (0.40 L)	5.49 hours

	Thermal efficiency ²	Thermal efficiency when boiling .5 kg of water ³	CO ₂ Emissions (g/kg) ⁴	CO ₂ emissions (g/meal) ⁵
Paraffin (P)	63.0%	20.1%	3137.0	637.0
Paraffin (W)	59.0%	20.1%	3137.0	643.0
Ethanol Gel	Unavailable	49.9%	1533.0	475.0

	CO/CO ₂ ratio (legal limit =0.02) ⁶	SABS standards ⁷	Current costs for 1 litre of fuel
Paraffin (P)	0.04	Fails 11 standards	R4.50
Paraffin (W)	0.07	Fails 6 standards	R4.50
Ethanol Gel	<0.02	Not applicable	R 6.50

Notes

1. The first four categories of results are based on several trials conducted in our laboratory. All others are from the established references below.
2. PASASA "Paraffin Stove Test Reports," 2003.
3. Wyk, P van. Test Report: Enviro Heat. South African Bureau of Standards General Analytic Chemistry. 2004.
4. Utria, Boris. Ethanol and Gel fuel: clean renewable cooking fuels for poverty alleviation in Africa. Energy for Sustainable Development. Vol. 8 No. 3. September 2004.
5. Ibid.
6. PASASA "Paraffin Stove Test Reports," 2003.
7. Ibid.
8. Wyk, P van. Test Report: Enviro Heat. South African Bureau of Standards General Analytic Chemistry. 2004.



seemed reasonable to the majority of participants.

OTHER ALTERNATIVES TO PARAFFIN

The only other alternatives that have the potential to replace paraffin are electricity and Liquefied Petroleum Gas (LPG). Electricity has been provided in many settlements in South Africa, however, the use of paraffin has not decreased substantially because of the costs of purchasing electricity. Most low-income homes use the government provided electricity for lighting. Although some use electricity for cooking, it is often used intermittently with paraffin as a back-up source. Millions still use paraffin for cooking. Paraffin is perhaps the only source of heating during the winter months in South Africa. Although electricity has been useful, it has merely shifted the use of paraffin to other domestic uses other than lighting [Kruger, 2004].

LPG is a favoured option by the South African Department of Minerals and Energy [Truran, Glenn B., 2004]. LPG appliances are not easily transportable like paraffin and gel appliances, and fuel must be purchased in specific, large quantities. The LPG appliances and the fuel itself cost approximately twice that of paraffin [Lloyd, 2002]. It can be inferred that the introduction of this energy source into settlements would not be excitedly accepted the way ethanol gel has been.

DISCUSSION

Based on the findings of this article, ethanol gel is recommended as a replacement to paraffin in South Africa. The strength of this project is that it does not seek to be comprehensive for all of Africa. The only previous research-oriented Gel fuel initiative was the Millennium Gel fuel Initiative (MGI), led by the World Bank from 2000 to 2003, which sought to be comprehensive for all of Africa.

To be sure, many aspects of the findings here are generalizable to other places, namely the physical properties of ethanol gel and the process by which consumer acceptability was tested. However, it is important to consider the context in which ethanol gel will be used before it is widely introduced as a domestic fuel [Utria, 2004].

South Africa is ready to proceed with making ethanol gel the most commonly used domestic fuel in low-

income areas, which would then serve as an example for other developing countries to follow. First, political action must be taken to subsidize the gel. This study and others led by The World Bank's Energy and Poverty Thematic Group have shown that the gel is the most feasible alternative to paraffin.

Numerous burns and paraffin-related studies have made it clear that a paraffin replacement is needed to stop the loss of lives, homes, and billions of Rand from the South African economy. Distribution centres must be created in all settlement areas, and commerce options should be explored with existing spaza shops for gel sales.

For countries other than South Africa, a manufacturing plant must be founded, possibly modelled after the Green Heat factory in Durban, which was a World Bank funded project. Based on the initial demand for the gel when it is put into widespread use, new crops will have to be organized that do not in any way deplete food sources [Utria, 2004]. This process, though highly involved, will create many jobs and develop a new economy for a safe, renewable fuel.⁵ The long-term health and social benefits of such an endeavour will greatly outweigh the advantages of attempting to safe-proof the use of paraffin.

Notes

1. This estimate is based on experiences of purchasing paraffin in townships.
2. It should be noted that water is visually boiling in the Western Cape at 94 degrees C.
3. The Millennium Gel fuel Initiative (MGI) led by the World Bank from 2000 to 2003 is an informative source for Gel fuel consumer acceptability.
4. We did not advise participants to use the stove as a heater, they did so at their own discretion.
5. The economics of ethanol gel industry have been explained in detail by Boris Utria in the referred to articles.

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APPENDIX A

Was the gel stove stable?	Stable: 100%	Somewhat Stable	Unstable
Was it easy to place gel into the stove?	Easy: 95.5%	Somewhat Easy: 4.5%	Difficult
Did the fuel spill frequently?	Never: 93%	Sometimes: 7%	Frequently
Did the stove become hot while burning?	Not Hot: 15.9%	Warm: 45.5%	Very Hot: 38.6%
Is it easy to ignite the stove?	Easy: 93.2%	Somewhat Easy: 6.8%	Difficult
How many hours per day did you use the gel stove?	2 or more hours: 34.9%	1 - 2 hours: 46.5%	Less than 1 hour: 18.6%
What was your primary source of cooking before using the gel stove?	Paraffin Stove: 4.5%	Electric Stove: 84.1%	Other: 6.8%
Are pots stable when they are on the stove?	Stable: 97.7%	Somewhat Stable: 2.3%	Unstable
How long did it take to boil water?	Short Time: 80.5%	Somewhat Long Time: 17.1%	Long Time: 2.4%
Is it easy to extinguish the stove?	Easy: 90.9%	Somewhat Easy: 9.1%	Difficult
Does the stove smoke very much?	No Smoke: 88.6%	A Little Smoke: 11.4%	A lot of Smoke
Are paraffin stoves or gel stoves easier to use?	Gel stove: 74.4%	Both Equal: 25.6%	Paraffin stoves
Do you prefer the gel stove or a paraffin stove?	Gel stove: 95.1%	No difference: 2.4%	Paraffin stove: 2.4%
How long does one litre of gel last?	Long Time: 46.5%	Somewhat Long Time: 30.2%	Short Time: 23.3%
Did you feel safe while using the gel stove?	Very Safe: 97.7%	Somewhat Safe: 2.3%	Unsafe
Can you cook the same meals on the gel stove as on a paraffin stove?	Yes: 93.0%		No: 7.0%

SAEE ANNUAL AWARDS BANQUET 2005

It was that time of the year again, when the Southern African Association for Energy Efficiency (SAEE) hosted a prestigious Annual Awards Banquet. The Banquet was held at Griffin's Estate, Krugersdorp, on Wednesday, 19 October 2005. This event is the highlight of the year which allows professionals and major role-players in the field of energy to network with each other.

Awardees were recognized for their outstanding accomplishments in the energy field through the SAEE Awards Program. The awards are a token to recognize their commitment to their profession, desire to further the association's mission, and participation in civic and community affairs.

Ms. Lindi Mthombeni from Eskom was the keynote speaker at the event. Ms. Mthombeni manages the independent Measurement and Verification (M&V) function for the National Electricity Regulator (NER). This function reports to the NER the actual impacts of all the electrical Demand Side Management and Electrical Energy Efficiency Projects, in South Africa.

SAEE members and guests had the privilege to listen to Ms. Mthombeni's views as to how she sees the future of energy efficiency in South Africa. She also gave some insight as to the importance of measurement and verification in the industry, and the importance of training South Africans to make use of the numerous opportunities created in the country.

Ms. Mthombeni thanked the SAEE for taking the lead in this regard, and congratulated all those who received CEM status, especially two of the measurement and verification managers, Mr. Fanele Mondli and Mr. Afshin Nejatian.

The following awards were presented:

SPECIAL RECOGNITION AWARD

The Department of Minerals and Energy (DME) and COWI received a Special Recognition Award from the SAEE for their efforts to develop the Building Energy Audit Training course and material.

The DME decided to 'lead by example' through undertaking a programme of energy audits in buildings under the control of National Government. This project formed part of the Danish funded programme DME-DANIDA Capacity Building in Energy Efficiency and Renewable Energy (CaBEERE).

The immediate objective of the assignment was to achieve building energy audits that are undertaken to a consistently high standard and quality. In order to deliver energy efficiency recommendations for the Public and Commercial Buildings sector, which are integral to the Energy Efficiency Strategy for South Africa, it has been decided to ensure that capacity exists at national, provincial and local levels to undertake comprehensive building energy audits of a consistently high standard.

The capacity building program included two courses, one directed at prospective energy auditors, and the other at supervising engineers who

would act on behalf of the building owners to implement and respond to audits.

Recognising that buildings are complex and that a complete understanding of building systems cannot be developed in a matter of a few days, these courses focus on the auditing methodology and the efficiencies that can be achieved in building systems through technological and operational measures; of necessity, the courses assume considerable prior knowledge of the underlying mechanical and electrical principles that pertain to building systems.

The unit standards that the training courses conform to have also been developed, submitted and approved by the Energy Setra.

The Trainer's Guidebook enables the instructor by:

- Providing background information on approaches to adult learning principles,
- Describing the structure of the



From left: Mr. Tony Golding - DME, Ms. Helene Rask Grøn: Manager, Capacity Building in Energy Efficiency and Renewable Energy - COWI A/S, and Prof. LJ Grobler: President - SAEE



From left: Mr. Ralph Sutherland from Broll Property Group, Prof. LJ Grobler: President of the SAEE and Mr. Jaco Strauss from Van Zyl & De Villiers Consulting Engineers

courses and the rationale for the design,

- Providing a planning script for each topic in the course,
- Providing some initial direction on the evaluation of the learning.

The marketing plan gives recommendations on the following:

- The demand and supply dynamics,
- Marketing mediums that can be utilised,
- Budget formulation, and
- Implementation plan.

BEST CERTIFIED ENERGY STUDENT OF THE YEAR (2005) AWARD

Eighteen professionals were awarded with the prestigious Certified Energy Manager (CEM) qualification. The first CEM course was presented in 2001. This award ceremony was held together with the SAAE's Annual Banquet.

The Best Certified Energy Manager student award for 2005 was presented to Jaco Strauss from Van Zyl & De Villiers Consulting Engineers, and Ralph Sutherland from Broll Property Group for obtaining the highest marks in the CEM exam for 2005. They both obtained a score of 89% for the Certified Energy Manager exam.

A total of 230 professionals have attended the CEM course in South Africa over the last four years, and 102 professionals have been certified since then in Southern Africa. Delegates from South Africa, Botswana, Lesotho, Nigeria, Namibia, Zimbabwe, Zambia, Uganda and Kenya have attended the local CEM course. The next CEM Awards Ceremony will be held in May 2006.

The CEM qualification allows these professionals to be recognised for their expertise and experience in the dual field of Energy and Engineering in countries around the world such as the United States, India, Africa and numerous others. The event is the highlight of the year which allows the new CEMs to network with professionals who already have the CEM qualification. It allows for synergy between major role-players in the field of energy.

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SECCP gives input to the Electricity Regulation Bill

On the 31 August 2005, the Electricity Regulation Bill was gazetted, calling for the public to make written comments and, in the first week of November, the Minerals and Mineral Parliamentary Portfolio Committee held public hearings on the Bill. The Sustainable Energy and Climate Change Project (SECCP) made written submissions and participated in the public hearings, focusing on the need for the Bill to provide a mandate for the National Energy Regulator **to implement a Stepped Block Tariff**, to address inequities in the electricity pricing system. Initial blocks or portions of electricity consumption should be charged at a lower rate than consumption above a particular threshold, which could be subject to an escalating tariff, with tariffs set separately for different classes of consumers.

This would correct the disproportionate benefits enjoyed by more electricity intensive consumers, resulting from the externalisation of most of the true cost of generation, as well as encouraging efficient use and conservation of electricity.

- **Access to affordable energy services** - SECCP emphasises the need to specifically address the affordability of access to energy services and means to ensure that research and development spending is directed to achieving public benefits, particularly job creation.
- **Advisory Committee** - SECCP views The National Energy Advisory Committee as a particularly necessary institution and they urge that it not be so small as to be dominated by vested business interests, but it should allow rep-

resentation of the full range of interests including NGOs, communities, consumers, labour, small business/entrepreneurs, etc.

- **Customer and Consumer Forums** - SECCP would like the functions and mandate of these forums, which would be publicly funded or funded by licensees to be identified and spelt out in the Bill. Given that the Regulator will constitute the forums and Licensees might be required by a licence condition to constitute a forum, there's a need for a clear mandate to avoid unnecessary duplication.
- **Equitable access to the transmission and distribution network** - SECCP are encouraged that the regulator sees the need to include in the licence the provision for a licensee to provide non-discriminatory (equitable) access to transmission and distribution power network to third parties. This is an essential step in leveling the playing field for smaller companies, such as would be involved in renewable energy projects. Ensuring equitable access, combined with internalisation of full costs, should also facilitate competition, which will drive utilities to improve efficiencies.

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Energetic challenge

ChatROOM develops brand identity for the South African Oil and Gas Alliance

Strategic Brand Specialists, ChatROOM brand, marketing and communications have developed a new Brand Identity for the South African Oil and Gas Alliance, previously known as Cape Oil and Gas Supply Initiative (Cogsi).

The company was awarded the Brand Development tender for the Public-Private Partnership in early 2005. 'We had about two months for the full month programme: Detailed stakeholder interviews based on a customised questionnaire, a strategic management workshop, a stakeholder workshop, the formulation and development of the Brand Identity and Brand Design and finally the development of marketing collateral, such as a brochure, CD and multi-media presentation,' says Gordana, Senior Consultant and Director of ChatROOM.

The South African Oil and Gas Alliance launched their new Brand Identity globally at the Offshore Technology Conference in Houston, USA, the world's foremost event for the development of offshore resources in the field of drilling, exploration, production and environmental protection. The World Petroleum Congress in Sandton served as a local platform to communicate the new brand to major players of the offshore oil and gas community.

The alliance is the umbrella body for South Africa's Supply Hub and Fabrication Centres. It provides national and global players such as operators, rig managers, oil field services suppliers and national oil companies with information on South African supplies and services. The alliance is also the gateway to the region's oil and gas capability.

'It was crucial to integrate the large number of stakeholders into the process,' says Solly Moeng, Senior Consultant and Director of ChatROOM. 'Organisations and parties such as the City of Cape Town, the Western Cape Province, who are also funders of the Alliance, and Wesgro and the DTI are

important opinion leaders and their broad-based input and buy-in from the very beginning was essential in the Brand Development process.'

In in-depth interviews with stakeholders issues, such as the role of South Africa in the industry within the African context and local versus national implications in the choice of name for the organisation, were discussed.



Before: Cape Oil and Gas Supply Initiative



New brand identity: South African Oil and Gas Alliance

'Stakeholder input into the process indicated that a change of name from Cape Oil and Gas Supply Initiative (Cogsi) to the new South African Oil and Gas Alliance, in order to focus on the national importance and service capabilities, was necessary,' says Gary Schwabe, Executive Director of the Alliance. 'Our position with regard to the whole continent is expressed in our new claim, 'Unlocking African Value.'

Solly Moeng explains: 'It is crucial not to downplay the role that the South African Oil and Gas Alliance plays on the African continent, however, we also had to be careful not to feed the going perception in some quarters that South Africa wants to play the role of Big Brother on the continent.'

As a last step of the Brand Identity development, the new look was designed and applied to the stationery, the new brochure and flash presentation. A video presentation with footage of Cape Town and the Oil and Gas industry completed the package prepared for the conference in Houston.

The structure of ChatROOM, with their three key areas of consulting, creation and communication, allows the company to provide the client with a one stop solution. 'Particularly where there is a lot of time pressure involved, our clients value the fact that they talk only to one agency instead of a whole pool of suppliers,' says Solly.

ChatROOM is a brand, marketing and communications specialising in holistic Brand Management and is able to take clients through the whole process from strategic brand and brand architecture assessment, across marketing strategy and marketing plan development to the implementation of the relevant communication campaigns.

(With grateful acknowledgement to BizCommunity.com)

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The September 2005 edition of *Readers Digest* carried an article by leading environmentalist, James Lovelock. In it, Lovelock makes a good case for nuclear energy, which, in this electric world, he calls 'our one spark of hope'.

This article could not have come at a better time for South Africa, as we are currently again engaged in a fierce nuclear debate.

It is an unfortunate by-product of our open and participative decision-making process that the Pebble Bed Nuclear Reactor, (PBMR) which is currently subject to Environmental Impact Assessments (EIAs) and public debate, may well be shelved due to widespread public misconceptions, (fuelled by Earthlife Africa) which are largely based on totally irrational, uninformed fear mongering.

The PBMR is inherently safe, cost effective and environmentally benign. It is as far removed from the old type of reactors as jumbo jets are from biplanes and hot air balloons. Yet 'green' hotheads still quote Chernobyl in anti-nuclear debates!

During the late '80s and early '90s, as Director of the CSIR's Division of Energy Technology, I was involved in several national and international energy committees. The slogan of the coal industry at that time was that coal was the 'Bridge to the Future'. It was realised even then that in spite of plentiful supply (South Africa has enough coal to last more than a century), fossil fuels could not be sustained in the long term due to global warming, and that the main role of coal and oil would be to tide us over until safe and affordable nuclear power became available.

That time is now. Global warming is a reality which nobody disputes anymore (see Figure 2). Yet the Greens, which for over three decades have contributed so significantly to our modern environmental awareness, have turned traitor and stabbed us in the back. The ultimate irony is that Greenpeace and others are now actively campaigning even against *wind turbines*, on the grounds of their low frequency harmonics, visual pollution, and bird strikes!

Everybody roots for renewables. We would all want pollution free solar energy, and a hydrogen economy looks very attractive. Yet the most optimistic forecasts put the penetration of alternative and renewable fuels by 2020 at no more than 10 – 15%. And by 2020, we will have to begin replacing our current

Our nuclear lifeline

nity for South Africans to assume a worldwide lead in a technology that has the potential of supplying clean, cost effective, and plentiful energy – indefinitely. We dare not mess this up due to misinformation and bad communications on the part of those of us who know better. What we need is a targeted programme to inform responsible South Africans that nuclear energy is the saviour, and not the bogeyman, of the world.

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series of six-pack 3600 MW coal fired power stations, which will have reached the end of their lives (see Figure 1). Does the anti-nuclear lobby really want to replicate Witbank?

There is today a window of opportu-

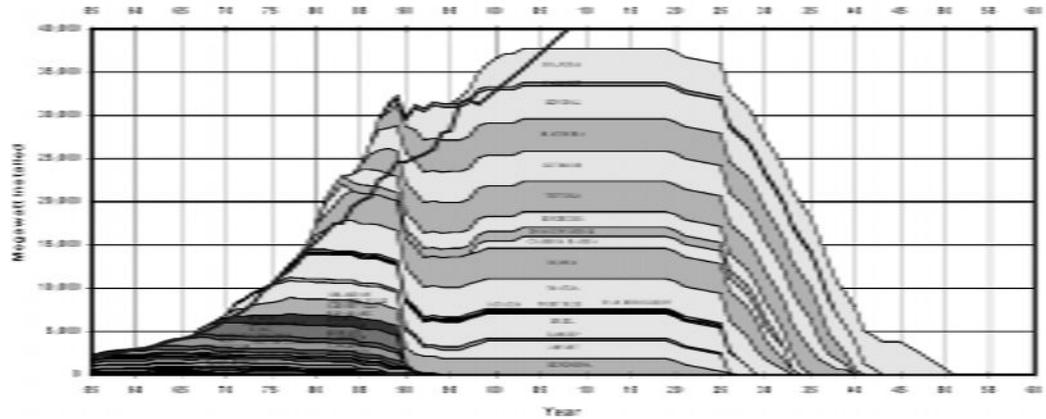


Figure 1: Eskom's generating capacity as a function of time (Source: DME, 'Integrated energy plan for the Republic of South Africa.', Department of Minerals and Energy, Pretoria, p. 9, March 2003.)

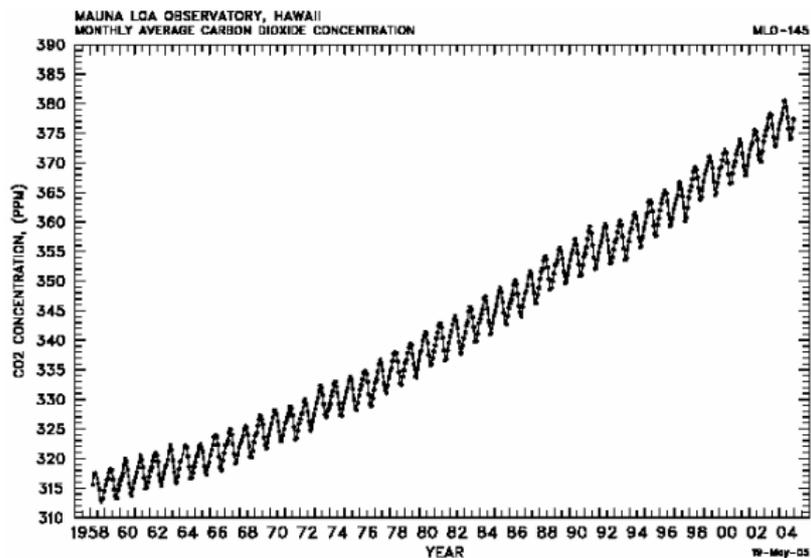


Figure 2: Monthly average Carbon Dioxide Concentration as measured at Mauna Loa Observatory, Hawaii



MEETI Course Programme 2006

<i>Courses in 2006</i>	<i>Dates</i>	<i>Duration</i>
SADC Programme in Rural Energy Planning and Environmental Management (Sponsored by the Royal Netherlands Government)		
Data Survey Method and Applications	29 May - 09 June	2 weeks
Communication Planning and Mass Awareness Education	03 - 14 July	2 weeks
Senior Policy Makers Seminar	27 - 29 September	3 days
Training of Trainers in Rural Energy and Environment	20 Nov -01 Dec	2 weeks
Minerals and Mining Industry		
Management of Mining and Minerals Industry *	13 - 17 March	5 days
Opportunities in Beneficiation	03 - 05 April	3 days
Mining Legislation: Mine Health and Safety Act Minerals and Petroleum Resources Development Act	04 - 05 May 28 - 29 August	2 days 2 days
Management Programme in Environment and Sustainability in Mining *	23 - 27 October	5 days
Multi Stakeholder Negotiations: A Key to Sustainable Success	30 - 31 October	2 days
Energy Industry		
Management Programme in the Petroleum Industry *	06 - 10 March	5 days
Planning and Economics of Refinery (in cooperation with the Institut Francais du Petrole)	27 - 31 March	5 days
Opportunities in Renewable Energy	15 - 19 May	4 days
Management Programme in Energy Industry *	19 - 23 June	5 days
Climate Change Policy and Strategy: Managing Risks and Benefits in Carbon Economy	25 - 28 July	4 days
Certificate in the Management of Petroleum Industry and Economics (in cooperation with the Institut Francais du Petrole)* Including Commercialisation of Natural Gas	14 - 18 August 11 - 15 September 09 - 13 October	3 x 5-day blocks (3 weeks)
Petroleum Products Specifications	07 - 10 November	4 days
Management		
Entrepreneurship and Business Management in Minerals and Energy	03 - 05 October	3 days

The Minerals and Energy Education and Training Institute (MEETI) is pleased to announce the course programme for 2006. As in previous years, we would like to ask your help in communicating the information within your company and your business associates, and to nominate

participants who might benefit from these courses. Next year, we will be introducing several new short courses addressing the latest developments in energy and the mining industry. The courses marked with (*), are accredited with the Graduate School of Public Development Management at Wits.

WHO ATTENDS MEETI COURSES?

The training programme has been designed for those interested in the management of the minerals and energy industries. It is aimed at people working for government, industry and labour who wish to enhance their knowledge of policy-making and imple-

mentation in the minerals or energy sectors.

Since 1996, MEETI has trained staff from the national government departments of Minerals and Energy, Land Affairs, Trade and Industry, and Water Affairs; provincial and local government; the Parliamentary Portfolio Committee on Minerals and Energy; Eskom, Sasol, BP, Total, Caltex, Shell, PetroSa, Eskom, Petronet, the NER, Billiton, De Beers, Samancor, Avmin, Randgold, Exel Petroleum, Columbus Steel, MEPC, Fort Hare, Iscor, Bafokeng Royal Administration and African Rainbow Minerals; and trade unions such as the NUM, NUMSA and CEPP-WAWU. Small-scale miners, leaders of traditional communities, entrepreneurs, NGOs and researchers have also participated in past programmes. A number of participants were from the governments and other organisations in the SADC countries.

WHO TEACHES ON MEETI COURSES?

Lectures on essential concepts in policy-making, implementation and industrial management are delivered by experts from government, trade unions, industrial companies, universities and other institutions in the minerals and energy sectors, as well as independent consultants.

Previous lecturers have represented the Department of Minerals and Energy, the Parliamentary Portfolio Committee on Minerals and Energy, Anglo American Corp., the Chamber of Mines, SAPIA, Billiton, Eskom, Sasol, Petronet, Wits, Nepad, Mintek, DBSA, the NUM, the Minerals and Energy Policy Centre, Deneys Reitz, Venmyn Rand, NER, Shell, SAD.ELEC, NOSA, Placer Dome, CSIR and AngloGold.

CERTIFICATE PROGRAMMES

MEETI offers certificate programmes in energy policy, minerals and mining policy, and petroleum policy and economics. Each course takes place over three weeks, and participants attend three blocks of one week at a time.

Participants must pass assignments and an examination in order to receive a certificate of competence at the end of the course. Certificate programmes are aimed at junior and middle-level managers, who wish to gain a broad overview of the policy and economic issues affecting the minerals or energy sectors in South Africa.

MANAGEMENT PROGRAMMES

Short management courses are offered on various aspects of energy and minerals policy and industry and environmental management. The duration of the courses range from two to five days, and participants receive a certificate of attendance on completion.

These programmes are aimed at middle and senior-level managers who have some background in the minerals or energy sectors, and who wish to further enhance their understanding of policy implementation in the energy and mining industry.

ACCREDITATION

All Certificate and Management courses are accredited with the School of Public and Development Management at the University of the Witwatersrand. Registration with the Mining Qualification Authority is pending.

SADC COURSES

The courses form part of the SADC-supported regional training programme in Rural Energy Planning and Environmental Management. The programme is sponsored by the Royal Netherlands Government.

Courses on other topics within this SADC programme are being implemented by the Mananga Management Institute in Swaziland and ESAMI in Tanzania.

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Positive precedence against incineration of hazardous waste

Civil society organisations have welcomed the decision by the North West Province to deny Holcim Cement permission to burn hazardous waste in their cement kiln in Dudfield, outside Lichtenberg (Dit-sobotla Local Municipality District) in the North West Province. The decision is an important precedent.

Earthlife Africa, Johannesburg, with legal representation from the Legal Resources Centre (LRC) office in Pretoria, submitted comment during the Environmental Impact Assessment (EIA) and raised various concerns about the project. These concerns were considered favourable by government and the reasons for rejecting the Environmental Impact Report were as follows:

- Cumulative impacts were not considered;
- Reference to waste materials that would be burnt was 'vague and wide';
- The Stockholm Convention on Persistent Organic Pollutants (POP's) identifies cement kilns firing hazardous waste as a potential source of dioxins, furans and heavy metals;
- No alternatives including the 'no-go' option were discussed; and
- The emission inventory was not based on emission measurements or mass balance.

Louise du Plessis, of the LRC who acted on behalf of Earthlife Africa, Johannesburg, indicated that it is encouraging to see that the provincial department considered the matter so carefully and had the good judgement to implement the precautionary principle.

Earthlife Africa, Johannesburg, spokesperson on this issue, Richard Worthington, indicated that, 'Holcim's project is a classic case of opportunism dressed up as altruism: turning a blind eye to toxic emissions such as organochlorines (dioxins and furans), fudging the details of proposed 'fuels' and claiming environmental benefits.

Such projects seek to turn the polluter pays principle on its head - instead of industries accepting the costs of redesigning processes or products to avoid hazardous wastes, they now market their wastes as a commodity,

which is presented as a 'clean fuel' on the basis of avoiding one or more of the pollutants associated with coal (traditionally the dirtiest fuel). It is encouraging that such attempted slight-of-hand has been rejected by authorities.'

Llewellyn Leonard, groundWork's Waste Coordinator, visited the local municipality in Lichtenberg in 2004, and in an address to the Mayor, Mr. J. Bogatsu and his officials, presented the health and environmental concerns of burning hazardous waste in cement kilns. This was followed up with a similar meeting with the National Union of Mineworkers who organise in the cement industry nationally. 'It is only through careful and systematic building of our knowledge base on the dangers of hazardous waste incineration, that these proposals will be halted', stressed Leonard.

Various civil society organisations, including groundWork, Earthlife Africa, Wildlife and Environment Society of South Africa, the South Durban Community Environmental Alliance and Injjiya ya Uri have consistently addressed their concerns on the burning of hazardous waste in cement kilns to the Ministry of Environment and Tourism, calling on the Ministry to develop clear policy guidelines through

a consultative process to determine how hazardous waste is treated in South Africa. These organisations have worked together to challenge various proposals on the burning of hazardous waste.

Bashiru Abdul, spokesperson for Agenda, an environmental justice NGO based in Dar es Salaam, Tanzania, who is presently in South Africa, stated that they were delighted at the victory news since this precedence set in South Africa would not allow for cement companies to set up similar processes in other African countries.

There has been an international focus on these proposed developments by the Global Anti Incineration Alliance. Manny Colonzo, of Global Anti Incineration Alliance, welcomed the decision by government, and maintains that 'the South African government's decision puts them in a leadership position in ensuring that hazardous waste is not treated inappropriately.'

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www.groundwork.org.za/Press%20Releases/06May05.asp
www.groundwork.org.za/HCW%20and%20Incineration/HCW_workshop-pressrelease.asp
www.groundwork.org.za/Press%20Releases/POPs.asp*

Capacity building for energy policy

Participants at Earthlife Africa's Energy Policy Unit inception workshop in August called for capacity building workshops on Energy Policy – processes and content and whether these are working for the people. Energy professionals are encouraged to register their interest in these workshops.

When and where are the workshops?

The workshops will be held in the third week of February 2006 and will run in Johannesburg, with dates to be finalised according to the availability of participants. There is some money available to support participation from participants from outside of Gauteng.

Who are the workshops for?

The workshop are for energy activists wanting to influence how South Africa develops and uses its energy resources, so that everyone has access to energy that is affordable, appropriate and sustainable.

The workshops are based on a participatory learning approach, which recognises prior learning and experience. Preference will be given to applicants actively involved with energy policy (e.g. participants of the Energy Caucus), whose organisation or community group supports their application.

What will you get from the workshops?

At the end of the workshops, you'll have a greater understanding of what policies are in place and opportunities for influencing policy, where energy policy comes from, and where it is going.

Requirements to be part of the workshops

- Have access to e-mail (as assignments will be e-mailed to participants)
- Speak English, as the workshops will be run in English
- Live in South Africa
- Have one week block for the workshop (third week of February)

- Broadly support the principles of the South African Energy Caucus – www.earthlife.org.za/seccp
- Sign a Memorandum of Understanding in which you commit to fully participating in the course

Do you want to be part of workshops?

Send your CV (which includes your name and contact details) and a letter of motivation to Nkosana Rakitla describing:

- Why you are interested in participating in the workshops (your interest in energy policy)
- What you hope to get from the workshops
- Your experience of activism
- Your availability during the period 13 – 24 February 2006

The deadline for applications is 13 January 2006.

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Canada this year played host to the Eleventh Conference of the Parties (COP 11) to the United Nations Framework Convention on Climate Change (UNFCCC) and the first Meeting of the Parties (COP/MOP1) to its Kyoto Protocol. The Conference took place in Montréal from 28 November to 9 December 2005.

'This year's COP has finally seen some real outcomes on adaptation,' said Elin Lorimer of the South African Climate Action Network (SACAN), who served on the South African delegation. 'The international community is finally facing up to the fact that climate change impacts are a reality, and developing countries in particular need support to adapt to these changes.' The Montréal Conference was a dual-track approach for future climate action that was established.

The most talked-about outcome of the COP and COP/MOP was agreement on a process to discuss future climate change commitments post-2012 (particularly for industrialised countries, excluding the USA and Australia), when the Kyoto Protocol's first commitment period expires. Discussions of future commitments for developed/industrialised nations were decided upon under the Kyoto Protocol, while a separate process has been initiated to discuss broader co-operative action to address climate change under the Convention (including developing country participation).

In the Protocol track, a process was initiated to consider further commitments by Annex I Parties (under Article 3.9). The process will be run by an 'open-ended ad hoc working group', starting in May 2006. No specific end date was agreed, but it must happen in time to ensure that there is no gap between the first and second commitment periods. Given that it takes 2 – 3 years to ratify targets, this implies they would have to be agreed by 2009.

The second track is a dialogue under the Convention on 'long-term cooperative action'. This track does not set new commitments, but rather explores what developing countries can do by fully implementing the Convention. Various elements are included, sustainable development, technology transfer, adaptation and using market instruments. There is scope to explore

Montréal Climate Conference yields significant outcomes

incentive-based approaches and other new ideas. The US tried to insert language that would allow it to also use the Convention approach only, but was not allowed to 'pick and choose'. The dialogue will happen in four workshops during 2006 and 2007. In a way, the Seminar of Government Experts from May 2005 will be extended, but now as part of the formal process.

South Africa played a significant role in achieving this outcome from the conference, despite the Bush administration efforts to scupper the process and premature US media reports of the 'death of Kyoto' and the system of binding targets.

'This is a significant victory in the context of these highly contested negotiations,' said Richard Worthington, SACAN Co-ordinator. 'While over-all progress to limit global greenhouse gas emissions is still unacceptably slow, these outcomes offer the possibility of multi-lateral actions, within the shrinking window of opportunity, sufficient to avert a climate chaos that would give rise to hundreds of millions of environmental refugees.'

Another significant outcome from the conference was agreement on a five-year programme of work on adaptation to climate change, which will begin in 2006. The climate change negotiations have long focused primarily on efforts to reduce greenhouse gas emissions, but increasing evidence of current and future climate change has emphasised the need to boost efforts to adapt to the adverse impacts of climate change. The work programme recognises adaptation as a high priority, particularly for the most vulnerable developing countries, and should provide the

necessary scientific and technical advice and support to kick-start adaptation activities at local, national and regional levels.

This conference saw the formal adoption of over 30 decisions, known as the 'Marrakech Accords' (including the compliance regime), which will effectively operationalize the Kyoto Protocol - currently the only legally binding mechanism for reducing greenhouse gas emissions, which sets fixed emission caps for developed countries. To make them legally binding, however, the compliance system needed to be established. It was agreed that this would in two ways, immediately through a decision in Montréal to apply the system, and secondly, through initiating an amendment to the Protocol (proposal by Saudi Arabia). The first legally-binding multilateral environmental agreement was therefore fully established.

Developing countries also stand to benefit from projects under the Clean Development Mechanism (CDM) of the Kyoto Protocol, which are aimed at supporting local sustainable development, while assisting developed countries to meet their Kyoto commitments. In Montréal, discussions also took place on how to streamline CDM processes, although this should not affect rigorous assessment of projects to ensure that they are environmentally sound and additional to business as usual.

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http://unfccc.int/2860.php_official_press_release

The time for renewable energy, has it come?

There are a number of reasons why 'green energy' – energy generated from renewable resources has remained on the fringes. The most important is cost and the related issues of generating a financially attractive return on investment in renewable energy technologies (RETs). Coal fuels around 92% of South Africa's electricity needs, and round 74% of the total energy supply. The abundance of coal and its relation to low mining costs contribute to making South Africa's electricity one of the world's cheapest, therefore putting any other generation technology at a price disadvantage.

In his paper *'Meeting South Africa's Renewable Energy Targets'* (December 2004) - University of Cape Town Energy Research Centre (ERC) Research Officer, Thomas Alfstad, estimated that generating an additional 4Tetra Watts (TWM) from Renewable Energy by 2013 would cost R10billion more over the next nine years than generating that from non-renewable sources.

Another study *'The potential contribution of renewable energy in South Africa'* commissioned by the Sustainable Energy and Climate Change Project (SECCP) shows that South Africa has the opportunity to generate up to 50% of its total energy requirements from renewable resources by 2050, and that Renewable Energy Technologies (RETs) could be cost competitive with conventional technologies before 2015.

The reason why generating energy from non-renewables is less expensive than renewable, is that non-renewable energy generation does not include external costs such as adverse health effects and air pollution which are paid for by the public, not by the power utility. Now is the time to apply real triple bottom line accounting to South Africa's energy industry, as that will then illustrate the economic, social and environmental costs acquired from non-renewable base energy generation. This approach would change the relative

cost equation, which has to date, reduced the attractiveness of renewable energy for South Africa's energy planners, investors and consumers.

There are three reasons why South Africa's planners, investors and consumers should start to look seriously at these renewable energy options. Firstly, it is not true that coal is the abundant energy source in South Africa - it is finite and will run out. The abundant energy source in South Africa is renewable energy, and it has largely been solar and it will never run out.

Secondly, Renewable Energy (RE) can achieve other public benefits like opportunities to achieve social objectives, such as job creation. The potential for RE to address the high unemployment rate is especially striking when compared to thousands of job losses in the electricity sector in the last 20 years. A study into *'The employment potential of renewable energy in South Africa'* that was undertaken by AGAMA Energy in 2003, shows that 'If South

Africa generates just 15% of total electricity use in 2020 using Renewable Energy Technology, it will create 36 400 new direct jobs, without taking any jobs away from coal-based electricity.

Thirdly, our country is faced with a challenge to mitigate the environmental impact of energy production and consumption including climate change. Therefore, we need to make a just transition to sustainable energy away from fossil based energy.

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Renewable Energy Finance and Subsidy Office established

The Department of Minerals and Energy (DME) has established the Renewable Energy Finance and Subsidy Office (REFSO), whose mandate includes the management of renewable energy subsidies.

The provision of advice to developers and other stakeholders on renewable energy finance and subsidies, (including size of awards, eligibility, procedural requirements, etc.), as well as opportunities for accessing finance from other sources is available from this Office.

Renewable Energy developers are requested to submit Expressions of Interests as early as possible to the DME's RE Finance Subsidy Office. The decisions regarding the award of Letters of Registration and the subsequent awarding of subsidy contracts will be made by the Departmental Renewable Energy Subsidy Governance Committee (SGC), which will meet three times a year.

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Beijing Renewables Conference sends strong signal but declaration still weak, says RES Council EREC

At the high-level BIREC 2005 Conference held on 7–8 November 2005 in Beijing, attended by industry leaders and key decision-makers (30 Ministers and around 1200 participants from 100 countries were present), a strong signal was sent for a stronger commitment towards rapid deployment of renewable energies. Nevertheless, the industry had hoped for a stronger declaration for renewables coming out of the Beijing Conference. Participants in BIREC shared experiences for renewable energy development and exchanged information on policies, finance mechanisms and technology accomplishments.

'Whilst the overall development is very promising, we are missing even stronger signals and more concrete commitments not only from some governments', said Oliver Schäfer, Policy Advisor of the European Renewable Energy Council (EREC). 'At a time when the renewables industry is moving forwards, political signals should be strong and mandatory. In this respect, the declaration is rather weak, but still the conference was a success and cannot only be measured by the declaration.'

The process initiated with these ministerial conferences on renewable energies shows that there is a strong commitment from decision makers all over the globe in renewables.

'By hosting the conference and committing to new, ambitious renewable energy targets, China sent out a strong signal that economic development and renewable energy are on the same side of the coin', added Schäfer.

'Oil prices have more than doubled in the last two years and it is becoming increasingly risky to rely primarily on imported energy. Renewable energies can help countries to develop local, clean energy sources and thus diversify their energy portfolios to hedge these

price risks and create sustainable development'.

'The European Parliament recently called for an integrated approach to energy policies that will give renewables a 25% share by 2020. Considering climate change, issues of security of supply and energy price volatility, I think the European Union should indeed seriously consider adopting this ambitious target', said EU Environment Commissioner, Stavros Dimas, in his keynote address. This was only one of many strong signals that renewable energy will play, and a much more important role in the future energy mix all over the world.

At a business forum, one of the main discussion fora at the conference, organised by the EREC, the NDRC Vice Chairman Zhang Guobao, the German Environment Minister, Jürgen Trittin, the British Secretary of State for the Environment, Margaret Beckett, and other decisions makers together with 30 CEOs from the world's leading renewable energy manufacturers and developers, debated the necessary political framework conditions, support schemes and cost developments.

'This was the first time that so many leading CEOs and politicians came together and discussed concrete issues and challenges for further deployment of renewable energies.

The exchange between policy makers and the industry is of the highest importance and we are glad that it happened', said EREC Secretary General, Christine Lins.

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INTRODUCTION

In Kenya, more rural households get their electricity from solar energy than from the official rural electrification program (REP). The spread of the photovoltaic systems has been recent, rapid and market-driven. The service is as good as the grid for the low power loads that prevail in many rural areas, and the price is competitive with other options for low loads.

Rural Electrification programme expansion is slow because funding is tight. The program consists of extending the already existing national electricity grid, establishing decentralized generation capacity in combination with a local grid, or helping those who produce power for their own consumption to start serving surrounding households and small commercial enterprises. New connections require substantial government and donor financing and subsidy. The rate at which the program reaches households would have to increase tenfold for it just to compensate for current rural population growth. At present, only 0.5% of rural households have access to the grid.

Therefore, solar power is a serious and fast-growing option for those rural households with limited power demand and enough money to afford it. More households could afford it if the Kenyan Government removed "obstacles" like high duties, which make the solar systems more expensive than they need to be. Their removal would be good rural pre-electrification policy. With easier access to solar power, the Government could achieve higher living standards more quickly for more Kenyans than it can through the existing rural electrification program.

A THRIVING MARKET

Today more than 1 MW of photovoltaic power has been installed in Kenya. Around 20 000 households have purchased solar energy for their homes compared to the 17 000 connected to official rural electrification. About 17.7 million people live in rural areas, and less than 0.5% have access to grid electricity compared to 30% or less of the 4.4 million urban population. Wood is, and will remain, the predominant form of energy for the near- and medium-term future.

Better access to electricity would make a big difference to the quality of

Solar energy: a neglected answer to rural power in Africa

ROBERT JAN VAN DER PLAS

rural life. Although many rural people do consume conventional modern energy, they do so in small amounts only. They also pay for it dearly: dry-cell batteries provide electricity for about \$3 to \$10 per kWh. A candle or a kerosene wick lamp does give a high quality light, but households need, respectively, about 60 or 20 of them to obtain the same amount of light as that emitted by a single 60 W incandescent lamp or a single 12W compact fluorescent.

Solar power can match the grid service partly because rural households do not consume much electricity – at least for the first few years. Household electricity usage for those just connected to the grid is often limited to a few lamps (3 - 6), a radio, and/or a television, or 30-60 kWh per month. These services can also easily be provided by solar systems. Household demand remains low for at least a couple of years, after which households will start to add higher power consuming appliances, such as rice cookers, tea kettles, or refrigerators if the grid capacity allows. Though solar electric systems are modular and more photovoltaic modules can be added, thermal applications (such as cooking and heating) are not feasible as this would be too expensive. However, thermal applications are often not possible either with grid-based rural electricity.

Solar systems are price competitive with the rural grid or a genset (a small kerosene/petrol generator set) assuming a low level of electricity consumption and an "equal" level of service. Like the grid, the genset option is capable of satisfying higher demand for power and energy than the rural-

user normally makes. The capital cost is similar to a 50 W solar electric system, but gensets need imported fuel to operate and their service life is much shorter.

BETTER POLICY

Although the actual numbers and details differ, similar circumstances are found in many other African countries. Despite substantial amounts of money that have been invested in the African power sector, only a minority of African households are able to enjoy modern services provided by electricity.

The majority of rural households have no grid-based electricity, and will not receive it in their lifetime either. Government least-cost electricity extension programs usually exclude looking seriously at alternative approaches, such as (low load) electricity generation through photovoltaic panels placed in individual households. It would make sense to do so, particularly given the low population density in combination with the small demand for power and energy in rural Africa.

The solar power option is an effective first step. And it can be market-driven rather than depending on cash-strapped governments or aid donors. Governments should be encouraging this option rather than penalizing it by taxing imported components.

Rural householders would benefit if the Kenyan Government removed at least three significant impediments to the solar power market. First, a more rational (comparable to that for rural electrification program equipment) import duty and tax regime should be applied. Second, financing mechanisms should be put in place to make solar electric equipment more accessible to a larger share of the population. Third, technical standards for solar electric systems should be established and applied. Solar electric companies have been compromising technical standards to offset the increase in price after the recent devaluations of the Kenyan shilling. More frequent equipment failures may have a long-term negative impact on the development of the market, and thus of the future use of electricity in rural areas.

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Removing the many barriers to renewable energy systems in rural Zambia

Barriers to renewable energy systems in Zambia include the lack of information and capacity, as well as insufficient finance to take care of high initial costs.

A project, which will be supervised by the United Nations Environment Programme (UNEP), will have a total value of \$7.8 million with co-financing. The United Nations Industrial Development Organization (UNIDO) will execute the project in close cooperation with the Ministry of Energy and Water Development and the Development Bank of Zambia. This venture is expected to demonstrate sustainable ways for meeting the country's goal of increasing from 2 percent to 15 percent over the next five years the number of rural communities enjoying electricity supply. Also, directly or indirectly, it will reduce carbon dioxide emissions by some 2.2 million tons over the lifetime of the intervention.

"This is an exciting project, one that shows how you can help provide electricity, using renewable-energy technology, to a rural community while having a positive effect on national electrification policies and making an impact on the environment, both within Zambia and at the global level," said GEF Chairman and Chief Executive Officer, Len Good. "This project takes on added significance in view of the GEF's commitment to contribute to the goals of the New Partnership for African Development."

The key to achieving the project goals will be the demonstration effect of three types of pilot mini-grids. The three types will use biomass gasification, solar energy and mini-hydro power stations, respectively. They are intended to demonstrate the technical and financial viability of renewable energy in rural electrification to potential investors, financing institutions, ZESCO (the country's public utility company), equipment suppliers, energy service providers, and government planning and regulatory officers. Until now, electricity expansion plans have been focused on diesel-power generation - which is less environmentally friendly - but has lower start-up costs.

As the main national grid reaches the remote areas in which the demonstration projects are installed, they can easily be integrated into the grid. The project will help develop institutions, policies and regulations, designed to provide a level playing field on which renewable-energy technologies might be able to compete with more conventional diesel-based power-generation projects.

Of the three technologies being addressed by the project, the mini-hydro has the greatest likelihood of being widely replicated. However, after witnessing biomass electrification at work in India, officials of the national public utility have expressed willingness to use this technology in place of diesel generation in up to ten locations already identified and possibly many more to follow. A ten-fold increase in the adoption of biomass gasification technologies is foreseen over the long term. Also, there is considerable hope of a successful experiment with solar photovoltaic (PV) lighting in fishing communities, not only to electrify houses, but also to replace kerosene in lanterns on fishing boats.

A specially established revolving fund is expected to help foster adoption

of renewable energy and to ensure long-term sustainability of the project interventions. The fund, to be located within the Development Bank of Zambia, will bear the financial risk associated with this kind of innovative undertaking, which commercial banks are not usually willing to take. The revolving nature of the fund will increase the possibilities that investment in renewable energy resources will continue long after the six-year duration of the project. The proposed fund helps set the stage for private-sector engagement, one of the defining characteristics of this venture.

Another characteristic of the project is that extensive consultations have been carried out with all relevant stakeholders, including ZESCO and a number of potential private investors. The fishermen consulted expressed a willingness to try the solar technology suggested for the fishing village, and to pay to have the lighting fixtures on their boats recharged by the solar PV mini-grid.

Capacity building and policy development are other important features of the project. Training will be arranged for technology experts, planners, policy-makers, university personnel, business leaders and other key stakeholders. Banks and other financial institutions will be equipped with the expertise to evaluate rural electrification endeavours based on renewable energy resources.

The key indicator of success for this project would be the spread of renewable-energy technologies in the Zambian countryside. Also, given Zambia's full integration into the Southern African Development Community (SADC), the Common Market for Eastern and Southern Africa, and the New Partnership for African Development (NEPAD), possibilities for the replication of any successful models in the region and even beyond seem promising.

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Annual Meeting of the International Energy Workshop 2006

27 - 29 JUNE 2006, CAPE TOWN, SOUTH AFRICA

Workshop Announcement

The 2006 meeting of the International Energy Workshop (IEW) will be held in Cape Town, South Africa, from 27 – 29 June 2006. The IEW is a network of global energy experts who meet annually to discuss a wide range of topics, with particular emphasis on global as well as world regional energy issues. The annual meetings focus on energy assessments and try to understand the reasons for diverging views of development in the energy sector. The 2006 IEW will have the unique opportunity to expand this network and take a closer look at Africa and its current energy issues, with a special emphasis on its efforts to achieve sustainable development, promote clean energy, and deal with climate change. Organizers include: the International Energy Agency, the Stanford coordinated 'Energy Modeling Forum', the International Institute for Applied Systems Analysis, and local hosts for 2006 are the Energy Research Centre at the University of Cape Town.

Abstract submissions are invited for the following topics:

- Economically efficient energy development and needs (increasing access, affordability, innovation, deployment of cleaner technologies, while pursuing energy security and sustainable development)
- Investment, infrastructure, appropriate transfer of technologies and best practice
- Sustainable advanced local rural as well as municipal energy-economic development (including appropriate distribution options)
- Climate change actions compatible with accelerated development (better use of energy, developing resilience and integration of adaptation goals for sustainable development strategies)
- Policy, regulatory and financing frameworks African primary-energy production, regional integration and their potential role in global energy supply
- Environmental and health consequences of existing energy use patterns Africa's global agenda

The Abstract submission deadline is 28 February 2006.

Workshop Venue

The workshop venue is the Arabella Sheraton Grand Hotel, Cape Town (see full contact details below).

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SA Government committed to energy of the future

Recently the Deputy Minister of Minerals and Energy, Lulu Xingwana, launched the Second National Integrated Resource Plan (NIRP 2) of the National Electricity Regulator (NER), which is the predecessor of the new National Energy Regulator of South Africa (NERSA).

The NIRP is a long-term plan by the NER to inform the construction, licensing and decommissioning of power plants in South Africa. The government has alluded to the fact the energy sector is undergoing a long term reform process in its structure generation, transmission and distribution, and the diversification of energy sources in order to meet the growing demand for energy.

The objective of the NIRP2 is to determine the long term least cost of electricity supply options in the country under current conditions, introduce competition in the Electricity Supply Industry (ESI) and introduce Independent Power Producers (IPPs). Further, the NIRP2 is drastically improved compared to the predecessor NIRP1, in that it provides moderate and high electricity demand forecast, a complete database of the cost and performance of the generation plant considered in the optimisation, detailed output results, methodology applied to the planning process, and risk and sensitivity analysis.

The National Integrated Resource Planning of the NER is available on the NER website.

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Car anatomy under the scalpel in mechanical engineering lab

It's not often you find a brand new Volkswagen Golf on the 'dissection slab' of a university mechanical engineering laboratory.

University of Cape Town (UCT) mechanical engineering students will now enjoy the benefits of an in situ, left-hand drive Golf 1.6 FSI, donated by Volkswagen South Africa, and intended for inspection and study.

The vehicle will be used as a demonstration model in the design and dynamics sections of their course. The department has yet to decide on an optimal method of demonstration: they can either partially disassemble the vehicle or cut away sections of the bodywork to show the various working parts.

The vehicle will also give students first-hand experience of the various features of modern vehicle design, from architecture to engine design and braking systems.

Lecturer Trevor Cloete says it will be an invaluable teaching tool.

Volkswagen is also making parallel donations of gear sets, braking systems and an engine, to be used for laboratory practicals and demonstrations. The donation is the result of close collaboration between the department and Volkswagen, led by new Managing Director and Chief Executive Officer, Andries Tostmann, and his team. From UCT's side, the deal was tied up by Professor Chris Redelinghuys.

The donation follows the Volkswagen's Student Orientation Programme on Automotive Manufacture (SOPAM), in which 15 third-year mechanical engineering students visited the Volkswagen manufacturing plant in Uitenhage, accompanied by lecturer Steve Marais. Here the students witnessed a modern manufacturing plant in action, complete with robotic and automated production processes. The visit also gave them a chance to explore collaborative research initiatives and even job opportunities.

The Department of Mechanical Engineering sees the collaboration as a welcome opportunity to form bonds with industry, while exposing students to the competitive world of top-flight production engineering.

(With acknowledgements to UCT's Monday Paper – Volume 24 No. 30)



Revved up: Volkswagen South Africa has donated a Golf 1.6 FSI to the Mechanical Engineering Department. Taking delivery are (from left): Head of Department - Prof. Bob Tait, Trevor Cloete, Prof. Kevin Bennett and Steve Marais (Absent: Prof. Chris Redelinghuys)

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Energy events 2006

FEBRUARY 2006

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DELHI SUSTAINABLE DEVELOPMENT SUMMIT New Delhi, India

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SECOND IESSA AGM AND CONGRESS Protea Wilderness Resort, Wilderness, South Africa

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DOMESTIC USE OF ENERGY Cape Town, South Africa

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MAY 2006

9 – 11

HART'S WORLD REFINING AND FUELS CONFERENCE Brussels, Belgium

Contact: *Sandrine Dixson-Declève*

Tel: +32 (0) 2 661 3080

E-mail: sdixson@ifqc.org

Website:

www.worldfuelsconferences.com

10 – 12

ENERGY TALKS OSSIACH '06 Stift Ossiach, Carinthia, Austria

Contact: *Dr Albrecht Reuter*

Tel: +43 (1) 409 79 3666

E-mail: office@energytalks.com

Website: www.energytalks.com

Karin Auer, Event Coordinator

Tel: +43 (1) 409 79 3622

Fax: +43 (1) 409 79 3691

Mobile: +43 (699) 1924 2415

E-mail: karin.auer@cbasc.at

Website: www.energytalks.at

14 – 18

VALDOR SYMPOSIUM Stockholm, Sweden

Contact: *Kjell Andersson, Karinta Research*

E-mail: kjell.andersson@karinta-konsult.se

Website: www.congrex.com/valdor2006

22 – 24

INDUSTRIAL AND COMMERCIAL USE OF ENERGY Cape Town, South Africa

E-mail: icue@cput.ac.za

29 – 2 June

BUILDING ENERGY AUDIT TRAINING COURSE Emperors Palace (Caesars), Gauteng

Contact: *Christina den Heijer*

Cell: +27 (0) 82 334 0923

Fax: +27 (0) 18 294 7174

E-mail: cemanager1@intekom.co.za

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JUNE 2006

12 – 14

2ND INTERNATIONAL SCIENTIFIC SYMPOSIUM ENVIRONMENT AND TRANSPORT INCLUDING 15TH CONFERENCE TRANSPORT AND AIR POLLUTION Reims, France

Contact: *Robert Joumard and Jacques Beaumont, Léa Sire, Nicole Teillac, INRETS – case 24 – 69675 Bron cedex – France*

Tel: +33 (0) 4 72 14 2300

Fax: +33 90) 4 72 37 6837

E-mail: lea.sire@inrets.fr

Website: www.inrets.fr/services.e.html

AUGUST 2006

13 – 18

2006 ACEEE SUMMER STUDY ON ENERGY EFFICIENCY IN BUILDINGS

Asilomar Conference Centre, Pacific Grove, California, USA

Contact: *Rebecca Lunetta, ACEEE*

Summer Study Office, P.O. Box 7588, Newark,

DE 19714-7588 USA

Fax: (303) 282 3965

E-mail: rlunetta@comcast.net

OCTOBER 2006

16 – 20

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17 – 20

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