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Comment on Eskom's Revenue Application Multi-Year Price Determination – 2019/20 to 2021/22 (MYPD 4)

1. Introduction

This comment on Eskom's MYPD 4 revenue application is submitted on behalf of the people of South Africa. The Free Market Foundation (FMF) is an independent non-profit public benefit organisation founded in 1975 to promote and foster an open society, the rule of law, personal liberty, and economic and press freedom as fundamental components of its advocacy of human rights and democracy based on classical liberal principles.

In carrying out its mandate the FMF is duty bound to put forward policy proposals that have the potential to bring about the greatest long term benefits for South Africa's people. Regrettably, the FMF is also compelled to warn policy makers when policies which they propose to implement, or have been requested to implement, have the potential to inflict harm on the economy and the country's people.

2. Resolving South Africa's electricity crisis

That the country has not suffered rolling blackouts in the past year conceals more than it reveals. Major harm has been suffered through manufacturing and mining investment not being carried out, the stalling of real estate development, the reduction in GDP and FDI, and jobs lost due to the withholding of electricity supply from developers. Keeping the lights on has come at a considerable price. There is also the question of inadequate maintenance of power stations as well as transmission and distribution lines.

Solving the electricity crisis and avoiding irreparable harm to the economy requires a change in some of the assumptions contained in Eskom's MYPD 4 revenue application. This comment provides alternatives to implicit assumptions contained in the document.

2.1 Independent Power Producers (IPPs) should provide all South Africa's future additional electricity generating capacity beyond Medupi and Kusile

Eskom should not be required to provide all of South Africa's electricity needs despite the implicit assumption contained in the MYPD 3 application that Eskom will remain the sole supplier of this country's electricity generating capacity. Even though the application ostensibly covers Eskom's revenue requirements only to the completion of the Kusile generating plant, the size of the application indicates that Eskom is preparing for the construction of new generating capacity beyond Kusile. There are powerful economic reasons why the continuation of the current vertical monopoly structure of the utility should be discontinued:

- Bringing in IPPs to provide the additional generation capacity that South Africa needs, will relieve Eskom of an enormous and unnecessary burden.
- IPPs could be introduced on a basis that they finance, build and operate the new generating plants and thus relieve Eskom, government, taxpayers and consumers of the financial liability attached to the provision of new generating capacity. The nature of the generation plants should be left to the independent electricity suppliers subject to their meeting all safety requirements.
- The first new plants are likely to be built by those companies that wish to wheel across the grid to contracted customers whose current electricity requirements are not being met or require top-ups for new initiatives, to provide electricity for new developments of various kinds, or to provide back-up electricity to Eskom during peak times. Whatever the reason for the erection of new generating plants, their existence will reduce the pressure on everyone concerned.
- It would release Eskom to give all of its attention to completing Medupi and Kusile as expeditiously as possible and refurbishing and maintaining its existing generating plants.

2.2 Cutting back on Eskom’s revenue requirement

If Eskom is relieved of the responsibility for providing further generation capacity beyond the completion of Kusile, its MYPD 4 revenue requirements could be cut back substantially. The depreciated replacement cost method of calculating depreciation, predicated on the assumption that Eskom will be responsible for the building of all future generating capacity can be cut back by estimated costs in respect of the item described as “Return” in the calculation of the revenue requirement (an amount which is also calculated on the replacement value of assets). The deductible amount therefore appears to be in the order of a R200-billion reduction in charges that cannot be justified in future years under the assumption that Eskom will be relieved of responsibility for all new generation capacity.

Engage international experts to interrogate the MYPD 4 figures

The above are rough estimates. Nersa should engage international experts to check the assumptions and the figures contained in the MYPD 4 Revenue requirements. The MYPD 4 application will culminate in what can be described as a compact between Eskom and the country’s people. In the same way that companies carry out due diligence tests utilising outside experts such as merchant bankers, Nersa should, on behalf of the people of South Africa, engage experts to check the figures in this application. If independent experts are happy with the valuations placed on assets, the assumptions made in compiling the revenue, and the figures it contains, the nation will be a great deal happier than if such a check is not conducted. It would not be fair to either Nersa or Eskom if a thorough due diligence verification of the figures is not carried out.

Establishing an asset replacement fund

In the event that this application is approved, including the depreciation and returns calculated on the huge asset revaluation figures, Nersa must ensure that the depreciation charge is reserved specifically for the replacement of assets as stated and is not used to cover current expenditure or to pay costs related to new-build projects such as Medupi and Kusile. In order to ensure that the funds are used for their intended purpose, which is the replacement of plant that has reached the end of its useful life, Eskom should be required to establish an asset replacement fund (similar to a sinking fund) to ensure that the funds will be available when needed. A sinking fund is usually used for the purpose of paying off debt but in this case the concept will be utilised to ensure that the funds raised from electricity consumers specifically for the purpose of asset replacement is used for that purpose. The funds should be invested and the Board of Eskom should ensure that the money is not used for any other purpose.

2.3 Making the transmission grid an independent SOE

Looking at the way electricity supply systems in other countries are structured it becomes clear that the high voltage transmission systems need to be independently owned and operated, whether as government utilities or as private entities. In all cases they are closely regulated to ensure that their service charges do not become too onerous. In the UK, the grid is owned and operated by the National Grid Company and regulated by Ofgem.

The most important reason for separating the ownership and operation of the grid from generating activities is to ensure that there is equal treatment for all generating companies that utilise the grid, a situation that cannot realistically be achieved when the grid and generation assets are owned by the same entity. Another important reason for separating ownership and operation of the grid from electricity generation is that the grid management is simultaneously freed up to maintain, extend and operate the grid.

Concerns have been expressed that if the ownership of the grid is separated from the ownership of the generating plants it will affect the guarantees provided to Eskom by the Treasury or the value of the assets as security for loans. The government will continue to own the two separated entities so the total net asset position will remain unchanged. Creditworthiness remains intact. In fact, if no more new generating capacity is to be provided by Eskom, the pressure on the SOE will reduce considerably and it will be able to plan in good time for the replacement of generating capacity that comes to the end of its useful life. Alternatively, the transmission grid could be sold to a company such as the National Grid Company and the funds utilised to pay down some of Eskom's debt.

2.4 Developing a market for electricity

At this stage in South Africa's development, it is crucial that legislation and regulations should accommodate the development of an active electricity market. It is the only way that true efficiency in the utilisation of available electricity can be brought about. The activities of wholesalers and direct forward selling and purchasing of electricity on an active market improves capacity utilisation considerably and helps to balance demand and supply on the system. A further step in refining the electricity system will be the introduction of smart grids. Installation of smart grid technology might be several years away but the changes described in this submission would be a necessary precursor to the establishment of fully modern generation, transmission and distribution of electricity in the country.

2.5 Electricity distribution

This submission deals with Eskom's MYPD 4 application but it would be incomplete without some mention of the detrimental effects of the poor maintenance of the distribution systems, and the excessive electricity charges levied by local authorities in respect of the networks under their control. There is an apparent failure to recognise the harm that excessive electricity prices have on economic development and the growth of the economy. The high price escalation contained in the Eskom price application, combined with the actions of the local authorities, threaten devastating consequences for the economy.

3. Implementing government's own 1998 White Paper

Eskom cannot be held responsible for the electricity crisis. The utility can be blamed if it is true as alleged that it is not efficiently handling the building of the Medupi and Kusile power stations, from conception to planning and supervision, and what portends to be huge time and cost over-runs. However, Eskom warned government in good time that without additional generation capacity there would be electricity shortages.

A Cabinet-approved 1998 government White Paper provided a sensible policy approach that, if followed, would have provided adequate and timely additional generation capacity and the modernisation of the

structure of electricity generation, transmission and distribution, which would have improved efficiency. Unfortunately, its recommendations, and particularly the recommendation that private power producers should produce a substantial proportion of the country's electricity generation requirements, were not implemented. The responsibility lies with government, Parliament and the regulators to put in place legislation and regulations that will lead to the development of an electricity supply system that is competitive, efficient, reliable, and serves the long-term interests of all consumers.

While Eskom cannot be held responsible for the current crisis, it is unwise to burden the utility with the responsibility of providing all electricity required by South Africa's consumers into the distant future. There are several reasons why this would be unwise:

- In line with information now available from other countries that have instituted reforms, especially the evidence that vertically-integrated electricity monopolies are not capable of providing the lowest-cost, most efficient, electricity delivery, the following elements of the vision contained in the White Paper should be used as a guide in making decisions about the future of the industry –
 - Giving customers the right to choose their electricity supplier.
 - Introducing competition into the industry, especially the generation sector.
 - Permitting open, non-discriminatory access to the transmission system.
 - Encouraging private sector participation in the industry.
- Although the opportunity to create a robust and competitive electricity structure was not utilised in the past, the immediate implementation of the abovementioned elements of the 1998 White Paper vision could assist in rapidly addressing the current dire electricity shortage and ensure that a similar shortage does not develop again in the future.
- The Ignalina Nuclear Power Plant in Lithuania observed on its website that: 'Until the late 1980s, the structure of the electric sector in most countries was based on the idea that the most efficient way to provide electricity was to have a national electricity company which was a natural monopoly and so needed to be state owned to protect consumers. However, now experience shows it is possible to divide electricity companies into those parts which are still natural monopolies (for example, high voltage and low voltage networks) and those parts where it is possible to have competition (for example, power stations) and to create a market for electricity. This experience is now being used all over the world to create cheaper electricity by means of competition among power stations and among companies that are in the business of purchasing and reselling electricity. Western Europe has shown that prices to consumers can fall by up to 20% when the market is fully operational.'

According to the website, a May 2000 European Commission report revealed marked decreases in the price of electricity from 1996 to 1999 in Finland -19.6%, Sweden - 17.6%, and Germany - 9.6%, all countries with 100% market opening. Spain - 16.2%, Portugal - 14.0% and France - 12.7% also experienced significant price reductions with a reduced level of market opening (between 30% and 45%). At the time of the report Lithuania was in the process of meeting the conditions for its 1 May 2004 entry into the EU, one of the conditions being the opening of its electricity market to alternative suppliers, a condition that applies to all EU members. Critics of this observation may suggest that this is an old example and no longer applicable. The response would be that you can only have one market opening and that the market opening that occurred in the EU at that time remains an example of what can be achieved with implementing such a policy option.

4. Consumer-determined prices versus cost reflective prices

In the application, a great deal is made of a move toward "cost-reflective" prices. This has added a substantial amount to the total depreciation charge since inception for a "return" on the value added to the company's assets. The notion of cost-reflective prices can only apply to administered prices and never a price that is the result of competition for the business of consumers.

In an electricity market in which open competition prevails, prices are constantly changing in response to supply and demand. Prices play a key role in improving the efficiency of the market by changing the behaviour of consumers and suppliers of electricity. When prices are high, consumers attempt to use less of the product and, when they are low, consumers will adjust their usage to benefit from the lower prices. Competing suppliers, alerted by high prices, will vie with each other to supply a shortage in the market by building new generating capacity.

Because of the tendency towards self-balancing of supply and demand in an open electricity market, peaks and troughs are automatically reduced and no regulatory measures are necessary to attempt to bring this about. In fact, any attempt to try and “improve” on prices resulting from active trading in an open market in which there are no barriers to entry will inevitably reduce the efficient functioning of the market.

The truth of the matter is that price-setting by a regulator will inevitably lead to prices that are either too high or too low, given the dynamics of the economy in which the process occurs, with inevitable unintended consequences. We are told that electricity prices in the past were set too low. Together with the excess capacity that previously existed, one of the unintended consequences was the contract entered into with BHP Billiton. It is inconceivable that a private electricity generating company in an open and competitive market would have entered into a contract with BHP Billiton on similar terms.

Based on the claim that the average price of electricity was uneconomically low, Eskom was able to persuade the regulator to increase the average administered electricity price from 22.10 cents per kilowatt hour (c/kWh) to 27.58 c/kWh during 2009/10, an increase of 24.80%. If a private company such as a steel producer had attempted to increase prices by such an exorbitant amount it would have been charged with price gouging, hauled before the Competition Commission and had a large fine imposed on it. This is not to suggest that a private firm should be prohibited from setting its own prices in circumstances where there are no barriers to entry. Increases in administered prices of that magnitude are, however, outrageous, especially when the inflation rate for the year was 6.16% and potential competitors are prevented or prohibited from entering the market.

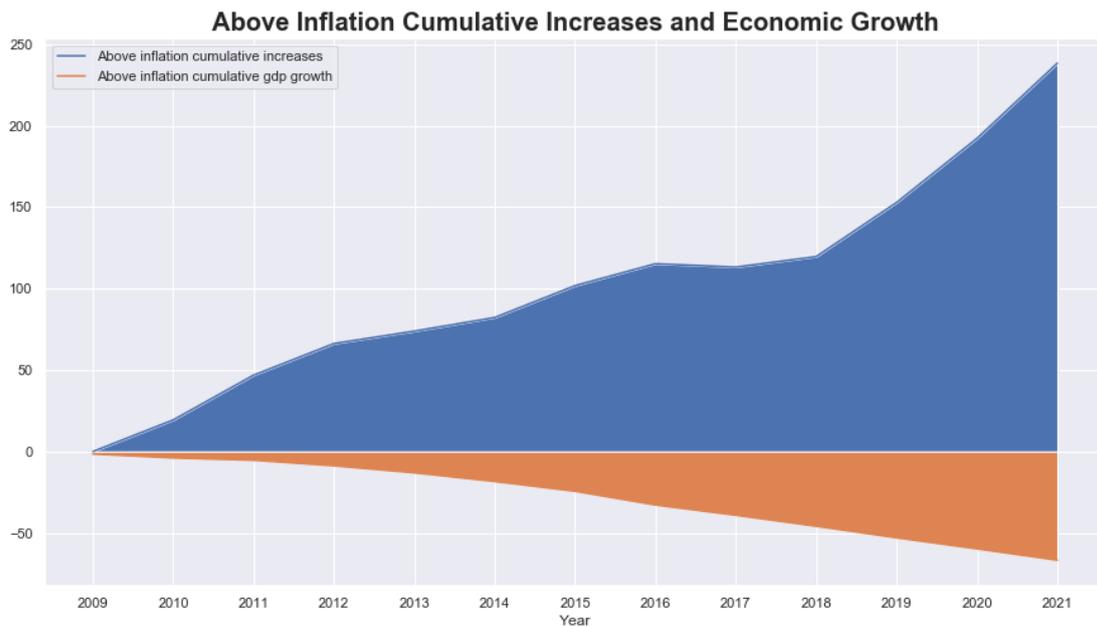
Nersa went on to approve price increases of 24.8%, 25.8% and 25.9% (later reduced to 16%) for the three years ending on 31 March 2013. The cumulative effect of the increases upon increases resulted in a total increase of 96.70% in the four years commencing on 1 April 2009 compared to cumulative inflation increases over the same period of 22.82%. The electricity price increases were therefore 73.88% above inflation for the four-year period. Despite these massive increases, the SOE is applying for a further three-year series of above-inflation increases that would take the above-inflation increases in the average prices charged by Eskom to 238.27% over the 12 years from 1 April 2009 to 31 March 2021. Stated differently, the price will have multiplied almost three times in 12 years. By comparison, the price of electricity in the UK has doubled over the past twenty years, most of that increase occurring in the last eight years.

Eskom prices and inflation – 1 March 2009 to 31 March 2018

Period 1 April to 31 March	Average price per kWh in cents	Nominal annual % increase	Cumulative % increase on 2009 price	Annual inflation rate	Cumulative inflation rate	Above-inflation % increases
31/03/2009	22.10	-	100.00		100.00	-
2010 – actual	27.58	24.80	124.80	5.40	105.40	19.40
2011 – actual	34.70	25.80	157.01	4.50	110.14	46.87
2012 – actual	40.25	16.00	182.13	5.20	115.87	66.26
2013 – actual	43.47	8.00	196.70	6.00	122.82	73.88
2014 – actual	46.95	8.00	212.44	6.00	130.19	82.25
2015 – actual	52.91	12.69	239.41	5.70	137.61	101.80
2016 – actual	57.88	9.40	261.90	6.59	146.68	115.22
2017 – actual	59.15	2.20	267.65	5.30	154.46	113.19
2018 – actual	62.24	5.23	281.63	4.90 (treasury)	162.02	119.61
2019 - mypd4	71.58	15.00	323.89	5.60 (treasury)	171.09	152.80
2020 - mypd4	82.32	15.00	372.47	5.40 (treasury)	180.34	192.13
2021 - mypd4	94.67	15.00	428.34	5.40 (treasury)	190.07	238.27

Comparing Inflation and Electricity Increases





As can be seen from the above figures, not only have electricity prices increased at above inflation, comparing the above-inflation cumulative gdp growth to the above-inflation cumulative price increases shows that real economic growth has been decreasing and the gap between electricity price growth and economic decline is widening. This will be exacerbated if MYPD 4 is approved, this can also be seen from the figure.

Members of Nersa must recognise that there is something fundamentally wrong with the entire structure of the electricity system in South Africa when electricity prices are subject to such large annual increases over a protracted period. Approving massive price hikes for Eskom, which have devastating implications for the economy, including for the poorest people in the country, will not solve the fundamental problem. It is essential that the system be reformed.

4.1 Administered prices reveal a lack of competition

The fact that we have administered electricity prices in South Africa immediately reveals to us that there is not open competition in the generation, transmission and distribution of electricity. Unfortunately, administered prices also reveal to us that it is impossible for the price administrators to set prices that will perform the function freely formed prices in an open and competitive market do, which is to tell investors and consumers where shortages or surpluses of supply of products and services exist.

In the case of electricity, if there had been an open and competitive market functioning in the country, excessive generating capacity would not have been built in the 1980s. If there had been, the cost of the mistake would not have been borne by electricity consumers but by the companies owning the generating plants. If an open and competitive electricity market had been established in the 1990s, South Africa would not currently be experiencing a shortage of electricity.

Electrical supply companies, in anticipation of the additional electricity that was clearly going to be needed in the country, would have built the necessary generating plants and they would now be operating and supplying electricity to everyone who needs it. In an open market for electricity, the additional generating capacity is added piecemeal and not by the decree of a central controller. Companies that are investing their shareholders' money are constantly seeking opportunities for profitable investment and, in

the electricity field, have long time horizons. They invest according to their perceptions of what will be needed in the future and take calculated risks based on their projections.

The root of the problem is that we do not have an open and competitive market in electricity in South Africa. The existence of administered prices, which Nersa has the unenviable and economically impossible task of setting at a “correct” level, is merely a symptom of the more serious underlying problem – the vertical monopoly that previous governments inflicted on the country, that, with the best will in the world, is incapable of balancing, on a continuous basis, the supply of electricity with demand. Eskom cannot access all the information that would be available in a fully functioning electricity market, or carry out all the functions that would otherwise be performed by the participants in such a market.

4.2 The notion of “cost-reflective” prices

“Cost-reflective prices” are indicative of some form of monopoly and prices that are subject to direct government control. For instance, the UK high voltage grid is owned by National Grid, a private company. As the grid is a monopoly, the prices charged by National Grid are set by the regulator, Ofgem. National Grid, inevitably, will attempt to persuade the regulator to approve higher than inflation price increases, by asking that prices be cost-reflective and that depreciation and a return on investment should be based on the replacement value of assets. Whether it is National Grid or Eskom that is subject to regulatory price-setting, the incentives of the applicant company will be to request the highest possible price increases.

In the determination of the replacement values of assets, there are many subjective decisions to be made. For example, in replacing the older installed capacity, the same technology will not be used to produce the same number of megawatts. More modern superior technology will be used. Basing the valuation on installed capacity alone, without taking improved efficiency into account, would lead to over-valuation of the current generation plants for purposes of establishing the depreciation and return on assets figures for inclusion in cost-reflective prices. While this submission contends that the “cost-reflective” system of price calculation is invalid, if it is to be used notwithstanding, it is then at least essential that the regulator obtains reliable independent verification of the values placed on the assets in view of the huge difference the values have on the price calculations.

While all the calculations involved in arriving at a “cost-reflective” result might look extremely impressive, the final result lacks validity. The problem is that if a company operating in a fiercely competitive market were to calculate what it considered to be cost-reflective prices, which turned out to be 50% higher than the prices charged by its competitors for equivalent services, it would be unlikely to do any business. The method of calculation can only be used where the hapless consumer has no alternative choice.

4.3 Consumer-determined prices

Although sellers of goods and services might set the prices they wish to receive for their goods or services, it is purchasers (consumers) that have, or should have, the final say in the matter. Sellers whose prices are considered to be too high will be compelled to reduce their prices to the point where they find buyers. Government-owned monopolies do not suffer the same constraints regarding excessive prices. The monopolies are kept intact through legislation or regulations either prohibiting or limiting competition with them. Consumers either pay the designated price or go without.

Prices determined by continuous interactions between consumers, producers and suppliers in open competitive markets bring about better outcomes for consumers and a better allocation of resources than can be achieved by official planners deliberately attempting to improve the lot of consumers. Planners do not have the necessary

information to enable them to improve on the outcomes obtained by open market interactions. The reason is straightforward – the information is contained in the minds of a great many people and is therefore not accessible to the planners. The wishes of consumers are revealed only in their actions in purchasing or refraining from purchasing goods and services.

Overcoming the problem of lack of feedback from electricity purchasers and ensuring an adequate supply of electricity over the longer term requires the immediate creation of a market for electricity in which demand can dictate supply and supply does not dictate usage. The survival of the economy is at stake.

5. Power shortages and the economy

After more than three years of increases totalling 148% above inflation, provided to Eskom with the injunction that the SOE must “keep the lights on”, the country remains in a precarious electricity-supply position. Various negative actions are being taken to reduce the demand for electricity:

- Industrial development is curtailed when industrial companies cannot obtain assurances regarding their required electricity supply.
- Property development is stalled when developers cannot obtain local authority approval to commence building until they have electricity supply certainty.

The cost to the economy is far greater than the amount paid by Eskom for integrated demand management. There is still not a comprehensive co-generation programme designed to extract every bit of available electricity in order to reduce the shortfall. In fact, some potential suppliers of electricity into the grid complain of being rebuffed.

In Mauritius, a substantial percentage of electricity is produced from bagasse from the sugar industry. A 1999 Mauritius Sugar Industry Research Institute study estimated at the time that South Africa’s sugar producers could have produced 2,500 GWh of electricity using existing plant and 5,900 GWh using new technology. The CEO of sugar-producing company TSB, confirmed in a statement published in Green Business Guide on 12 November 2012 that the South African sugar companies could feed at least 1,000 MW of electricity into the grid, especially in the winter months when there is an increased demand for electricity. He said, “The industry has for the past three years tried fruitlessly to convince the government of the potential to help the country get extra electricity from its operations and alleviate the challenges Eskom faces as the sole generator and supplier of electricity to the rest of the country.” There can be no doubt that the sugar industry would provide a profitable replacement for electricity currently produced by Eskom’s and the Department of Energy’s open cycle gas turbines, which cost ten times more than coal-fired generation plants to produce the same amount of electricity.

Instead of integrated demand management, it would appear that what South Africa needs is a Comprehensive Co-generation Programme (CCP), which seeks to utilise all the co-generating capacity that is available in the country. Independent evaluators could be appointed to check CCP proposals from applicants, including their economic viability (measured, not against Eskom’s lowest or marginal generation cost but against the extent to which CCP can reduce Eskom’s highest cost electricity generation, such as the cost of open cycle gas turbines, and in the case of the sugar industry, all other forms of renewables), their safety from the point of view of maintaining the integrity of the grid, and whatever other matters need to be covered in such an investigation. Aggregation of co-generation possibilities has the potential to make a significant contribution to the total available electricity over the longer term. The quantity of potential co-generated electricity will rise in tandem with price increases.

6. The role of Eskom

In 1994, the ANC government inherited Eskom, a vertically-integrated monopoly responsible for the generation and transmission of most of the electricity sold in South Africa, and for about half of its distribution, the rest being carried out by local authorities, which purchase electricity from Eskom and sell it on to consumers. Developments in the energy field over the past thirty years have shown conclusively that South Africa's electricity generation and supply structure needs to change.

Directive 2009/72/EC of the European Parliament and of the Council dated 13 July 2009 is instructive. It suggested that a nation should not be dependent solely on its own electricity generation plants and transmission networks even if they consist of competing entities, but should establish cross-border connections with suppliers in other countries if they wish to ensure competitive prices and establish security of supply. Cross-border competition, in future, between electricity suppliers based in various Sub-Sahara African countries would benefit consumers in all of them.

Paragraph 9 of the Directive stated that, 'Without effective separation of networks from activities of generation and supply (effective unbundling), there is an inherent risk of discrimination not only in the operation of the network but also in the incentives for vertically integrated undertakings to invest adequately in their networks.' The separation of the high-voltage transmission grid from Eskom would go some way towards meeting the requirements expected of EU members for avoiding the risk of discrimination described in the Directive.

7. Conclusion

Events have shown conclusively that the fundamental structure of electricity generation, transmission and distribution in South Africa needs to change. When an entity such as Eskom has received approval of above-inflation administered price increases of 119.61% over nine years and comes back to request further increases over the next three years that will raise the total above-inflation price escalation over a 12-year period to 238.27%, there is no other option but to immediately change the rules under which it operates. Without competition in the generation of electricity, and equal treatment for all electricity generating companies regarding access to and the utilisation of the high-voltage transmission grid, there is no way of knowing what the price of electricity could or should be. Valid prices can be determined only in an open and competitive market for electricity that is free of barriers to entry.

The world's economies are experiencing severe economic pressures that have changed economic conditions in most countries. South Africa's producers and consumers cannot afford to be burdened with costs that are careening upwards at a time when they are struggling to survive. A close examination of the MYPD 4 figures suggests that the price increases are excessive and should be cut back substantially. Increasing the administered prices to the levels requested would be unwise at best and reckless at worst.

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PLEASE NOTE: The Free Market Foundation would like to lead oral evidence on this issue.

