



REPORT OF THE PORTFOLIO COMMITTEE ON ENERGY ON THE DRAFT INTEGRATED RESOURCE PLAN 2018 (IRP2018) PUBLIC HEARINGS, DATED 27 NOVEMBER 2018.

0. INTRODUCTION

0.1. Subject of the report

The subject of this report is the Portfolio Committee on Energy's findings after conducting public hearings on the draft Integrated Resource Plan (IRP) 2018.

0.2. Background

The National Development Plan (NDP) identifies the need for South Africa to invest in a strong network of economic infrastructure designed to support the country's medium- and long-term economic and social objectives. Energy infrastructure is a critical component that underpins economic activity and growth across the country; it needs to be robust and extensive enough to meet industrial, commercial and household needs.

The NDP envisages that, by 2030, South Africa will have an energy sector that provides reliable and efficient energy service at competitive rates, is socially equitable through expanded access to energy at affordable tariffs, and environmentally sustainable through reduced pollution.

Regarding the energy mix, the NDP¹ recommends the following:

- Re-assessment of the desirability of nuclear power investments. According to the previous Integrated Resource Plan (IRP2010), more nuclear plants will need to be commissioned from 2023/24. "Although nuclear does provide a viable baseload alternative, South Africa needs a thorough investigation on the implications of nuclear energy, including its costs, safety, environmental benefits, localization, and employment opportunities"².
- Explore gas as a viable alternative to coal (and nuclear). As espoused in the NDP, substituting gas for coal will help cut South Africa's carbon intensity and greenhouse gas emissions. Possibilities include coal seam methane, shale gas resources in the Karoo basin, and imports of Liquefied Natural Gas (LNG).
- Balance domestic coal supply security with growth in exports. Given fixed investment and low direct costs, coal will continue to be the dominant fuel in South Africa in the foreseeable future. Cleaner coal technologies will be promoted through research and development investments and technology-transfer agreements in, among others, the use of

¹ National Development Plan (2011)

² Ibid

ultra-supercritical coal-power plants, fluidised-bed combustion, underground coal gasification, integrated gasification combined cycle and carbon capture and storage.

- By 2030, more than 20 000 megawatts (MW) of electricity will be contracted, including an increasing share from regional electricity.

The IRP plays a crucial role in contributing to the objectives of the NDP. Integrated Resource Planning is, in principle, simple and identifies the cheapest way - 'the least cost plan' - to meet electricity demand consistent with meeting other policy objectives such as environmental impact targets. In practice, it requires a complex, data hungry model particularly involving costs of the various options. If the data is not accurate the model will produce incorrect results. Many of these variables are difficult to forecast particularly over the long period, the several decades, which an IRP covers³. In addition, the IRP is described as a 'living plan' and many of the values of the variables will be passed on for subsequent updates, so it is important that errors are not perpetuated. In line with section 34 of the Electricity Act, the Minister of Energy uses the promulgated IRP to issue determinations for new capacity. Thus, the IRP is not a procurement plan⁴.

In South Africa, the IRP has been updated several times since the original version was published in 2010 and promulgated in 2011, but subsequent versions have not been promulgated and are therefore not official policy. The most recently published version is the August 2018 Draft IRP which opened for public comments until the 27th of October 2018. The 2018 Draft IRP policy proposes the following new additional capacity by 2030: 1 000 MW of generation from Coal, 2 500 MW from Hydro, 5 670 MW from Photo Voltaic (solar), 8 100 MW from Wind and 8 100 MW from Gas. Thus, by 2030 government envisages the energy mix will consist of:

- 34,000MW of coal, representing 46% of installed capacity.
- 11,930MW of gas, or 16% of installed capacity.
- 11,442MW of wind, or 15% of installed capacity.
- 7,958MW of photovoltaic, or 10% (PV, or solar).
- 4,696MW of hydropower, or 6% of installed capacity.

The balance will consist of pump storage (4%), concentrated solar power (1%) and nuclear power (2.5%)⁵.

As stated above, the IRP 2010–2030 was promulgated in March 2011. At the time, it was envisaged that it should be a "living plan" to be revised by the Department of Energy (DoE) frequently. A number of assumptions used in the IRP2010–2030 have since changed, which necessitated its review. Key assumptions that have changed include electricity demand projections that did not increase as envisaged, existing Eskom plant performance that is way below the 80% availability factor, additional capacity committed to and commissioned, as well as technology costs that have declined significantly.

³ Thomas, (2018)

⁴ Department of Energy, (2018)

⁵ Radebe, (2018)

The present IRP Update process, as was the case in the IRP 2010–2030 development process, aimed to balance a number of objectives, namely to ensure security of supply, to minimize cost of electricity, to minimize negative environmental impact (emissions) and to minimize water usage. The Update process consisted of four key milestones that included the development of input assumptions; the development of a credible base-case and scenario analysis; the production of a balanced plan; and policy adjustment. Whereas the IRP 2010–2030 covers a study period up to 2030, the IRP Update study period was extended to the year 2050.

Following the promulgation of the IRP 2010–2030, the DoE implemented the IRP by issuing Ministerial Determinations in line with Section 34 of the Electricity Regulation Act No. 4 of 2006. These Ministerial Determinations give effect to the planned infrastructure by facilitating the procurement of the required electricity capacity. Since the promulgated IRP 2010–2030, the following capacity developments have taken place:

- A total 6422MW under the Renewable Energy Independent Power Producers Programme (REIPPP) has been procured, with 3272MW operational and made available to the grid.
- Under the Eskom build programme, the following capacity has been commissioned: 1332MW of Ingula pumped storage, 1588MW of Medupi, 800MW of Kusile and 100MW of Sere Wind Farm.
- Commissioning of the 1005MW Open Cycle Gas Turbine (OCGT) peaking plant.

In total, 18000MW of new generation capacity has been committed to date.

Besides capacity additions, a number of assumptions have also changed since the promulgated IRP 2010–2030. Key assumptions that changed include electricity demand projection, Eskom’s existing plant performance, as well as new technology costs. These changes necessitated the review and update of the IRP.

The significant change in energy mix post 2030 indicates the sensitivity of the results observed to the assumptions made. A slight change concerning the assumptions can therefore change the path chosen. In-depth analysis of the assumptions and the economic implications of the electricity infrastructure development path chosen post 2030 will contribute to the mitigation of this risk.

0.3. Objectives of the report

The objectives of this report are as follows:

- To highlight the comments, explanations and possible recommendations made by interested individuals and stakeholders during the public hearings;
- To make observations and findings based on inputs of stakeholders;
- To conclude on implications and make recommendations thereto.

2. PUBLIC HEARINGS ON THE DRAFT INTEGRATED RESOURCE PLAN 2018 (IRP)

The Department of Energy briefed the Portfolio Committee on Energy on the draft Integrated Resource Plan 2018 (IRP) on 04 September 2018. The Portfolio Committee on Energy resolved during the meeting that the Committee envisaged scheduling public hearings during the 4th Term of 2018.

The advertisement calling for written submissions on the draft IRP (2018) was published on 23 September 2018, in 2 national newspapers as well as regional and local newspapers (all official languages) across the country. The closing date of submissions was Friday 05 October 2018. The advert indicated that interested individuals and stakeholders had to submit written submissions and indicate their interest in making an oral submission. The Committee further resolved that it was not going to be too strict with regard to the adherence of the closing date. If submissions were received after the closing date, the Committee would still consider the submission, even for oral presentation.

The Committee received 41 written submissions, including 38 requests to make oral submissions. Public hearings were scheduled as follows:

- 16 and 17 October 2018, from 10:00 – 17:30, on both days.
- 23, 24 and 26 October 2018, from 10:00 – 13:00.
- The Committee further set time aside on 23 and 24 October 2018, for members of various communities to make oral submissions.
- On 30 October 2018, the Committee held a roundtable discussion on the IRP as part of the final round of public consultations.

2.1 Synopsis of Public Hearings

This section provides a synopsis of the submissions by interested individuals and stakeholders. It is important to note that this section provides a summary of the submissions, not an analysis or views of the Committee.

2.1.1. Coal

Stakeholders objected to the inclusion of 1000 megawatts (MW) of two new Coal Power Stations. The stakeholders are concerned about the environmental impacts associated with the production of electricity from coal. The concern is also that the country has made global commitments on greenhouse gas (GHG) emission reductions. Stakeholders further argued that the inclusion of the two coal power stations, Thabametsi in Limpopo and Khanyisa in Mpumalanga, is unconstitutional for the following reasons:

- Regulation 9 of the Regulations for New Generation Capacity (Electricity Regulation Act) stipulates that a power purchase agreement between the buyer and the Independent Power Producer (IPP) must meet the “**value for money**” requirement, amongst others. The value for money requirement goes further to say that ‘...**the new generation capacity project results in a net benefit to the prospective buyer or to Government having regard to cost, price, quality, quantity, risk transfer or a combination thereof, but also where applicable to the Government’s policies in support of renewable energy**’ (emphasis added). The Centre for Environmental Rights (CER) is of the view

that the inclusion of the two IPP coal power stations has no value for money. CER cited a study by the University of Cape Town Energy Research Centre wherein it was found that the two power stations would cost R19.6 billion. Furthermore, Minister Radebe also confirmed that the two IPPs would result in additional cost to consumers. According to the CER, the Minister confirmed that electricity consumers will pay 1.9 cents per kilowatt-hour (kWh) more by 2030 on a projected electricity tariff of 119 cents per kWh to accommodate the two IPP coal fired-power stations – a cumulative R23 billion. Thus, a final IRP that includes new coal fired power plants is unconstitutional, and will be met with a legal challenge.

There was a request that the IRP remove the 1 000 MW of new coal power stations, for financial and environmental reasons, and also remove Kusile Units 5 and 6, which Eskom does not have the money to complete and which will become stranded assets. Stakeholders stated that it is clear climate change is happening. The water crisis affecting half of South Africa is sufficient proof. Pollution that is destroying the health of thousands of coal workers in Mpumalanga and Limpopo is enough to demand the country to change its economic model. The recently released United Nations report warns that the planet is running out of time to tackle climate change before the damage is irreversible. Continued investment on coal requires a careful review.

On the other hand, other stakeholders were concerned about the reduced role of coal in the IRP, they submitted that this should be reversed. The concern was on the impact on jobs and the fact that coal is a baseload. Whilst the inclusion of the two coal power stations has negative environmental impact, it also has positive impact in terms of job creation and the protection of jobs in the coal sector. South Africa is one of the countries that still have abundant coal reserves. Thus, one cannot just stop using this strategic resource. It was said that, few, if any, countries are as generously endowed as SA with coal and nuclear minerals (uranium and thorium). It would be criminal for energy policy not to be just economically optimal, but (a) to render these valuable resources valueless and (b) to import gas and hydro at unknowable future cost or reliability. SA should utilise and be reliant on resources it has in abundance.

It was suggested that the country venture into clean coal technology. South Africa is exporting 92 percent of coal used in Africa. Eskom states on its website that South Africa has more than 200 years' worth of coal left. According to the Department of Mineral Resources, South Africa has more than 66 billion tons of coal reserves. The reduction of coal usage in the proposed mix means that the country will use less coal to produce electricity. What worries the stakeholders is that the mining of coal is not going to stop. Coal will be mined and exported to other countries like China who are going to burn the coal in the very atmosphere we are trying to save.

Stakeholders noted that the plan anticipates decommissioning approximately 12.6 GW in Mpumalanga without proper understanding of the socioeconomic impact in towns that primarily exist because of these power stations. The mines supply the power stations with coal, the schools and local businesses all exist because of the power stations. Mothballing the power stations without understanding of the

socioeconomic impact and a plan to ensure that the small towns do not turn into ghost towns seems too risky for the economy. Furthermore, stakeholders argued that the destruction of Eskom coal fired power stations in Mpumalanga towns cannot be implemented at the expense of the poor people of Mpumalanga, the workers at Eskom and the small medium and micro enterprises in the surrounding areas and will definitely not be in a position to help protect the grid and Eskom.

2.1.2. Hydro Power – Democratic Republic of Congo (DRC) Grand Inga Project

The recommended plan includes 2500 MW of hydro power in 2030. The draft IRP motivates this in order to “facilitate the RSA-DRC treaty on the Inga Hydro Power Project in line with South Africa’s commitments contained in the National Development Plan (NDP) to partner with regional neighbours”. Stakeholders argued, from the studies they had conducted that there is no analytical basis for including power from Inga. It was argued that the 2500 MW of hydro should be removed from the final IRP, whilst others stated that if this is a political decision, then the security of supply from the DRC and all transmission lines to South Africa would also need to be taken into account in the final IRP.

It was argued that the 2500MW allocated for hydro must be reviewed. It would be wise for government to allocate the investment in new generation capacity based on due diligence and project viability. The Democratic Republic of Congo Grand Inga Project has been “in-the-making” for many years and until now, nothing has come to fruition. What makes the DoE believe that this time it will materialise? It was suggested that the 2500MW be allocated to local embedded generation to unlock South Africa’s electricity supply industry.

2.1.3. Renewable Energy (RE)

Stakeholders welcomed the inclusion of renewables in the IRP, but are concerned about the fact that renewables are constrained – such as applying an annual build limit on RE, which is not applied in other technologies. On the other hand, other stakeholders argued that the Plan is biased towards renewables and their concern is that renewable energy is not baseload; it is intermittent. It was submitted that renewables are cheap, create more jobs, have positive environmental impacts, amongst other things.

However, it was also argued that, equally, there are environmental impacts associated with the production of electricity from renewables. Construction, maintenance and decommissioning of renewable energy plants has negative environmental impacts. Similarly, on price, it was submitted that it is not true that renewables are cheap. Reference was made to Germany, United Kingdom, and Australia in which the electricity price is increasing exponentially because of the incentives to deploy renewable energy systems. It was submitted that, in South Africa, consumers pay or subsidise the purchase of electricity from renewables.

Furthermore, stakeholders challenged the argument that renewables create more jobs. It was argued that jobs in the renewable energy industry are not sustainable and the way jobs are reported (i.e. job-years) is misleading and confusing.

2.1.4. Wind Energy Procurement Gap

Stakeholders are not supportive of the wind procurement process proposed in the IRP. According to the Plan, after the completion of the already-procured capacity, the draft suggests that there will be a minimum of a 3-year break in procurement until 2022, before the procurement relevant to capacity additions from 2026 onward can commence. A three-year procurement gap following so soon after the recent long delays in finalising the Round 4 projects is not supportive of the achievement of government's economic objectives of attracting R1 trillion of new investment and creating local industries that support the growth of employment.

During the impasse on the conclusion of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) Round 4 Power Purchase Agreements (PPAs) the manufacturing sector was significantly impacted. The two-year delay on the PPA conclusion resulted directly in the closure of one wind turbine tower manufacturing facility (which remains closed) and placed significant financial strain on the remaining facility. If the renewable energy manufacturing industry in South Africa collapses during the proposed procurement gap, prior investment will be lost, South Africa will fall further behind and it will be very difficult to regain investor confidence to re-establish local manufacturing when procurement is kick-started again.

Thus, it was proposed that the IRP update should be adjusted to smooth out and accelerate procurement of wind and PV energy allocations of at least 1GW per annum, between 2021 and 2030, so that the market risks associated with stop-start procurement are minimised.

2.1.5. Concentrated Solar Power

Concentrated Solar Power (CSP) is completely excluded; there is no allocation for CSP in the Draft IRP generation mix up to 2030. This seems to have been based on modelling assumptions that are outdated, do not reflect the current market reality, and do not acknowledge the dispatchability and operational flexibility of CSP power stations. Stakeholders argued that CSP provides both generation and storage and this may need to be modelled differently to take storage into account. Thus, it is unclear how the modelling for CSP was done and these details must be provided.

2.1.6. Embedded Generation

Stakeholders are of the view that the 200MW per annum allocated for embedded generation is not adequate. It is also understood that there is no technical or rational basis for the 200MW per annum allocation for embedded generation. Stakeholders were of the view that there is already a backlog at the National Energy Regulator of South Africa (NERSA) awaiting the finalisation of the regulations and rules for Small Scale Embedded Generation (SSEG), which will exhaust the entire allocation in the IRP 2018. It was proposed that, firstly, the allocation be increased to 500MW and ramp up this capacity over the next five years with a separate

percentage to Municipalities wishing to generate. Secondly, quantify the backlog at NERSA awaiting approval and deal with this separately. Deep penetration of embedded generation that is not accounted could lead to over building of other capacity. It was further proposed that work to capture accurate and current information is urgently undertaken to reduce uncertainty in the next IRP review in two years. In addition, current and pending applications requiring Ministerial consent for deviation from the current promulgated IRP must be expedited.

2.1.7. Energy Storage

It was submitted that, in the Draft 2016 IRP version, there was mention of a scenario that included storage; however, none of the proposed scenarios seem to be included in the IRP 2018 version. Stakeholders argued that they noted that up to 2030 there is no allocation for any additional pumped storage over and above the existing 2912 MW capacity in the country. Moreover, there is also no specific allocation for any other storage technologies and enquiries on the matter revealed that distributed energy storage capacity has been 'lumped in' with the 200 MW per year (2600 MW by 2030) allocation for embedded generation. Stakeholders made comments based on this assumption. The final policy adjusted IRP2018 must allocate specific quantities for energy storage within a set time limit and all these be factored into the promulgated 2018 IRP.

It was proposed that distributed energy storage should not be part of the embedded generation allocation as this is earmarked for renewable energy sources which, while intended for 'own use', still contributes to the total quantum of primary energy put into the system. Stakeholders were also of the opinion that the 200MW per annum allocation for embedded generation will be taken up rapidly, with the potential to 'crowd out' storage plants and the additional benefits they offer.

2.1.8. Nuclear Energy

Stakeholders welcomed the move by the Department of Energy to delay any decisions on further nuclear investments until 2030. Stakeholders were of the view that even beyond 2030, nuclear should not be considered in the energy mix because it is expensive, amongst other things. Other stakeholders on the other hand argued that nuclear is probably the world's only viable long-term bulk energy source. Even in the short term (20 years) to the medium term (50 years), nuclear is by far the safest, greenest, cleanest, most cost-effective, most environmentally friendly and most sustainable option. They further argued this does not mean that the IRP should have a pro-nuclear or any other bias. It should have no bias. But what it should have, and will inevitably be forced to have, is a balance that includes a significant role for nuclear.

Stakeholders noted that the Draft IRP 2018 recommends further detailed studies on well-established energy technologies such as coal and nuclear before implementing

these technologies. It is notable that in depth research, in particular on the socio-economic impact of nuclear programmes has been conducted, such as the “Economic Impact of the Koeberg Nuclear Power Station”, March 2017 by Eskom and the “The economic benefits of the nuclear build for the Eastern Cape” by Coega Development Corporation. The authors of the Draft IRP 2018 are seemingly unaware of these studies. There were concerns that the exclusion of nuclear in the energy mix will result in job losses in the nuclear industry, loss of nuclear skills, risk security of supply, amongst other things.

The Economic impact study of the Koeberg Nuclear Power Station revealed that every R1 of new investment in infrastructure development in Koeberg potentially contributes 70 cents to the Western Cape economy. In addition, it potentially generates another 50 cents to the rest of South Africa. These multiplier effects highlight the contribution that infrastructure development and capital expenditure makes to the economy, as well as the efficiency and productivity thereof.

2.1.9. Gas

The draft IRP 2018 proposes an addition of 8 100 MW of new gas supply, to be developed in 2026 (2 250MW); 2027 (1 200MW); 2028 (1 800MW); and 2029 (2 850MW), resulting in a total installed gas/diesel capacity (including existing 3 830MW of open cycle gas turbines (OCGT) that currently operate on diesel) of 11 930MW. This makes up 16% of the total installed capacity mix by 2030. A major concern related to the extensive proposed increase in gas installed capacity in the draft IRP 2018, is the proposed source of the gas – as this is not specified in the draft IRP 2018 - and the associated impacts of the intended additional gas capacity. Depending on the details, which the Department failed to provide, stakeholders are strongly opposed to fracking. There was also an acknowledgement that a greater focus on gas could require additional investment in infrastructure, which is extremely limited in South Africa. Stakeholders requested that government move the start date for adding gas to grid to an earlier date than 2026.

As disclosed in the Draft 2018 IRP, detailed studies and analysis of the impact of gas still has to be undertaken. Stakeholders were concerned that a huge allocation has been given for open cycle gas turbine (OCGT) without a proper cost benefit analysis and due diligence being conducted. It was proposed that the impact of gas in the generation mix be extensively analysed and quantified throughout the future electricity supply value chain, from both supply side and demand side points of view.

For a clearer policy direction on gas, stakeholders urged that the Department expedite the finalisation of the Gas Utilisation Master Plan (GUMP).

2.1.10. Fuel Cells

Mitochondria Energy Company (Pty) Ltd stated that it acknowledges and appreciates the effort of the recent IRP 2018 update. The update shows government’s commitment to the diversified supply of electricity in the country. However, the allocations made

for fuel cell systems in the latest update show that there was very little research done on them and the benefits or attributes of these technologies are not well known.

2.1.11. Technology Costing

Stakeholders were seriously concerned about how integrated planning is unfolding in South Africa. For instance, under normal circumstances a least cost option must be done on cost benefit analysis, but the IRP doesn't take that into account. For example, solar panels and wind turbines will continue to be imported and not locally produced. The Draft IRP 2018 attempts to provide a number of least-cost planning scenarios based on various growth paths and policy adjustments for South Africa. Generally, the plan fails to meet the least-cost planning objectives as it ignores all costs associated with socio economic consequences of various options as well as the transition costs. It does not judge all energy sources on the same merit. The Draft IRP 2018 does not compare costs between various technologies on an even playing field, opting to compare fully indexed power purchase agreement prices (for wind and solar PV) with calculated costs discounted over time. This needs to be corrected. IRP 2018 says it does not count the externality costs of carbon emissions because "the CO₂ emissions constraint imposed during the technical modelling indirectly imposes the costs to CO₂ from electricity generation". The Draft IRP2018 concentrates on low-cost matters but fails to include cost-benefit options.

Stakeholders recommended that the section on Risk Analysis be revised, as the socioeconomic impact of the proposed changes have not been sufficiently factored in. For example, what is the impact of decommissioning coal power stations? Similarly, with gas, and other technologies, impact studies must be conducted.

2.1.12. Demand Projections

According to the stakeholders, projections of electricity demand have consistently been substantially higher than actual sales. Figure 3 in the draft IRP illustrates very clearly that actual electricity sent out was much lower than in the IRP 2010. Despite this, the drafters of the IRP repeat the error. Given the current economic environment in South Africa (a main driver for demand), it seems likely that even the lower projection will be higher than actual. Actual demand should at very least be monitored annually, and the projections adjusted. The energy demand forecast in the draft IRP 2018 appears to be highly inflated. The draft IRP 2018 acknowledges that, while the IRP 2010 forecasted 3 percent annual growth in energy demand, demand actually shrunk by an average of 0.6 percent per year from 2010 through to 2016, leading to the actual demand in 2016 being 18 percent lower than forecasted. The South African Local Government Association (SALGA) was also of the view that the demand forecasts are unrealistic. Since 2007, the electricity supplied from the grid (Eskom), to municipalities has not been increasing (it has been flat at best).

On the contrary, another argument was put forward that DoE must also take cognisance of the fact that given the reality that government (the country) needs to achieve perpetual economic growth rate of more than 3.5 percent in order to make a serious

dent on the high unemployment levels, this scenario has to be modelled as part of option analysis. For instance, if government succeeds and attracts more-than-expected foreign direct investment and economic growth accelerate above 5 percent, will the energy sector be geared or ready to meet the related electricity demand in the next 5 years or more? It was also suggested that the draft IRP's use of a medium plant performance for Eskom was unrealistic and should be changed to reflect a lower plant performance, to reflect the current reality. The IRP should rather assume lower GDP forecast and the lower electricity demand in terms of the modelling, or at least include a scenario that shows this outcome.

2.1.13. A Call for a Balanced Approach

As stated above, stakeholders argued that the energy mix in the Draft IRP is biased towards renewable energy. It was argued that RE bias should be replaced with a balanced approach, in which coal and nuclear are the most substantial contributors. The plan does not compare like with like. It uses flawed comparisons, which are biased against nuclear, especially in terms of full cost of ownership. The revised IRP2018 must incorporate all relevant technologies in the needed energy mix and must present a balanced view to secure realistic energy security of supply infused with specific goals of the NDP2030, which includes industrialisation, technology transfer, job creation and socio-economic development, amongst others.

2.1.14. Just Energy Transition

There was 'almost' a consensus that climate change is happening and the effects thereof are evident. It is clear that we need to transition but demand is for that transition to be just. Just Energy Transition (JET) means a low carbon development path. According to the stakeholders, JET must take into account the need to both save and create thousands of jobs. It must take into account the massive impact upon communities built around and dependent upon coal mines and energy plants. It is not enough to simply create jobs at solar farms in the Northern Cape, which are greatly supported, but not to have a plan to reskill and absorb the thousands of coal and energy workers in Mpumalanga and Limpopo. The IRP is deafeningly silent on this crisis. It does admit that it has not studied the impact of the transition upon workers, their families and communities. It is silent on the need to plan for this transition. The IRP is silent on the need to find cleaner uses for coal and to transition the coal sector. Moving away from coal should be done in a manner and time-frame that protects the competitiveness of the economy.

2.1.15. Policy and Process

Stakeholders are surprised that the DoE says it is not necessary for the IRP and the Integrated Energy Plan (IEP) to be developed together in a systematic manner. This goes to the heart of the policy and management chaos bedeviling government across all departments. Stakeholders were shocked that the IRP's authors admit in the IRP that its post 2030 IRP needs further studies and analysis and that not all of its impacts have been taken into account. Stakeholders argued that the shortcomings of the IRP are so significant that they could have serious implications for the developmental agenda of the country and efforts to improve socio-economic

conditions. According to the stakeholders, the IRP is also not forward looking and not aligned to the aspirations of the NDP, instead it displays a lack of ambition by relying on past trends during a period when the country has been in an economic depression. It was recommended that the Department provide a Policy position, post 2030, so that it does not come as a surprise.

2.1.16. Public Consultation Process

Stakeholders noted with concern that there have been no public consultation meetings hosted by DoE in relation to the draft IRP 2018. This is highly problematic for the rights to a fair process and of access to information; particularly as many South Africans do not have access to the resources and expertise required to access, consider and comment on the content and implications of the draft IRP 2018 - despite this being a crucial planning document, with significant implications for all South Africans, particularly communities living in the areas where South Africa's electricity is generated and the resources for that electricity is mined and obtained.

Members of the public complained that the public participation process would be more effective if the public hearings were held closer to the communities affected by high levels of carbon emissions as a result of coal mining. They were opposed to the inclusion of more coal-fired powered stations in the IRP because of the harmful effects coal has on people's health and livelihoods. There was a concern that the needs of ordinary citizens were not being taken into consideration. The DoE was criticised for the technical language of the Draft IRP, with the public calling for a more accessible document.

2.1.17. Impact on Eskom

Stakeholders indicated that the IRP is surprisingly silent on the massive crisis facing Eskom. Eskom is fighting for its survival. Yet the IRP does not mention a word about this. Eskom is in the worse condition it has ever been in. Yet the IRP offers no proposals on how to rescue it. It is silent on how expenditure exceeded budgets by billions of rands at Medupi and Kusile. Eskom has faced dwindling demand. The IRP does not present a sustainable business model to turn around what is now a sinking ship. Perhaps the most glaring aspect of the IRP is the lack of a business model that will save Eskom from its current downward trajectory. It does not say how it will afford to pay for Independent Power Producers at their current set prices that are far from affordable for Eskom. The government and the IPPs must find other ways of collecting revenue than using Eskom. It cannot be correct and be allowed to continue that Eskom will buy electricity at R2.14 and sell it at R0.98. This arrangement is not sustainable; it will bankrupt Eskom. There was also a call on IPPs to stand on their own instead of relying on an already strained Eskom's balance sheet and RSA's fiscus.

It was argued that Eskom's role in the electricity generation and supply should be redefined given the decommissioning of its plants. This implies that once 35GW of coal-generated electricity is taken off the grid as indicated in the Draft 2018 IRP, coal supply will only be from Medupi and Kusile power stations augmented by the

836MW from the coal IPPs. This means that Eskom's current business model will not be sustainable.

2.1.18. Department of Energy

The Department of Energy was invited to participate in the last round of public hearings – the roundtable discussion. The aim was for the Department to respond to some of the issues the stakeholders had raised. Below is a summary of some of the areas covered by the Department.

- Current electricity demand [in 2018] was about the same as in 2007 whilst expectations had been that the demand would be about 30% higher.
- Some key changes that influenced the Department's work on the 2018 draft IRP versus the one for 2010, were lower GDP, lower electricity demand and decreased electricity intensity. In addition, energy efficiency had increased.
- Electricity landscape had undergone significant change since the 2010 IRP - costs had increased and renewables had come to the fore. DoE had to ensure the changes and technology advances were incorporated in the new electricity plans for the country. Technology was rapidly changing and because of this, the IRP may require more frequent updates. The new IRP has to be flexible, adjustable and the cost to consumer has to be as low as possible.
- Actual demand projections were perhaps not as important as having an approach that was flexible enough to enable a quick response to changes. Incremental power generation increase options were therefore a better approach than to lock in large blocks of power generation over time.
- Nuclear would only be economical with large procurements of around 6000MW and that the scale was therefore not appropriate for South Africa. Additionally, nuclear has been included in the scenarios; it was modelled as a fleet, in the form of two units, at 1500MW per unit. According to the Department, in a short space of time, nuclear becomes the most expensive technology.
- The Department stated that the 200MW of embedded generation is an arbitrary number, there is no science around it.

3. FINDINGS AND OBSERVATIONS

- 3.1. The Portfolio Committee on Energy (PCE) was pleased by the wealth of information and insights shared by stakeholders during the public hearings.
- 3.2. The PCE recognises that the stakeholders that made written submissions and those that appeared before it represents the interests of particular interest groups and constituencies. The Committee fully respects the rights of these interest groups and constituencies.
- 3.3. However, it is incumbent on the PCE to take into account the interests of all South Africans and to always act in the best interest of the Republic of South Africa. In this regard, the PCE's approach to the public hearings has been to take into account the validity of the arguments presented to it rather than just counting the number of submissions that are for or against.
- 3.4. In the PCE's opinion, the fundamental approach and basis of any government policy should be to respond to and help tackle the triple challenge of unemployment, poverty and inequality.

- 3.5. It is the view of the PCE that the IRP or any other energy policy should be consistent with the country's overarching vision, the National Development Plan (NDP) and the current government policy of a comprehensive energy mix.
- 3.6. South Africa remains fully committed to the Paris Agreement on Climate Change, and to pursuing a path of a future decarbonised economy. The Paris Agreement was assented to by the National Council of Provinces on 27 October 2016; and the National Assembly on 1 November 2016⁶.
- 3.7. The National Assembly ratified the Grand Inga Treaty on 13 November 2014⁷ (it was considered by the National Council of Provinces on 20 November 2014), which amongst others commits South Africa to procure 2500MW from phase one of the project⁸.
- 3.8. It is important to note that the observations, findings and recommendations by the Committee generally resonate with Government policies, in particular, the National Development Plan that seeks to advance the interests of the country as a whole.
- 3.9. Following careful consideration and having read and heard the views of the various stakeholders on the Draft IRP2018, the Committee observed and made the following specific findings:
- **Draft IRP 2018** – Overall, stakeholders welcome the publication of the draft IRP 2018 as it helps to restore public confidence and ensures the necessary policy certainty. The draft IRP 2018 is recognised as a marked improvement from the earlier drafts.
 - **On Coal** – South Africa still has approximately 200 years or more than 60 billion tons of coal in its reserves. The use of this massive natural endowment cannot be abandoned overnight and therefore South Africa should continue to pursue new technologies for clean coal. The call that the IRP remove the 1 000 MW of new coal, for financial and environmental reasons, and also remove Kusile Units 5 and 6 cannot be supported. The call for a Just Energy Transition is supported by the PCE. Whilst the inclusion of the two new coal power stations has negative environmental impact, it also has positive impact in terms of job creation and the protection of jobs in the coal sector. Thus, if the Department includes the two coal power stations, it must assess environmental impacts associated with the decision.
 - **Impact of Technology** - Given the uncertainty in future demand, technologies and innovation, the IRP should be flexible enough to respond to these uncertainties. The Department should not be rigid in its final assumptions due to rapid technological changes and the period within which the IRP is updated be reviewed.
 - **On Nuclear** – the PCE has noted the submission by the DoE that nuclear was included in the scenarios; it was modelled as a fleet, in the form of two units, at 1500MW per unit and in a short space of time of up to 2030, nuclear becomes the most expensive technology. This was a matter of scalability, modularity and electricity demand - there was no pre-determined decision to exclude nuclear as such. There is no persuasive argument to counter the

⁶ Department of Environmental Affairs, (2016)

⁷ Parliament RSA, (2014)

⁸ Department of Energy, (2016)

proposition that nuclear technology remains the cleanest, safest and in the long term the cheapest technology.

- **On Renewable Energy** – There is a general acceptance of the key role to be played by renewable energy sources in the country's energy mix. What appears to be a matter of debate is the scale and pace at which renewable energy sources are being introduced into the South African energy sector. There are concerns regarding local content and local ownership in the renewable energy sector. Concerns were raised with regard to the wind energy procurement gap in the current draft IRP 2018.
- **On Embedded Generation** – the IRP underestimated the amount of embedded electricity generation there already was, there was no rational basis for the IRP allocating only 200MW a year for embedded electricity generation and it is something that will be looked at in the final plan.
- **On Grand Inga** - Stakeholders were generally against the inclusion of the Grand Inga Hydro Project in the IRP because of a high degree of uncertainty surrounding the project. Whilst South Africa remains committed to the Treaty entered into between the governments of South Africa and the Democratic Republic of the Congo, the feasibility of Grand Inga supplying power to South Africa by 2030 should be closely examined before its inclusion in the IRP 2018.
- **On Socio-economic Impact Assessment** - An assessment of the socio-economic impacts of the proposals in the IRP is wholly insufficient and therefore the final IRP needs to re-look the section on risk analysis especially the socio-economic impact of the proposals on the South African population.
- **On Demand Projections** – The draft IRP 2018 acknowledges that while the IRP 2010 forecasted a 3 percent annual growth in energy demand, demand actually shrunk by an average of 0.6 percent per year from 2010 through to 2016. The actual demand for the period was 18 percent lower than forecasted. The demand forecast in the draft IRP 2018 therefore appears highly inflated.
- **On Eskom** - It is evident that the massive decommissioning and the reduction of coal-powered generation in the IRP will affect Eskom's business model and its future sustainability. The exclusion of Eskom from the renewable energy sector was a serious error which will have major negative consequences on its future.

4. RECOMMENDATIONS

Having conducted public hearings on the draft Integrated Resource Plan 2018, the Portfolio Committee on Energy recommends that the House supports the report and further recommends that the Minister of Energy:

- 4.1. Expedite the finalisation of the IRP 2018 within the current financial year to restore public confidence and promote policy certainty in the energy sector.
- 4.2. To review the IRP every two years. In this regard, an immediate study should be conducted to better inform the review of the IRP.
- 4.3. To seriously consider the concerns raised on demand forecasts, assumptions used, and the robustness of the modelling.

- 4.4. Given the uncertainty in future demand, technologies and innovation, the Committee recommends that any IRP should be flexible enough to respond to these uncertainties, including exploring the feasibility of new and agile approaches to energy provision in this rapidly changing energy environment.
- 4.5. Directs the Department to conduct a thorough socio-economic impact assessment of various energy mix scenarios in preparation for the review of the IRP by 2020.
- 4.6. Hold a national dialogue on the Just Energy Transition during the current financial year. This should particularly focus on communities that are going to be affected by the transition from the use of fossil fuels.
- 4.7. Ensure that externalities/environmental impacts of the proposed energy mix are considered in a meaningful way.
- 4.8. Expedite the finalisation of the Integrated Energy Plan (IEP) and the Gas Utilisation Master Plan (GUMP).
- 4.9. Include local government in the IRP planning process, including the implementation thereof.
- 4.10. Ensure that the IRP 2018 and all subsequent IRPs focus more on developing local industries than the reliance on imported technologies.
- 4.11. To consider alternatives to replace the 2500MW in the event that the Grand Inga project does not come on line in time.
- 4.12. Increase the allocation of embedded generation from the current 200MW in the draft IRP to at least 500MW.
- 4.13. That the IRP should make it explicit that both coal and nuclear will remain important elements of South Africa's energy mix. In the case of coal, new clean coal technologies should be pursued.
- 4.14. Minister of energy convenes an energy summit to comprehensively discuss and map out the energy future for South Africa.
- 4.15. To ensure that the public consultation process is transparent and accessible to the poor and marginalized.

5. CONCLUSION

The Committee wishes to thank those interested individuals and stakeholders who have responded to the call for submission on both written and oral submissions. The Portfolio Committee on Energy will continue to fulfil its Constitutional mandate. It is guided by the Parliamentary rules in conducting the oversight on the functioning of the Department of Energy. This is done to ensure proper and effective functioning and compliance with the legislation and policy requirements.

Report to be considered.
