

Transport, Storage and Communication

Sector Overview:	<ul style="list-style-type: none"> ▪ In 2008, the communications industry accounted for approximately 5% of GDP ▪ Investment in mobile telecommunications has spurred a recent industry boom, supported by the shift from analogue to digital transmission by the national broadcaster ▪ Significant commercial opportunities are evident in communications through addressing the nation's digital requirements ▪ In 2008, the transport and storage industry contributed 6.5% of GDP, with the contribution rising steadily since 1992 ▪ The movement of goods and people is critical for economic activity, and transport costs are as high as 16% of GDP in South Africa (CSIR, 2008). Shipping costs in particular determine the viability of exports and affect overall economic performance ▪ Investments in rail have been lagging since the early 1990s. The lack of investment in rail infrastructure has led to a dramatic increase in road corridor traffic. Rail has also declined as an urban transport mode, with minibus taxis becoming the main transport mode for the majority of urban dwellers ▪ Transnet has announced an R80 billion infrastructure investment plan for the period 2007-2012, with the bulk of spending on Transnet Freight Rail, in order to revitalise the general freight business (Transnet, 2007) ▪ The implementation of Bus Rapid Transit (BRT) systems countrywide should boost demand for transport (especially buses), in line with government's plan to develop an integrated public transport system ▪ Growth in transport and storage has risen dramatically since 2000, following sluggish growth since the 1970s. This sharp increase can be attributed to the World Cup announcement, road upgrades, the development of the Gautrain and the expansion of port operations
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Risks			Opportunities
Regulatory	<p><i>Communications</i></p> <p>Businesses in the communications industry can be significant emitters. For example, the MTN Group is placed within the top 30 emitters reporting to the CDP, whilst listed companies such as Altron are associated with sizeable emissions from electricity consumption (CDP, 2009).</p> <p>Companies in this industry could be faced with mandatory reporting, energy efficiency requirements and</p>	<p><i>Communications</i></p> <p>Significant opportunities exist in the Information and Communication Technology (ICT) industry to support the development of, amongst others:</p> <ul style="list-style-type: none"> ▪ Energy efficient hardware components and digital infrastructure ▪ Energy monitoring tools and software, including in relation to smart meters 	Growth of Existing Markets & Industries

Risks			Opportunities
	<p>potential emission reduction targets. As with the retail industry, readiness and preparedness for mandatory reporting and stipulated energy efficiency targets varies considerably from company to company.</p> <p>Finally, the introduction of carbon pricing could have a reasonable bearing on the operational costs of companies in this industry, given the relatively high proportion of electricity spend in this sub-sector.</p> <p><i>Transport and Storage</i></p> <p>At a national level, it is likely that major transport related companies including South African Airways (SAA), Transnet, Trecor, Grindrod and others will be required to report on emissions, introduce energy efficiency measures and adopt emission reduction targets.</p> <p>Furthermore, companies in the aviation and shipping industry are at high risk of regulatory compliance at the regional and international scale. The two key areas in this regard relate to the EU Directive on Aviation, and the gradual regulation of maritime emissions by the International Maritime Organization (IMO).</p> <p>Aviation in particular, although only contributing 2-3% of global emissions, has attracted disproportionate attention and is vulnerable given the high level of GHGs emitted per kilometre travelled.</p> <p>The EU Directive on Aviation is now in force and will implement the first emissions caps in 2012, including for operators such as SAA. This Directive could have a number of far reaching impacts for the South African aviation industry, including:</p> <ul style="list-style-type: none"> ▪ Raising operational costs in monitoring and reporting, with financial penalties for non-compliance ▪ Resulting in direct costs in order to comply with targets set for particular countries and operators 	<ul style="list-style-type: none"> ▪ Greenhouse gas emissions reporting and monitoring software <p>Such technologies can offer considerable energy and cost savings, along with sizeable emission reductions.</p> <p>A number of South African companies have begun to work on promoting energy efficiency improvements for clients, including support for the development of 'green IT'. The green IT industry offers opportunities for the development, sale and maintenance of a host of new technologies to support efficient service provision.</p> <p>The promotion of effective videoconferencing facilities to address company travel costs and reduce emissions is an additional area of potential growth, particularly as these facilities become more affordable to small and medium sized companies with global operations or networks.</p> <p>Teleconferencing is an additional means to support low carbon communication, and South Africa may look to provide international teleconferencing call centre facilities, as part of wider support for call centre development, an area in which other developing countries have made significant gains.</p> <p>Finally, support for electronic waste (e-waste) recycling, in which ICT companies can play an important intermediary function, offers benefits for energy, carbon and cost savings, whilst supporting localised job creation and SMME development.</p> <p><i>Transport and Storage</i></p> <p>In road based transport, improved light vehicle efficiency standards are considered to offer significant economic benefits, with associated reductions in fuel usage, operational costs and infrastructure requirements. Recent modelling suggests a R1 000 saving for every 0.36 tons of CO₂e removed from the atmosphere, through the</p>	

Risks			Opportunities
	<p>This could require investments in new technologies or the purchasing of emission rights. Costs may well need to be passed down onto passengers as airlines, including SAA, face increasing cost pressures (WEF, 2009b)</p> <ul style="list-style-type: none"> ▪ Increasing fuel costs over the medium-term. Rising fuel costs are particularly important in the cost structure of long haul flights and could place commercial strain on longer routes (WEF, 2009b) ▪ Potentially reducing the relative importance of South Africa as a flights hub in relation to other hubs in Africa or the Middle East, given the latter's closer proximity to Europe. This could increase travel times (and overall emissions) and affect the wider airports industry ▪ Rewarding those companies that are financially able to generate large and new investments, in order to facilitate fleet upgrades to more efficient models <p>Many of the impacts outlined above could place increasing strain on the national carrier, and potentially on smaller operators as well. On a more positive note, by pushing for more efficient plane use, the scheme also rewards airlines that have partnerships. This is the case for SAA through its Star Alliance programme, whilst SAA also has a relatively new fleet, with benefits for improved efficiency. The current use of carbon intensive Coal-to-Liquids (CTL) as a proportion of jet fuel by SAA can be expected to pose additional challenges, however.</p> <p>For shipping companies, related regulatory risks are also evident, although these will take a number of years to materialise.</p> <p>The International Maritime Organization has been tasked under the Kyoto Protocol to address shipping related emissions. However, if the IMO fails to</p>	<p>implementation of improved vehicle standards (ERC, 2008).</p> <p>Effective public transport also offers substantial climate benefits and has the ability to improve reliability and affordability for the 80% of South Africans currently dependent on public transport for mobility (dti, 2009).</p> <p>As with improved vehicle efficiency, modal shifts from private to public transport are considered a negative cost option for South Africa, with R1 000 saved in the economy for every 0.17 tons of CO₂e avoided (ERC, 2008). The promotion of a passenger modal shift has consistently been associated with negative mitigation costs and enhanced economic development (DEAT, 2007b).</p> <p>Substantial emission reductions can also be achieved whilst improving domestic mobility: it is estimated that the City of Johannesburg's Rea Vaya Bus Rapid Transit (BRT) system will save in the region of 1.6 million tons of CO₂e from its initial implementation through to 2020 (CoJ, 2008). In addition, if only 15% of car users who live within 500 metres of a Rea Vaya trunk route switch to the BRT system, it is estimated that an additional 370 148 tons of CO₂ could be saved per annum (CoJ, 2008).</p> <p>The development of enhanced public transport could also have related benefits for the promotion of domestic bus manufacture, including engine components, drawing on the existing vehicle production emphasis in the country.</p> <p>At present, an action plan for the development of the Medium and Heavy Commercial Vehicle (MHCV) industry is being formulated by the dti, to be approved in 2011, in part to capitalise on the potential for labour intensive bus manufacture in South Africa.</p> <p>Local bus manufacture could be used to support the rollout of BRT across South Africa's major metropolitan areas, including in the current Rea Vaya programme. Apart from</p>	

Risks			Opportunities
	<p>implement a timeous system to address maritime emissions, the EU will act to incorporate the maritime sector within the EU ETS, in a manner similar to that adopted for aviation.</p> <p>The IMO is currently in the process of developing a work plan for reducing emissions in the sector, and is presently considering the following measures to reduce shipping related emissions (IMO, 2009):</p> <ul style="list-style-type: none"> ▪ A mandatory limit and reporting on the Energy Efficiency Design Index and Energy Efficiency Operational Indicator for ships ▪ Mandatory or voluntary use of a Ship Efficiency Management Plan ▪ A Maritime Emissions Trading Scheme <p>Maritime climate regulation, enacted either via the IMO or EU, could impact South Africa's shipping industry through the following:</p> <ul style="list-style-type: none"> ▪ Ship yards being required to implement high efficiency in ship design ▪ Ship owners having to invest in fleet upgrades, and implement slow steaming and other management plans to increase efficiency ▪ South African ports being required to administer differentiated harbour dues/fees, invest in infrastructure to provide cold ironing, or shore electricity from renewable sources while ships are berthed ▪ Ports may also be responsible for repossessing ships for failure to comply with environmental legislation <p>Regulatory risks for the maritime sector, as the experience of the aviation industry demonstrates, could be significant, and developments in this regard will need</p>	<p>Phase 1A of the project, locally produced buses could be employed within Rea Vaya, and made available for export (Engineering News, 23 February 2010).</p> <p>The enhancement of rail based freight offers substantial benefits for the country, including reducing pressure on the national road infrastructure and easing congestion concerns, whilst lowering the carbon intensity of South African exports.</p> <p>Finally, South Africa is not considered a negligible player in aerospace innovation, and opportunities may be opened up for the country in the development of advanced flight technologies and production of new aircraft parts for more efficient models.</p>	

Risks			Opportunities
<p>Trade and Market Access</p>	<p>to be monitored closely.</p> <p>In terms of road based travel, the introduction of carbon pricing could be expected to increase fuel costs, increasing vehicle operating costs for private users and raising the costs of road based freight. Effective tax revenue recycling will need to be considered to counter inflationary pressures in transportation.</p> <p>Finally road user charges or ‘congestion charges’ may be employed in South Africa in the medium-term, in part to address rising GHG emissions, with the scheme having the greatest impact on single occupancy drivers in inefficient vehicles.</p> <p><i>Transport and Storage</i></p> <p>The potential implications of the EU Directive on Aviation for tourism demand and business travel has been discussed in the Trade, Catering and Accommodation Services sector analysis above.</p> <p>An additional area of concern is increased costs for international trade in both air freight and shipping, raising the costs of both imports and exports, and potentially affecting the balance of payments and reducing demand for certain domestic products.</p>	<p><i>Communications</i></p> <p>Opportunities exist in this industry in support of leveraging on international expertise and best practice in the application of smart metering, net metering and the use of various energy and carbon monitoring software tools and approaches.</p>	<p>Country Level Investment, Finance & Technology Transfer</p>
<p>Supply Chain</p>	<p><i>Communications</i></p> <p>Companies in this industry may be at some supply chain risk from organisations greening their supply chains and requesting their partners, including their ICT partners, to report on and reduce their emissions.</p> <p>As commercial efforts in this area intensify, ICT companies that are poorly placed to reduce their emissions and/or offer efficient technologies may be prejudiced in the market place.</p>	<p><i>Communications</i></p> <p>The introduction of smart metering can support a flexible and robust electricity grid, enhancing efficiencies in load management and ensuring maximum utilisation, reliability and quality of existing power supplies.</p> <p>In addition, the implementation of energy efficiency measures in communications, ranging from building improvements to server infrastructure, could result in enhanced system performance, reduced exposure to electricity price increases and heighten the overall</p>	<p>Risk Management, Efficiencies & Competitiveness</p>

Risks			Opportunities
<p>Reputational</p>	<p><i>Transport and Storage</i></p> <p>Consumer loyalty and brand image could be at some stake within the aviation sector, which has a strong customer interface and has attracted disproportionate attention in climate change concerns.</p> <p>Certain low cost airlines have already engaged in efforts to promote environmental responsibility as part of promoting increased competitiveness and brand loyalty in South Africa.</p>	<p>efficiency of this sub-sector.</p> <p><i>Transport and Storage</i></p> <p>Substantial potential exists to reduce traffic congestion and air pollution, and enhance tourist access, through effective public transport. BRT systems have the added benefit of providing a relatively low cost alternative that is able to span large areas, ideal for addressing the geographic sprawl characteristic of many South African cities.</p> <p>Significant balance of payment savings can also be achieved through a reduction in crude oil and refined petroleum product imports, with increased employment of public transport and rail based freight.</p> <p>Air pollution concerns in the shipping industry, including the release of oxides of Nitrogen (NOx), oxides of Sulphur (SOx) and particulates, can also be substantially countered through ship fuel efficiency measures.</p> <p><i>Transport and Storage</i></p> <p>The development of sector-based carbon markets is likely to gain momentum over the medium-term, with both the aviation and maritime industries being potential candidates in this regard.</p> <p>The ability of these sectors to trade surplus emission credits will be dependent on the baselines that are set, and the ability of companies and industries to meet or exceed sector targets.</p> <p>At the same time, companies may also be able to implement emission reduction activities outside of their respective sectors, within certain limitations, as a means for generating emission reduction credits in a cost effective manner.</p>	<p>Carbon Markets</p>

Summary:

The communications industry is at moderate risk of mandatory emissions reporting, energy efficiency targets and increased electricity costs through carbon pricing. However, this industry is likely to be a net winner from climate change through efforts to promote ICT related climate solutions. Key opportunities include software tools, videoconferencing, the deployment of efficient digital infrastructure, sophisticated grid management technologies and teleconferencing facilities.

The national aviation sector is at considerable risk from climate change through the enforcement of the EU Directive on Aviation. Whilst the Directive supports longer-term efficiencies in aviation, it entails additional operational costs for airline operators and could play a role in redirecting air traffic flows. There are emerging risks in the maritime industry as well, with the IMO currently investigating emission reduction options in this sector. It is likely that the EU will incorporate the maritime industry within the EU ETS, if the IMO is unable to implement a viable emission reduction programme for shipping by 2012.

Aside from the substantial challenges outlined, large-scale opportunities are evident in the introduction of heightened vehicle efficiency standards and rollout of mass public transport in the country, particularly in the implementation of BRT systems. These transport measures offer significant secondary benefits and result in direct economic gains for South Africa. The development of a labour intensive bus assembly industry in South Africa, linked to planned or existing BRT systems, is also a distinct commercial opportunity.