CHAMBER OF MINES
of South Africa

EXECUTIVE SUMMARY: **COAL STRATEGY 2018**

NATIONAL COAL STRATEGY FOR SOUTH AFRICA

The Chamber of Mines Coal Leadership Forum, consisting of coal executives, commissioned a report to determine what needs to be done to increase the profile of the coal mining industry in the face of seemingly ineluctable negative public opinion around the use of coal in industrial processes. Negative views on coal and its impact on the environment have resulted in a precipitous decline in the use of coal by the major economies of the world. Because of coal's contribution to greenhouse gas (GHG) emissions, many jurisdictions including South Africa, have put in place strict environmental laws which have affected demand for coal.

The report draws attention to the three industries and sectors that will be adversely affected by the implementation and enforcement of strict environmental laws in South Africa. They are: the electricity sector; the liquid fuels manufacture sector; and the basic iron and steel industry. Together, these three sectors account for more than 80% of domestic coal demand in terms of value and approximately 70% in terms of volumes.

Coal is currently the cheapest baseload technology. This is supported by the Department of Energy's Integrated Resource Plan (IRP 2016) which shows that the levelised cost of electricity (LCOE) across the various coal technologies, is lower than renewables. If battery technology for renewables is taken into account, the LCOE increases significantly.

When it comes to emissions arising from coal powered generation, new technologies such as high efficiency, low emissions (HELE) drastically reduce Greenhouse Gas (GHG) emissions. Moreover, carbon capture storage (CCS) can be employed to achieve the same outcome, albeit, very expensive. Japan and China have employed the HELE technology to great success. The essence of the coal industry's argument in respect of which electricity generation technologies should form part of the country's energy mix, is that the final decision should be based on the 'least cost option'.

For the other two industries that are major users of coal, namely liquid fuels manufacture and basic iron and steel, it is likely that

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CCS could help reduce carbon emissions for now. However, this technology is currently not a commercially viable option for most industries.

The report also considers the export sector. Data presented in the report shows that there has been a total shift from European markets to Asia and that contrary to popular belief that China is South Africa's chief export market, it turns out that India accounts for almost half of the country's total exports in terms of volumes. The Chamber's view points towards India continuing on this trajectory, not least because the country seems to have institutionally patronised the coal resource through the Ministry of Coal.

To better understand the relevance of the coal industry in South Africa the report presents data on employment (direct and indirect), production, productivity, the cost structure of the industry, profitability and investment. Among other things, the report shows that:

- indirectly, the coal industry is responsible for creating and sustaining over 170,000 jobs outside the industry;
- for most of the period between 1980 and 2015, increased labour productivity accounted for an increase in coal production (in volumes);
- transport and storage costs account for more than 50% of total industry costs (excluding value add);
- as a share of total GDP value add, compensation of employees outpaced net operating surplus/profits for most years between 1995-2015; and
- coal export prices is the leading indicator for net investment. In other words, a sustained increase in export prices is soon followed by higher net investment.

The latter may not seem to be important when considering that in terms of volumes, exports account for about 30% of total sales. Yet in terms of value, exports make up approximately 45% of total earnings.

The report culminates with the presentation of domestic constrains including issues and factors that are likely to result in reduced demand for, and supply of coal. The constraints are instrumental in developing the four scenarios (2016-2050) outlined below:

- **Scenario 1: Coal Extinguisher (-1%) –** In this future, total coal demand declines annually by an average of 1%. The main assumption is that nuclear power and renewables have supplanted coal as the main primary energy source. Environmental and water regulations stifle coal use.
- **Scenario 2: Trudge Along (1%) –** An important assumption in this scenario is that growth in total coal demand remains positive, but is lower than the 2.3% average growth experienced between 1980 and 2016. The key assumptions underpinning this scenario are that carbon tax is introduced and that access to land for mining purposes becomes a contentious issue. This is balanced by the fact that renewable technologies lose political support and that the development of battery technology occurs at a slow pace.
- **Scenario 3: Status Quo (2.3%) –** Between 1980 and 2015, growth in coal production averaged 2.3%. This scenario assumes that clean coal technologies gain ground while everything else remains the same. For example, there is no carbon tax and Eskom's procurement policy doesn't change.
- **Scenario 4: Firelighter (5%) –** This future assumes a major leap in clean coal technologies and an increase in export demand leading to increased investment. Government policy is also assumed to be supportive of the industry.

Corresponding to each scenario, actions that need to be taken by stakeholders to either mitigate the impact or take advantage of the opportunities presented by each future, are included.

The full report may be accessed at www.chamberofmines.org.za/industry-news/special-features/

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