8.2.1 EWP Policy Statement

"Government will provide focused support for the development, demonstration and applications of renewable energy sources for both small and large scale applications".

"Government will support renewable energy technologies for application in specific markets on the basis of researched priorities".

8.2.2 Summary of Deliberations

A presentation was made on implementation progress on the White Paper on Renewable Energy Policy. The presentation indicated the Department establishment of the Renewable Energy Finance and Subsidy Office (REFSO) which was operational and responsible for providing capital subsidies for renewable energy projects. In progress is also an investigation into the introduction of Tradable Renewable Energy Certificates (TRECs) as well as a long term financing mechanism such as a feed-in tariff. Parallel to this, the Department also indicated that they were in the process of implementing REMT and SAWEP support programmes which were funded by international donors. The key challenges identified were cost competitiveness, legal framework, environmental and planning approvals, governance and implementation capacity.

Further input indicates that South Africa was not cost competitive when compared to conventional energy carriers. Consequently,, cost is a major barrier in the implementation of renewable energy. The presentation also highlighted that energy efficiency and conservation were priorities that needed to be considered and that lessons learnt so far in the implementation of Renewable Energy policies are, excessive regulatory red tape, economic hurdles, low levels of third party funding and market deployment challenges.

Some stakeholders are also in the process of developing a renewable energy strategy as part of their drive to increase focus on renewable energy. The strategy seeks to ensure that all renewable energy sources would be considered and sought to find multi Mega Watts options for grid supply.

The role of Research and Development, with diversification of supply being the key driver in order to achieve energy security was highlighted. Other drivers were specified as climate change, environmental concerns and resource constraints. also It was indicated the country would eventually have 1 600 MW of renewable energy power plants by 2025. Financing mechanisms and policy environment are the main key barriers to relaisation of this goal.

The session shared some international experience on renewable energy. Best practices require that an enabling policy framework environment is the key success factor for renewable energy. International renewable energy policy options include feed-in laws, competitive tendering mechanism and renewable energy portfolio standard and that the financial incentives policies such as tax credit, carbon credit, capital subsidies and concessional loans.. All these are essential in successful introduction of renewable energy policies.

Some opportunities in renewable energy were presented. A particular position was that renewable energy finance options such as a long term finance mechanism, TRECs and Clean Development Mechanism (CDM) were an important vehicle to stimulate the growth of the renewable energy sector. Energy efficiency initiatives such as Solar Water Heating (SWH), solar panels, waste recycling are crucial for the climate change mitigation and renewable energy. South Africa has its own challenges which differed from those of other countries such as the European Union (EU) countries and that key constraints for South Africa includes access to national the grid. A real commitment by Government as well as an enabling policy and legal framework are key.

8.2.3 Key Outcomes

The following outlines some of the key outcomes of the discussions which were held.

South Africa had an abundant renewable energy sources across the country that remains untapped thus far. The White Paper on Renewable Energy set a target of 10 000 GWh to be achieved by 2013 from the renewable energy sources and that there was therefore a need to create an enabling environment for the development and uptake of renewable energy technologies.

Major challenges to be dealt with include the relatively high cost of renewable energy as well as the regulatory environment. It is suggested that South Africa establish a long term mechanism such as feed-in law to attract foreign investment and facilitate the development of renewable energy. The long term mechanisms could be supplemented by CDM and trading of green certificates. Appropriate policies should be implemented to enable subsidies and Demand Side Management (DSM) programmes such as SWH.

It was also suggested that other summits such as renewable energy, nuclear, coal should take place as a follow up on the energy summit and that these summits should have intent to review the energy carriers in line with the broader Energy White Paper Policy.

8.3 Climate Change Mitigation Strategies for South Africa

Energy security and sustainable development require that South Africa develops or adopts appropriate climate change mitigation strategies, but the question is which ones are appropriate? The panellists explored different approaches including energy efficiency, Clean Development Mechanism (CDM), monitoring and evaluation and renewable energy promotion. Each proposed approach, potential costs and benefits associated therewith were discussed.

8.3.1 EWP Policy Statement

The White Paper acknowledges that the energy sector has major environmental impacts. There are policy statements reflected in the White paper relating to managing energy related environmental and health impacts.

South Africa has already ratified the United Nations Framework Convention on Climate Change-UNFCCC (1997) and the Kyoto Protocol (2002), which creates

the framework for tapping international funds via the Global Environment Facility and the Clean Development Mechanism (CDM) to reduce greenhouse gas emissions.

The Designated National Authority, a requirement under the UNFCCC for countries to participate in Clean Development Mechanism, has been established in the Department of Minerals and Energy to regulate CDM market within South Africa. DNA was established under section 25(3) of National Environmental Management Act of 1998. In terms of the regulations, the Director General of the Department of Minerals and Energy ("DME") is designated as the DNA in South Africa.

It was pointed out during the Summit that Clean Development Mechanism (CDM) was a creative way of attracting foreign direct investment to South Africa and other developing countries. It was further indicated that CDM was a practical framework for countries to reduce or stabilize gases (greenhouse gases) that cause global warming and climate change. Furthermore it provides an opportunity to South African companies to earn an additional stream of revenue while participating in the fight against climate change.

A number of corporate players, some state-owned entities and municipalities had also taken up CDM investments with the aim of contributing to sustainable development objectives and emissions reduction. The potential sales of certified emission reductions (CERs) will bring additional revenue streams for municipalities. Over and above this, these projects have the potential to help SA reduce GHG such as CO2 which are emitted largely by our energy sector.

8.3.2 Summary of Deliberations

Some background on CDM plus the status quo CDM market in SA were provided. It was pointed out that policies for addressing climate change have environmental, political, economic and social impacts. ISouth Africa was amongst the largest emitters in the world, and the energy sector contributed most of the greenhouse gases emissions. As a result SA was being targeted together with

some of developing countries such as China, India, Brazil and Mexico to set targets for reduction of emissions.

Government will continue to participate in Climate Change negotiations in order to maximize the advantages arising from opportunities such as international funding, technology transfer, and energy efficiency, adaptation and mitigation measures.

Another presentation provided an overview of challenges which the country was facing in relation to global warming and climate change. Some of the issues around the relationship between energy security and climate change were outlined and it was pointed out that South Africa produced two percent of total global emissions. It was further indicated that the Sasol plant at Secunda was often quoted internationally as being amongst the largest source of GHG emissions in the world. Clearly in terms of long-term strategy, the fact that we need to be able to deal with our energy supply problem and also deal with issues of energy security imposes another set of problems in relation to climate change.

It was also indicated that Government was also in the process of updating the greenhouse gas inventory, the results of which were anticipated to be around May 2008. In addition a national long-term mitigation scenario (LTMS) planning process had been commissioned to consider and evaluate options for reduction of total greenhouse gas emissions as a country. All relevant Government Departments, key industrial sector participants, NGO's and researchers were part of the LTMS process.

Another presentation provided some insights on the global carbon markets, financing and issues around carbon pricing. A report which had been recently published on the carbon disclosure project, in which 315 institution investors around the world had been surveyed, indicated that the carbon assets amounted to approximately 40 trillion dollars. This gave an indication that climate change had certainly moved up in the agenda because in 2006, the carbon market was about 30 billion dollars, with the EU trading scheme leading the market.

It was pointed out that given that SA is generally a semi-arid country and its geographic location was sitting in a belt between the westerly system and tropical system which made it vulnerable to climate change. There was evidence of coherent changes in climate systems other than temperature and changes in rain fall had been observed. The intensity of these extreme weather events and the frequency has increases and having serious implication for our rural poor, particularly subsistence farmers, housing and these poor areas.

In dealing with climate change issues some stakeholders have focused on recovery relief, prevention and preparedness, thus highlighting the importance of adaptation. Some expressed views include that government needed to make sure that the long-term mitigation scenario process fed into the review of the Energy White Paper. Climate change is seen as challenge to everyone i.e. civil society and business. A requirement for further clarification and elaboration of specific and appropriate mitigation strategies for South Africa are to be defined.

8.3.3 Key Outcomes

Some of the comments which were raised by various stakeholders are outlined below.

- Renewable energy and nuclear had a huge potential for the reduction GHG emissions
- South Africa had an opportunity to benefit from the hydro-power pool project
- South Africa needed to start looking at ways of displacing coal as a heat source
- More budgets for solar and nuclear research were required
- South Africa must factor environmental connotation in infrastructure development
- The climate change strategy had specifically excluded any mention of an economic instrument

The key outcomes from the energy summit can be summarised as follows.

Renewable energy, nuclear and energy efficiency have a key role in climate change mitigation. Government should make adequate investments in clean fuel to improve public transport.

South Africa needs to take advantage of funding sources such as the Global Environmental Facility, the Clean Development Mechanism (CDM) that have been established for developing countries to assist them in reducing the environmental impacts of developmental projects and to achieve the objective of sustainable development objectives. The contribution of energy efficiency and renewable energy in reducing emissions should be built into the opver all strategy.

9. Nuclear

9.1 Safety Regulations and Safeguards to Implementation

This session focused on safety regulations in the nuclear generation as well as safeguards to implementation. The purpose of the session was to discuss South Africa's state of readiness for nuclear energy expansion. This included an assessment of whether South Africa had the necessary skills available; how aligned nuclear practices in the South African nuclear Sector were with the international best practices, given the Government decisions and support that nuclear energy would play an essential role in the generation capacity. The discussions also included the obligations and commitments associated with a nuclear power programme, both at the national and international level, that is to assess whether South Africa had the nuclear framework which would be robust enough to accommodate the programme. One of the key issues is the need for a comprehensive nuclear legal framework covering all aspects of the peaceful uses of nuclear energy, i.e. safety, safeguards, security and liability, in addition to the commercial aspects related to the use of nuclear material.

9.1.1 Energy White Paper Policy Statements

South Africa's policy position with regard to nuclear was guided by the decision to retain it as one of the policy options for electricity generation. The Energy White Paper encourages a diversity of both supply sources as well as primary energy carriers.

9.1.2 Summary of Deliberations and Key Outcomes

The long-term contribution which nuclear power could make to the country's energy economy was investigated. Optimisation of existing nuclear industrial infrastructure was also taken into consideration. The key issues which were discussed during this session included global nuclear governance, implementation of safeguards as well as nuclear safety regulations in South Africa.

The global framework with regard to nuclear energy as one of the key requirements in developing, expanding and sustaining a nuclear energy infrastructure was discussed. The framework involves a robust national legislation and international obligations, which also form part of the global governance towards nuclear energy. The framework addresses the safety, security as well safeguards. International legal obligations such Non-Proliferation Treaty, International Atomic Energy Agency (IAEA) Safeguards, Additional Protocol, Nuclear Suppliers Group, as well as the Security Council Resolution was also discussed.

The IAEA Safeguards are considered an important tool for monitoring peaceful applications of nuclear energy. Peaceful applications include but are not limited to nuclear power generation. Additional protocol was further discussed as being the universal standard in strengthening the safeguards system and supporting effective nuclear verification. In ensuring that applications of nuclear energy are peaceful, routine inspections are conducted by the IAEA at the declared facilities. It was also reiterated that South Africa had shown its commitment to disarmament, non-proliferation and safeguards and that this served as assurance that the plan to expand nuclear infrastructure would be carried out within the

framework of peaceful applications. It was also highlighted that the national authority for ensuring safeguards implementation in South Africa lied with the Minister of Minerals and Energy.

The existing legislative framework regarding nuclear safety and how it related to international practices were also discussed. It was highlighted that nuclear safety ensures the protection of the workforce, public and environment from nuclear damage/ accidents. The legislative framework involves the National Nuclear Regulator Act, Regulations on safety standards and regulatory practices, Radioactive Waste Management Policy and Strategy, authorisations, requirements documents as well as the guidelines. The current regulation was found to be credible, but regulatory challenges were also acknowledged by the National Nuclear Regulator of South Africa (NNR).

Comments which were raised included that there was a need for the regulatory capabilities of the NNR to be elevated to an appropriate level, and that the NNR needed to be positioned to the national context since the framework for the regulation of the current South African nuclear activities was strongly encouraged by the IAEA conventions.

A key challenge which was pointed out was with regard to the expansion of the industry locally and worldwide, as this imposed a burden to attract and retain scarce technical skills. The strategy which was proposed to address this included provision of training and development initiatives as well as assistance with licensing/technical support from the country of origin of the proposed nuclear installations. The Regulator also indicated that it would look into expanding its documentation on its internal procedures and guidelines in terms of assisting with capacity building and corporate memory retention.

There was no consensus reached on the issues discussed in this session however were various views were raised by the different stakeholders. Some of these are outlined below.

Government's nuclear framework with regard to nuclear safeguards and safety mechanisms by the regulator were inadequate. The view was that the safety

regulator was not independent and the processes of the regulator lacked transparency.

A point was raised that there was a perception that issues of radiation, its effect to human health and waste generated from nuclear power were not viewed seriously. It was also highlighted that these issues were an indication that there was no capacity in South Africa to deal with all nuclear matters and that this posed a serious challenge, more especially towards the generation expansion plans of the industry.

Another view raised was if the regulator has safety requirements already in place for the new builds and the response obtained from the regulator was that they don't t know yet which bidder will Eskom choose in terms of new build.

It was also pointed out that socioeconomics factors, such as costs involved in developing nuclear infrastructure as well as the creation of jobs, needed to be taken into consideration.

Another point was raised that there needed to be a clear link between the development of nuclear energy with overall national goals and objectives.

10. Hydrocarbons

10.1 Use of Regulatory Accounts and Open Access Regulatory System

The session aimed to identify appropriate regulatory principles for governing networked industries (i.e. transmission lines, petroleum pipelines, gas pipelines, etc). It sought to answer questions regarding the applicability of common carrier versus open access principles. It also intended to address the question of whether contract pipelines are appropriate and implications on access in such cases. The session also investigated different regulatory approaches (including tariff setting frameworks) with discussions focusing on their applicability and their advantages and disadvantages.

10.1.1 Summary of Deliberations

Regulatory accounting is a very important tool in calculating tariffs for the different components of the industry value chain. One of the main considerations has been the corporate structures of the different entities being regulated, especially the conglomerates such as Transnet which are involved in diverse segments of industry such as land transportation, commercial aviation, maritime pipelines as well as ports. Additional challenges emanate from the vertically integrated companies like Eskom and oil companies which are not regulated in their entirety but only the parts thereof. Regulatory accounts must take into consideration the regulated and the unregulated parts of the business and these two parts must be separated and handled differently. In other words cross subsidisation should be eliminated.

Even if all the areas of the value chain are regulated, the implication for vertically integrated conglomerates means consistent application of the regulation over entirely different parts of the business. An additional requirement is for similar treatment for the aforementioned types of regulated entities. A consistent and common basis for this tariff application is a requirement as otherwise each time a tariff is set and applied, it will be on a different set of rules and therefore the law will broken if any inconsistency is perceived.

One other point of consideration in introducing regulatory accounts is the issue of regulatory burden on the industry. This goes to the heart of the amount of data management requirements already done by these companies, such as that for corporate and tax accounts.

In the design of the regulatory accounts there is clearly a need to consult all affected stakeholders. NERSA is of the view that it is the responsibility of the regulator to ensure that the design and implementation of these accounts are driven through intensive stakeholder engagement. This is to ensure minimal information gap between the regulator and those entities which it regulates. This is to avoid the current problem in countries such the UK where regulators have been rendered ineffective due to lack of information. The aim is to design

regulatory accounts in such a way that there will be little duplication among information required by the different legal standing of the various companies.

10.1.2 Key Outcomes

Some of the key outcomes from the deliberations include the following.

- Regulatory accounts may not necessarily require new information, but an aggregation of existing information into an additional account.
- Regulatory accounts will provide consistency and transparency in the regulation of entities in the energy sector.
- Regulatory accounts should be used for implementing policy and not necessarily for addressing inconsistency in the utilisation of the energy infrastructure

10.2 Empowerment of Historically Disadvantaged South Africans (HDSAs) in the Liquid Fuels Sector

Discussions for this session included developmental pricing frameworks, job creation and supplier development.

10.2.1 Key position relating to the topic

"The sustainable presence, ownership or control by historically disadvantaged South Africans of approximately a quarter of all facets of the liquid fuels industry or plans to achieve this."

10.2.2 Summary of Deliberations

The Liquid Fuels Charter was signed by the industry to provide a backbone of transformation and commitment to BEE as a growth and development initiative. This is an important economic development as the exclusion of the majority of the population will lead to social and economic instability. Transfer of wealth is an imperative for sustainable national development and it has been successfully applied in countries such as Malaysia, Norway and even U.S.A.

Review of the status quo revealed that there are still some firm challenges in empowerment of historically disadvantaged South Africans. Residual challenges persist in procurement, ownership, and women participation and employment equity. The principle of control was singled out as an area with the most serious concern and therefore needed review. This is especially apparent from the perception that most black executives are powerless in their positions and are mostly tokenenised without much influence and decision making powers in the oil companies.

The above challenges contributed to the creation of some special organisations to alleviate some of the problems. One such organisation is the State Owned Enterprises Procurement Forum (SOEPF) a forum of Procurement/Supply Chain Management heads of the state owned enterprises. It was created to form a platform for sharing best practices in the supply chain management within the SOEs. Some of its key objectives are to collaborate with industry in maximising BBBEE and ASGISA initiatives. These are some of the proposed areas of value addition.

Operational aspects include:

- Supplier Development
    - Develop a joint strategy & implementation model.
    - Pledge specific contracts for Supplier Development Programme (SDP)
- Black Economic Empowerment
    - Empower SASDA to provide business support services to BEE companies who are awarded contracts
- Skills Development
    - Empower SASDA to provide business support services to BEE companies who have been awarded contracts

- Job Creation
    - Assist with identifying opportunities for job creation from foreign procurement
    - Commit to decreasing foreign procurement expenditure by 20% per annum.
- Resources
    - Assist with office accommodation & related resources for Supplier Development

Strategic aspects include the following:

- Commitment needs to be made to a formal analysis of procurement spend across the energy sector, especially foreign spend through openness and information sharing.
- Commitment needs be made for the funding for Skills Development Plan (SDP) initiatives
- Commitment must be made to establishing at least 50 SDP companies with guaranteed contracts for at least 5 years

Additional insights from the discussion included that, the initially publicised commitments to BEE have not been achieved and therefore need revisiting. Aspects thereof are that

- BEE companies are calling for a structured system that duly recognizes those participants who have gone beyond the Charter obligations to deliver on transformation
- Introduction of an industry based structured system that rates the degree and extent of contribution (using the original Charter elements) e.g. Level 1, 2, 3, etc and rewards participants
- A deliberate emphasis on skills and recognition for participants that have created entities that are run, operated and controlled by HDSA, highlighting

their role in the hard issues (assets and facilities, refining, retailing and financing)

10.2.3 Key Outcomes

Further recommendations include:

- Changing of the reference to HDSA and replace it by black in line with BBBEE Act;
- Revision of SASDA's focus to include Minerals and Energy and State Owned Enterprises in a phased manner;
- Alignment of the liquid fuel charter and proposed the Act with BBBEE Act and Codes of Good Practice and set targets;
- Regulating utilisation of common suppliers and opportunities database;
- Procuring of goods and services by buyers using the common database to be made mandatory;
- Listing of procurement opportunities in the database to be regulated;
- SASDA to become an auditing agent on BBBEE compliance responsible for monitoring, evaluation and reporting on behalf of DME;
- Introduction of clear measurement targets and quarterly reviews; and
- Compliance to empowerment should form part of the licensing criteria by DME.

10.3 Appropriate Regulatory Framework to Facilitate Entry of Piped Gas into the Market

The purpose of the session was to obtain a view of the key factors that could be hampering development of the gas market and as also to assess whether the Gas Act was too stringent for a developing gas industry. It was also to explore possibilities for an appropriate policy framework to nurture this emerging energy sector.

10.3.1 EWP Policy Statement

The key policy position as stated in the Energy White Paper is that:

"*Given increased opportunities for energy trade, particularly within the Southern African region, government will pursue energy security by encouraging a diversity of both supply sources and primary energy carriers.*"

The Government's stated policy is to develop the natural gas industry, to legislate for the storage, transmission, distribution and trading of piped gas, and to develop a minimal regulatory regime 'consistent with the orderly development of a competitive gas industry'. The Government is therefore attempting to harmonise regional gas policies and establish bi-national agreements.

10.3.2 Assessment of Policy

Since 1998 the Gas Infrastructure Plan (GIP) effectively linked sources of gas to markets. The Integrated Energy Plan 1 (IEP 1) stated the need to diversify energy supply through increase use of natural gas.

The Gas Act of 2001 was in operation in 2005. The Act aims to promote the orderly development of the piped gas industry, establish a national regulatory framework, and establish the National Gas Regulator as the custodian and enforcer of the national regulatory framework. The Gas Act legislates for the storage; transmission; distribution and trading of piped gas and develops a minimal regulatory regime 'consistent with the orderly development of a competitive gas industry'. The Piped Gas Regulations were promulgated in 2007.

The National Energy Regulator (NERSA) was established in 2005. The bi-national agreements between South Africa and Mozambique; and South Africa and Namibia were concluded and the Gas Commissions was established in an attempt to harmonise regional gas policies. The South Africa/Mozambique pipeline was completed in 2004.

These are the main deliverables since 1998 and they are consistent with the Energy White Paper.

10.3.3 Summary of Deliberations and Key Outcomes

A view was expressed that the objectives of the Energy White Paper were still pertinent. Some achievement on EWP implementation includes the establishment of the single energy regulator.

It was also pointed out that the role of competition in key infrastructure had been questioned by some commentators and that Government should not "cherry pick" only those parts of the White Paper which they liked. It was also stated that publicly owned monopolies did not behave differently from privately owned ones and that competition for the market could be used in strategic infrastructure, for example, the tender process that government onn the implementation of the Independent Power Producers (IPPs).

It was further indicated that in order to facilitate private sector involvement, the independence of the regulator was of utmost importance and that Government needed to take a leading role in energy planning to promote competition within the energy sector. They also expressed that Government is responsible for policy development while the regulator is responsible for implementation and as such the regulator should be given room to exercise its discretion on certain issues within the given policy framework.

The natural gas sector was at a very difficult stage of development and additional legislation (for example subsidies) were required to kick start the industry. The analogy was made to a "chicken and egg situation" where there would be no market unless there was firm supply. . There may be a case for the state to invest in a pipeline in Western Cape.

Recently, an application from Rampco to add additional compression to its pipeline from Mozambique in order to increase gas sales to South Africa above the current limit of 120 million gigajoules per year, was lodged with the Energy Regulator. This indicated that there were investment into South Africa, however these were not enough. The issue of developing the gas industry involved a multitude of issues which emerged from different angles. These included technical issues, beneficiation issues, environmental issues and production rights

holders, who, in particular were subject to many existing laws. There was a lack of investment in this industry in the last ten years according to some very well known economical reasons. For instance the lack of price competition between alternative energy sources and gas such as electricity was a world issue. It was also indicated that South Africa had historically, and continued to have very low electricity prices by international comparison and that this factor, combined with the fact that South Africa also had cheap coal contributed to making gas less competitive during that time. Indications are that the electricity prices reflected the true cost of supply then natural gas would be most competitive.

The Issue of the review of the Energy White Paper was supported but it was pointed out that it was not incorporated into the shareholder's compacts of state owned enterprises. This was necessary since policy and shareholding are managed by different departments. The White Paper didn't translate into active participation by other government departments hence some of its objectives were difficult to achieve.

Some issues for further debate were raised during the deliberations. These include the definition of independence of regulators. It was pointed out that investors look for a predictable legal framework, fair and transparent implementation by the regulator when making investment decisions.

A view was held that the regulator could not be fully independent from the government because the Board or regulator members were appointed by the Minister. They indicated however, that the regulator must be transparent in all its proceedings and that its decisions should be predictable.

It was further pointed out that policy making should be separate from policy implementation.

Another view indicated that regulatory independence should have consumer protection, provide for industry viability, and implement government policy. Government is responsible for policy development while the regulator is responsible for making inputs and advises government, hence the regulator should act as consultant to the policy maker. The regulator must be independent

with some degree of using its discretion on certain issues within the policy framework. Relationship between the regulator and the regulated entities should be maintained.

10.3.4 Key Outcomes

- The Energy White Paper was supported but it was pointed out that it was not incorporated into the shareholder's compacts of state owned enterprises
- Facilitation of private sector involvement, in energy can be achieved through the independence of the regulator and the lead role by government in energy planning
- Policy making should be separate from policy implementation.

10.4 Integrated Household Energy Strategy

The purpose of the session was to deliberate on key aspects that needed to be addressed with respect to the application and use of energy in households.

10.4.1 EWP Policy Statement

"Government will promote access to affordable energy services for disadvantaged households, small businesses, small farms and community services."

"Government will promote access to basic energy services for poor households, in order to ameliorate the negative health impacts arising from the use of certain fuels."

"Government will work towards the establishment and acceptance of broad national targets for the reduction of energy-related emissions that are harmful to the environment and to human health."

"Government will ensure a balance between exploiting fossil fuels and maintenance of acceptable environmental requirements.

Government will seek, as a matter of priority, to mitigate the negative environmental and health effects of air pollution from coal and wood use in household environments."

"Government will, where resources are available, undertake information and education programmes on energy and the environment and provide assistance to others in developing and implementing such programmes and other economically viable alternatives."

10.4.2 Summary of Deliberations

One presentation focused on the international experience of renewable energy and its application in the household sector. The presentation highlighted the need to focus on the use of fuels for cooking and heating. Energy poverty within households was noted by mentioning that three billion households worldwide relied on biomass. It was also pointed out that air pollution was the major cause of mortality and that the challenge was the solutions to address this are not clear cut.

It was pointed out that improved woodstoves are theoretically a solution; however these were currently not commercially available. It was also pointed out that international studies indicated that government support tended to be more effective in terms of the development, production, distribution set up of the commercialisation chain rather than directly subsidising the stove itself. In certain cases subsidies had often benefited the people that have rather than the poor as they simply, in most cases, could not even afford the subsidised products.

A presentation by the DME indicated that although electricity was provided in certain areas, in most informal settlements, people still made use of coal irrespective of the availability of electricity. This highlighted that although efforts had been made to make electricity more accessible, it still wasn't affordable to many. The approach from the Energy White Paper and the Department's view was that a holistically approach to energy provision was required. This approach should not only consider a single energy carrier as a solution to energy needs but should also look at the full spectrum of energy carriers, lifecycle costs as well as

affordability and sustainability of subsidies are some of the key factors that need to be considered. Other considerations include safety, health, environment and quality factors. Other factors that need to be considered include infrastructure networks and distributing channels.

Another presentation focused on the safety and health aspects relating to the use of paraffin and paraffin stoves. It was also highlighted that the review of the Energy White Paper needed to assess whether the constitutional right to South Africans that says "everyone has a right to an environment that is not harmful to their heath and well-being" had been addressed. It was also highlighted that poor households tended to use a multiplicity of energy carriers and the safety and health aspects of all these carriers need to be considered and addressed.

Another presentation highlighted that people often equated energy with electricity and it was very important that it be realised that this is not the case. The presentation outlined some of the key advantages of LPG which include the fact that LPG is portable and highly efficient, safe and convenient to use.

The World Health Organisation (WHO) had endorsed LPG as the most cost-effective solution for reducing pollution.

However, it was also pointed out that it was important to come up with a lighter LPG canister and also important to make it even more accessible to all consumers. The immediate need is seen to be in the rural areas. It was also indicated that internationally the domestic application of LPG was almost 50% while in South Africa this was only at around 3%.

Another presentation highlighted that there was no integrated household energy strategy and there was a need for such. The draft free basic alternative energy (FBAE) policy which is an excellent idea has been on the table since 2005, and it is still not implemented. Other points which were raised are that:

- Free Basic Electricity is available to fewer households than before and clarity was required to assess whether free basic alternative energy pilots worked.

- Solar Home Systems are not reaching the poor because subsidies are unfairly allocated
- LPG is currently not affordable to poor households
- IP increased in price because of crude and stoves were taken off market without warning
- Gel fuel has been found to be 3 times the cost of IP
- Although 64% of households use fuel wood the DME still refuses to recognise it as a fuel
- DME should consider the plight of HIV/AIDS households using wood
- There is a need for an equitable strategy
- New houses should be thermally efficient and equipped with solar water heaters

10.4.3 Key Outcomes

- An integrated household energy strategy does not exist and this needs to be developed by Government.
- There is a need to take a holistic approach to an integrated household strategy that considers the most appropriate energy sources for the most appropriate application or end use.
- Government leadership is essential in ensuring the successful rollout and expansion of the LPG market.
- LPG should be used to service both the urban and rural market and should form part of the DSM.
- The revised White Paper on energy policy must provide for the establishment of a Household Energy Safety Strategy.
- The DME should take leadership over the interdepartmental collaboration, to regulate the Paraffin Industry, implement safety awareness and give attention to poor household.

- The rollout of safe IP appliances as an intervention to address power supply problems for cooking and heating, especially in the residential sector, must be considered. IP should be considered as a part of the solution for DSM.
- Safety considerations for IP should include the packaging, labeling and well as education and awareness of consumers. The packaging and labelling of paraffin should be regulated.
- Unsafe appliances should be outlawed and the DME needs to work with the SABS to develop and enforce standards.
- Government should be involved with educating consumers on safety, because if it left up to the NGO's without adequate backup from Government, then the whole initiative collapses.

11. Integrated Energy Planning

11.1 Energy Modeling and Planning Approaches

The purpose of the session was to deliberate on the best approach for national integrated energy planning and modelling, taking into account other countries' experiences. Various entities developed separate plans and discussions were focused on establishing mechanisms for the integration and coordination of energy modeling and planning activities as a way of ensuring alignment between different plans that exist.

11.1.1 Energy White Paper Policy Statement

The Energy white Paper makes it clear on what was expected with respect to integrated energy planning and modeling. The greatest challenge with regard to integrated energy planning was with regard to the implementation thereof.

"Government will facilitate the provision of the necessary resources to establish IEP structures and systems to develop energy policy."
Government will ensure that the necessary resources are made available to establish structures and systems, and put in place legislation to facilitate the specification, collection, acquisition, storage, maintenance and supply of energy

data, and energy-related data, according to the requirements of integrated energy planning and international standards. Government will facilitate the establishment of information databases.

The proposed policy position is that integrated energy planning as espoused within the Energy White Paper is still valid. Government needs to focus on putting in place mechanisms for ensuring the successful implementation and delivery of an Integrated Energy Plan. The White Paper also recognized that the critical success factor for Integrated Energy Planning was the availability of vast amounts of accurate and relevant data and analysis. It also recognized that South Africa has a data scarcity and that measures needed to be put in place to ensure the collection, storage and publishing of relevant energy data.

11.1.2 Summary of Deliberations

One presentation indicated that additional 40 000MW electricity has to be generated by 2025 and existing capacity has to be upgraded. The Energy Security Masterplan was intended to address issues relating to the demand, supply, macro-economic as well as environmental factors in a holistic manner. The Energy Bill which was in the process of being drafted envisaged an Energy Modeling Agency which would undertake energy modeling for the purposes of integrated energy planning under the DME. Areas of influence will be Trade and Industry, Housing, Transport, Government Departments, Renewable Energies, Liquid Fuels and Electricity. New electricity capacity plans do not address the liquid fuels required.

Another presentation highlighted that a pyramid of plans existed within the energy sector: at the top of the pyramid were those of Government, with those of NERSA, Eskom and the municipalities following respectively. It was highlighted that each of these entities was responsible for its own plans with each plan serving its own purposes. However there was a vacuum in the planning hierarchy as there was a lack of integration of all these plans. More flexibility is required in planning and all plans should be based on scenarios that were based on a single set of assumptions. Externalities such as social impacts, environmental factors

as well as technology needed to be included and considered as part of the planning process.

It was also indicated that the National Energy Modeling System (NEMS) of the US was not a plan but was a system that could assist in the planning process. It was highlighted that baseline projections needed to be clear and alternative baselines could be used. Data, resources and an understanding are important in modeling. MARKAL was discussed as optimisation model versus NEMS as a planning model. A suggestion indicated that South Africa may want to consider using MARKAL since several countries have adopted it.

Another point which was made was that Integrated Energy Planning (IEP) is a process and not a product and that if one tried to plan in a crisis then this was too late. Data collection must be a long term project which has to be systematic and there also needs to be a clear and dedicated owner of data. Any analytical tool is time consuming and expensive with a range of skills required and it is a challenge to integrate all these.

Other input which was made required clarity on whether a modeling tool had been decided upon and it was highlighted that IEP1 had failed and IEP2 process was not seen to completion.

Comments were also made that due to the small size of the domestic market, the balance between economic growth and economic well being needed to be maintained as such South Africa needed to clarify whether it was pursuing a capitalistic, socialistic or mixed economic approach. African countries and people do not have access to their own resources and this should be a key consideration to be taken into account when planning. Other externalities such as climate change, renewable energy and energy efficiency targets needed to be factored into the models and as a result planning processes.

11.1.3 Key Outcomes

Some salient points of the session are outlined below.

- Integrated Energy Planning (IEP) is a process and not a product and that if one tried to plan in a crisis then this was too late.
- The role of SANERI and other research institutions in the planning process needs to be clarified. A centralised place to house the data is required. A regulatory framework to enable the collection and provision of energy data needs to be put in place.
- An energy supply standard is needed, i.e. reserve margins, trade, imports, etc.
- Transparency was required in the types of data and assumptions that underpinned certain decisions (for example the calculation of the additional electricity generating capacity required in future)
- Planning must be done at all levels. The Regulator for example, must submit its plans to Government. The regulator must manage and coordinate the Integrated Resource Planning (IRP) process. The Regulator should recommend the NIRP to Government. Government should direct and finally approve the NIRP.

SECTION 3: SUMMIT CLOSURE

12. Summit Declaration

During the announcement of the Energy Summit declaration it was highlighted that it was apparent that some of the assumptions that underpinned the development of the Energy White Paper need to needed to be interrogated. The views which were presented by various stakeholders during the summit were acknowledged as an important input for future policy development, noting that energy security was about ensuring that diverse energy resources in sustainable quantities and at affordable prices are ma de available to the South African economy in support of economic growth and poverty alleviation taking into account environmental management requirements and interactions amongst economic sectors. In light of this, the declaration of the summit was read as follows:

The declaration was made to make commitment to:

1. increasing access to affordable and energy services;
2. improving energy governance;
3. stimulating economic development;
4. managing energy related environmental impacts; and
5. ensuring energy security.

It was indicated that the Energy Summit presented an opportunity to take the issues which were raised during the deliberations forward and that the Department of Minerals and Energy was committing:

- to improving cooperation and coordination between the South African Government departments as well as all spheres of government to ensure integrated planning;

- the South African Government Departments and all three spheres of Government to support institutional arrangements for transformation as well as effective regulation of the Energy Sector; and
- the Minister and the Director General of Minerals and Energy to developing policies that take into account the inputs and the insights that would emanate from the proceedings of the summit.

13. Statement by Youth

The Children's Energy Summit was held concurrently with the National Energy Summit. The statement by the Youth outlined the key challenges that have been identified with regard to each of the key objectives of the Energy White Paper. Recommendations on how each of the objectives could be addressed were also made.

Objective 1: ***"Increasing Access to Affordable Energy Services"***. The key issues that emerged related to this objective were that electricity in South Africa is not affordable for poor households and that it is also not accessible in rural areas.

The recommendations which were made in order to achieve this objective were that:

- South Africa should maximise diversification of energy supply;
- South Africa should subsidise solar panels in new housing developments where this is appropriate; and
- South Africa should institute equitable access to energy supply between rural and urban areas.

Objective 2: ***"Improving Energy Governance"***. The key issues which emerged related to this objective were that new developments deplete woodlands and this was exacerbated because focus on the planting of trees was negligible. The Youth also indicated that there was a lack of community-based structures to address energy issues and that power outages interrupted

education and health care services. It was also highlighted that the theft of electricity threatens the safety of children and that there were inadequate measures and standards in place to ensure compliance with electricity installations. This in turn threatened the safety of end users and more specifically their children.

The recommendations which were made with regard to this objective were that:

- tree cutting should be regulated;
- school buses should be subsidised;
- municipalities should facilitate the establishment of community-based energy centres and DME should provide technical support which would be required at these centres;
- there must be preventative measures to pre-empt outages and minimal turnaround time to fix outages;
- people who use electricity illegally (izinyoga) must be prosecuted; and
- The Government should prioritise electricity supply in farms and in rural areas.

Objective 3: *"Stimulating Economic Development"*. The key issues which were raised with regard to this objective were that the lack of electricity has a negative impact on the provision of essential services; it also stifles economic development, and in rural areas, leads to the increased migration of people to urban areas.

The recommendations which were made were that:

- the Government should provide reliable basic services in all areas;
- the Energy Supply Industry should ensure efficient services in the country; and
- communities should be empowered to explore opportunities for 50/50 shareholding within the Energy Supply Industry.

Objective 4: ***"Managing energy related environmental impacts"***. The issues which were highlighted were that South Africa is the largest greenhouse gas emitter in Africa; Illuminating paraffin is dangerous to children and their families; and that there was a high level of energy consumption; and pollution caused by automobiles was increasing.

It was recommended that:

- the DME in partnership with children and society should heighten awareness on energy efficient principles and practices;
- Government should develop safety standards for product design; and
- packaging of paraffin and other energy products should adhere to safety standards and that this should also accommodate the needs of children and people with disabilities.

Objective 5: ***"Security and Supply through diversity"***. The key issues that were highlighted were as follows:

- The potential of gel-fuel needed to be explored further as there was a need for South Africa to reduce its disproportionate reliance on coal for the production of energy;
- There was a need to regulate the provision and pricing of alternative sources that undermine diversification; and
- There was a need for South Africa to explore regional energy to secure sustainable diversification of energy supply.

The following recommendations were made with regard to the above objective:

- Further research is required to strengthen knowledge on gel fuel technology;
- South Africa should commit to increase targets for renewable energy sources by 2015;

- South Africa should regulate the provision and pricing of alternative energy sources; and
- South Africa has to strengthen regional trend agreements to secure diversity of energy supply.

The Youth concluded by indicating that their participation in the Children's Summit and their voice in the National Energy Summit, affirmed the right of children and youth to participate in national, regional and international processes.

14. Statement by Women

The women's representative commended the establishment of the Woman in Oil and Energy South Africa (WOESA), whose main aim was to do advocacy work and engage women in activities in the energy sector and pointed out that this was one of the DME's interventions in the implementation of women's internationally acclaimed policies, was

It was also noted that the Energy White Paper of 1998 already acknowledged the role of women in the energy sector, however she highlighted that there was very slow progress in its implementation. However women are confined and relegated to household energy subsidies rather than given the opportunity to enter the entire value chain and even the issues raised at the summit were an indication of this.

It was further indicated that the pending Energy White Paper policy review by the DME presented an opportunity for the policy gaps with specific attention to women empowerment in the energy sector to be addressed and for specific targets to be set. The women's demands from the summit were outlined as follows:

- That women be seen as an integral part of the energy sector;
- That women's organisations be given an opportunity to engage in future policy discussion platforms;

- That women be considered for technical training, mentoring and support programmes within the energy sector;
- That access to funds, including capital funding for women-led businesses or cooperatives be intensified;
- That a deliberate effort be made to develop and fund women's organisations dealing with empowering women in the energy sector;
- That WOESA be empowered in order for it to empower other women and to fulfill its mandate; and
- That the development and implementation of policies and programs to develop women in rural areas was very important. She emphasised the need for serious resources required to get to the rural areas and therefore that the issue needed to be taken seriously.

In conclusion, it was indicated that the list of demands was in no way exhaustive with regard to the challenges of women's participation in the energy sector and that the energy sector was still a very difficult one for women to enter. However WOESA commended the Minister of Minerals and Energy, Ms Sonjica for her initiative in convening this all important summit.

15. Closing Remarks

The closing statements of the National Energy Summit of 2007 were made by the Director General of Minerals and Energy as well as the Minister of Minerals and Energy.

15.1 Director General's Closing Remarks

The Director General indicated that without any fear of contradiction, the future of the energy sector was in good hands. He indicated that it was therefore important that all must be careful of the legacy that they were creating and would therefore bequeath to the young citizens of South Africa. He indicated that the children had participated in shaping the legacy and that it was not usual for one to participate

in the creation of that which he or she would inherit. In closing he thanked the children for their contribution.

15.2 Minister's Closing Remarks

The Minister indicated that investment had been made on the children in terms of leadership. She indicated that the start of the Energy Summit marked the beginning of a process of deliberations on the life of our economy, a review of the energy situation in South Africa. She indicated that the issues that were deliberated upon ranged from those on the role of the State in the energy sector to competition in the electricity markets, and also indicated that there was a need for more communication on nuclear issues. It also emerged from the summit that cooperative governance is vital for energy security, particularly around energy infrastructure.

The Minister highlighted that at various stages of the summit, a continual reminder that we live in a development of state, a state in transition and that solutions that we propose must take into cognisance the need to lift the majority of our people out of poverty was required. She indicated that this should always guide proposed interventions in the energy sector and that there was a need to ensure that the primary objectives of the Energy White Paper were realised within the context of the theme of the summit "***Energy Security for Sustainable and Shared Economic Growth for all***".

The Minister further emphasised that the major responsibility was to deliver energy to all South Africans ensuring affordability, reliability and accessibility. She further indicated that the DME was committed to continue pursuing programmes of delivery of universal access, to making clean energy available to the poorest as well as resolving issues of paraffin and its safety and also highlighted the need to look at issues of LPG and its affordability. She emphasised that although the DME was committed to mainstream agenda, there was much room for improvement in the area of gender and mainstreaming thereof and that the DME committed to continue investing in the future of the country by investing in children.

The Minister indicated that another key issue that emerged clearly from the summit was the need for State intervention in the energy sector and the divergent views on the execution of the intervention. She stated categorically that in instances where energy security may be compromised, the State would intervene and would do so decisively.

The Minister indicated that the DME realised and appreciated the importance of energy efficiency in dealing with climate change issues as well as the importance of involving the children and ensuring that the children are knowledgeable about energy issues would go a long way in helping the DME with its energy efficiency campaign. She also indicated that the establishment of partnerships in issues of energy efficiency was crucial and quoted the Director General of Transport when she said *"we need to align policy"* and that *"we need to include transport energy in the energy efficiency campaign"* and indicated the need to extend this partnership to local government.

The Minister posed the following questions: *"To what extent did we take into account the global supply chain bottlenecks? How do we convert these bottlenecks into opportunities for job creation in our own country, by means of fabrication shops that employ artisans? How do we position our industries to take advantage of the one trillion spend that is projected in the sector over the next 20 years and those industries would include the small industries?"*

The Minister pointed out that she needed to correct a point which emerged during the deliberations relating to energy minerals where the unions raised concern about job security for their members should there be a move from coal to uranium for electricity generation. She indicated that as much as they were concerned about job losses they should also be equally concerned about the creation of jobs. This was because, she continued, the use of both of these minerals was projected to increase in the next 20 years and therefore the mining of coal would not decrease, but instead there would be an increase due to the projected energy demand. She also indicated that at the same time there would also be an increase in uranium mining thereby leading to the creation of