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Keeping the Land Wet: Competition and Incumbency in the Liquid Fuel Value Chain in South Africa

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Abstract

Barriers to entry, by reinforcing the market power of incumbent firms in liquid fuel distribution, have meant that the pace of transformation throughout the fuel value chain in South Africa has been slow. The ability of new firms to enter the sector, develop capabilities, and become effective competitors to the major oil companies is important for achieving transformation and introducing dynamic rivalry in the liquid fuels sector. This paper draws on a recent CCRED study based on interviews with market participants and publicly available sources to assess the nature and extent of barriers to entry and expansion of firms in the wholesale of liquid fuels. The analysis focuses on access to supply, access to customers, access to key infrastructure, and policy and regulatory challenges rather than the known shortage of skills and finance in the sector. It is clear that these challenges at the wholesale level form part of a broader set of concerns in the value chain as a whole, relating to access to infrastructure and low levels of competition between the major oil companies themselves. The paper concludes by suggesting a set of short and long-term remedies for increasing access and competition in transportation and storage, and wholesaling infrastructure.

JEL classification L1, O1

1. Introduction

There is an ongoing debate in South Africa regarding the transformation of the fuel sector value chain which has historically been controlled by a handful of large multinational oil companies.¹ The petroleum sector in any country is a strategic one in terms of its wider impact on consumers, as a provider of inputs into other productive sectors of the economy, and therefore as an important influence on the trajectory of economic development. The history of the sector in South Africa is that it has benefited from substantial investments and support from the apartheid government for security of supply and national security reasons in light of widespread sanctions in the years prior to the democratic transition in 1994. A favourable policy environment over the years created a sector characterised by a handful of large fuel importing oil companies with refining capacity in strategic port locations, and a national champion in Sasol which grew to produce fuel inland. Importantly, all of the incumbent firms exhibit high levels of vertical integration into activities spanning the entire value chain including importing, refining and production, distribution and retail. Following the democratic transition, greater emphasis began to be placed on transforming the sector to be more inclusive at different levels of this value chain, culminating in the attachment of the Liquid Fuels Charter as an addendum to the Petroleum Products Act.

The entry and growth of new, independent wholesalers as part of this process of transformation is therefore of particular importance, with the aim of developing firm capabilities that allow for dynamic rivalry between firms, and the gradual migration of those firms up the value chain in competition with the incumbent oil companies. This is taken in the context of a growing body of literature on the importance of addressing the market power of large firms and entrenched insiders, and the ongoing work of the competition authorities in this process.² It also chimes with the increased global emphasis on inclusive growth and increased economic participation which we understand to be, in part, about removing structural and strategic barriers to new entry at different levels of the economy, and the sustainability of those firms.³ The National Development Plan and the industrial policy framework also emphasise the importance of creating a dynamic and entrepreneurial economy and addressing high levels of concentration in the economy.⁴

Barriers to entry, by creating and reinforcing the market power of large firms, tend to lead to higher prices, lower levels of innovation and a less competitive economy. Incumbent firms will lobby and employ strategies to protect their position in the market. Concerns arise where firms

¹See, for example, http://www.parliament.gov.za/live/content-mobi.php?C_Item_ID=4777&Item_ID=3536

² See, for example, Makhaya et al (2012); Roberts (2012); North et al (2007); and Acemoglu et al (2012).

³ See, for example, Spence (2008); and Ianchovichina et al (2009).

⁴ NPC (2013).

seek to maintain their position by handicapping rivals and potential rivals, for instance, through anti-competitive behaviour. This is different from a market in which firms compete to introduce better prices or products and services and reduce costs and achieve returns which reward dynamism, innovation and effort. In a country like South Africa where there are significant challenges of unemployment, poverty and inequality, it is critical to understand the nature and extent of barriers to entry in the economy, in order to ensure that regulatory and policy interventions have a meaningful impact on creating inclusive and shared growth.

While over 1000 licences have been issued to potential entrants in fuel wholesaling, less than 10% of these licences are being used effectively by firms that have been able to enter and survive in the industry. Independent wholesale firms currently distribute to between 40% and 70% of commercial customers, including to rural and peri-urban areas (LFWA, 2013). Our findings suggest that outcomes are influenced by a range of endogenous and exogenous considerations, including the modes and costs of entry of firms, restrictive long term supply agreements and relationships with incumbent suppliers, restricted access to customers in some cases, and the regulatory environment. There are also issues related to skills development and the importance of tacit industry knowledge and challenges related to access to finance and working capital. Challenges in the broader petroleum sector which impact on barriers to entry at the wholesale level include mechanisms to ensure security of supply as a national priority, constraints on the introduction of alternative sources of supply and routes to market, and infrastructural limitations such as in refining capacity and storage which constrain the potential for more dynamic rivalry throughout the value chain. Our focus is on the impact of each of these factors as barriers to entry and expansion in the wholesale distribution of liquid fuels.

This paper draws directly from a recent study by the Centre for Competition, Regulation and Economic Development on the same subject. As such, all references to industry knowledge and interviews are based on data collection and information gathering conducted as part of the broader study, and contained in the study Report.⁵ In this paper we focus particularly on the main strategic barriers to entry in the sector facing wholesalers, and consider these against the economic theory of barriers to entry and their effect on competition. In the next section we consider literature on barriers to entry. Section 3 provides an overview of the fuel sector in South Africa and the various barriers to entry that were identified by the study, and Section 4 concludes and provides some recommendations.

⁵ Available: <http://www.competition.org.za/barriers-to-entry/>

2. Literature review

The concept of barriers to entry is an important one in competition law. Its importance stems from the economic theory of perfect competition, a situation where competition between firms drives prices down such that firms make zero economic profits (Church and Ware, 2000). A key condition for perfect competition to be achieved is that new firms should be able to enter and exit the industry easily, such that if incumbent firms raise prices above marginal cost, a new firm would enter and force prices back down (Church and Ware, 2000). By contrast, where it is more difficult, time-consuming or costly for new entrants to come into a market, incumbents may be able to profitably raise prices above marginal cost without a new firm entering the market and driving economic profits down to zero. Barriers to entry therefore have a close relationship with the level of competition in a market, and as such are at the centre of competition analysis.

The ability of a firm to increase prices independently of its competitors is termed “market power”, a concept which in turn is central to an analysis of the impact on competition of firm conduct. In theory, market power can be exerted for a significant period of time only if there are no barriers to entry (Harbord and Hoehn, 1994). Thus, other things equal, the higher the barriers to entry in a particular market, the more likely it is that a merger will result in anti-competitive effects. On the other hand, even a merger that substantially increases concentration in a market may not be found to be anti-competitive if ‘new firms would enter the market (or expand production) and prevent incumbents from exercising market power’ (ICN, 2004). The guiding principle is generally that if entry is easy, then an attempt by the merged entity to extract monopoly rents by increasing prices or reducing output would be counteracted by the entry of rivals. The concept of barriers to entry is also important to the analysis of a potential abuse of dominance since the ability to abuse dominance is predicated on the existence of market power.

Most jurisdictions around the world require that for entry to be effective in counteracting the exercise of market power by a firm, it must be likely, timely, and of sufficient nature, scale and scope to constrain anti-competitive effects (ICN, 2004; OECD, 2005). This transcends the static analysis of whether barriers to entry exist, and considers a more dynamic perspective of whether entry would occur in a manner that is easy, timely and sufficient to affect competitive outcomes in the foreseeable future post-merger. Barriers need not be found to prohibit the entry of rival firms in perpetuity, they must just serve to retard entry in a manner that is sufficient to prevent (potential) rivals from initiating competitive ‘best-responses’ to the exercise of market power by the merged firm.

The economic analysis of barriers to entry has a contested history. In the 1940s and 1950s economists such as Bain argued that a large number of potential barriers to entry existed, following the definition of barriers to entry as factors enabling incumbent firms to earn above-normal profits (Harbord and Hoehn, 1994). By contrast, Chicago school economists in the 1970s and 1980s put forward a narrower definition of barriers to entry as cost advantages enjoyed by incumbent firms which new entrants would not benefit from (Harbord and Hoehn,

1994). More recent industrial organization theory emphasises the importance of strategic interactions and the perception to entrants of the likely nature of competition post-entry (Harbord and Hoehn, 1994). This idea will be expanded on in greater detail below as it is the most relevant to the case study which will be presented.

In general, barriers to entry can be classified into two categories: structural and strategic. Structural barriers exist because of factors inherent in the nature of the market. The first such barrier is sunk costs which are investments which must be made on entry (for example technology, marketing, R&D etc.) which the investor will not be able to recoup if the firm exits the market. Such costs obviously increase the risk of entry and, as pointed out by Harbord and Hoehn (1994), they also create an asymmetry between incumbent and entrant since once sunk, costs are no longer opportunity costs. This means that incumbents will require a lower return in order to stay in the industry than a prospective entrant will need to enter it. Finally, sunk costs may be seen as a commitment to stay in the industry (Harbord and Hoehn, 1994), but this is more of a strategic consideration and will be discussed further below.

Other features of the market structure which influence the ease of entry are absolute costs advantages, economies of scale, network effects and switching costs. An absolute cost advantage is present where an incumbent firm has an inherently lower cost of production than an entrant, for example because it has preferential access to raw materials or technology (Church and Ware, 2000). To the extent that the asset is tradable, however, the incumbent faces an opportunity cost of retaining and using it which is equivalent to any extra rents gained from doing so. Where the preferential access gives the firm market power, these may be seen as monopoly rents (Church and Ware, 2000).

If there are large economies of scale in an industry, this implies that a new entrant selling smaller volumes than the incumbent will have higher costs and make lower margins than the incumbent (Church and Ware, 2000). If customer switching is low due to high switching costs or brand loyalty for example, then it may be very difficult for a new entrant to compete initially and if combined with economies of scale, this may imply a period of loss-making for a new entrant. Finally, network effects imply that there are benefits to consumers to purchasing a product which lots of other people also purchase, making products with larger networks of customers more attractive.

Legal or regulatory barriers may also exist, such as tariffs, licensing requirements or weak or badly designed economic regulation. Licensing for example can raise barriers to entry if it is associated with onerous requirements on prospective licensees. Regulatory barriers are an interesting category of entry barriers as they can be influenced by policy interventions and economic regulation is particularly important as it is explicitly aimed at dealing with a lack of competition. There are two ways in which economic regulation can influence barriers to entry. Access regulations seek to ensure that vertically integrated monopolies provide access to essential inputs or facilities to rivals on fair terms. This is usually necessitated when there is a natural monopoly at one level of the value chain but competition is feasible at other levels of the chain. Access regulations which are inadequate or poorly enforced can allow vertically integrated dominant firms to leverage their market power to restrict new entry, helping them

to maintain their dominant position. The other major type of economic regulation which can impact entry is price regulation in that it may limit the margins which can be earned by a new entrant which then reduces the incentive for new firms to enter the market and makes it difficult for smaller competitors to survive. By contrast, effective economic regulation will as far as possible encourage entry and competition wherever feasible.

Incumbent firms' own conduct may also create barriers to entry, and these are termed strategic barriers to entry. If the entry of a new competitor is likely to reduce the profits made by the incumbent, either because prices fall or its share in total output is reduced, the incumbent may have an incentive to try to deter entry or ensure that it is unsuccessful. There are a wide range of strategies which may be employed by incumbent firms to these ends. These fall into three main categories: aggressive post-entry behaviour to deter entry, raising rivals' costs and reducing rivals' revenues (Church and Ware, 2000).

Entry deterrence refers to a situation where the incumbent firm employs a strategy in order to make entry seem unattractive to a prospective entrant. This involves the incumbent establishing a credible reputation for an aggressive response to entry such that any prospective entrant will consider it unprofitable to enter (Church and Ware, 2000). One such theory by Kreps and Wilson (1982) shows that where there is imperfect information, it may be profitable for an incumbent firm to charge prices which are below cost for a period of time in order to develop a reputation for being "strong" (very low cost) and persuade potential entrants that entry will not be profitable. In a similar vein, an incumbent firm may over-invest in capacity (or in R&D, advertising etc.) in order to convince a prospective entrant that it will not be able to compete profitably with the incumbent (Motta, 2004). Dixit (1979, 1981) first showed that over-investment in capacity could be used strategically to avoid entry but in fact a combination of sunk costs and scale economies can form a barrier to entry which allows the incumbent to achieve supernormal profits without being more efficient than an entrant (Harbord and Hoehn, 1994). However, where strategic behaviour is also possible, the likelihood of entry deterrence is even greater (Harbord and Hoehn, 1994).

Strategic barriers can also arise from the behaviour of firms through practices that raise rivals' costs and/or induce customers or suppliers not to deal with rivals (reduce rivals' revenue). Again there are a number of ways in which incumbent firms can try to create these barriers. They may do so by restricting competitors' access to inputs or to customers. If the incumbent is vertically integrated, it may be able prevent the competitor from gaining access to a vital input or charge a very high price for it such that the competitor cannot be profitable. Another strategy which an incumbent may employ is to tie up key customers into exclusive contracts such that an entrant cannot acquire sufficient customers to reach an efficient scale of production. Alternatively, the incumbent may make the purchase of a product in which they enjoy market power conditional upon the purchase of the product which the entrant is offering so that customers who want to purchase the monopoly product from the incumbent are forced to also purchase the competitive product from it. An incumbent may employ a combination of these strategies in order to deter or defeat entry.

Effective rivalry between firms to win over customers that have scarce resources encourages firms to produce better quality goods and offer lower prices. This rivalry requires firms to be more prudent in their use of the resources available to them by eliminating inefficient use of resources, cutting down wastage and thus reducing their costs (Evans and Joeques, 2008). It is therefore not surprising that firms will compete aggressively, and at times unfairly, to increase and maintain their share of the scarce resources available to consumers. In this context, firms can compete on the basis of improved product offerings and investments in improving their capabilities, in which case efficiency, effort and ingenuity is rewarded. On the other hand, firms can compete (unfairly) by leveraging their incumbency and engaging in practices that seek to raise rivals' costs and ultimately diminish the significance of rivals as effective competitors as has been discussed above. This can also be described as the difference between 'performance competition' and 'handicap competition' (seeking to handicap rivals) (Gerber, 2010).

Strategic barriers to entry are often relevant where there is a vertically integrated monopolist who has an incentive to protect the rents being earned in the monopoly market through attempting to frustrate entry at another level of the market. This is particularly acute where the incumbent firm or firms have control over key inputs required by entrants. In these circumstances, the incumbent firms may find it profitable to engage in strategies to raise rivals' costs or reduce rivals' revenues. They may also choose to accommodate entrants but to attempt to force them into a particular market niche where they can operate at a smaller scale without threatening the incumbents' main market. These strategies are illustrated by the case study discussed below.

Strategic barriers to entry are considerably more difficult to evaluate partly because their effects may first have to be demonstrated. The assessment of the competitive significance of strategic barriers to entry is also confounded by the fact that these practices can be pro-competitive in some cases by incentivizing investment, for instance. For example, an incumbent has the incentive to invest in additional capacity, technology, or research and development activities if they believe that they will be able to earn a return on those investments in future and not suffer losses due to free-riding. Similarly, advertising can be seen as a pro-competitive strategy by an incumbent firm, however 'too much' advertising is sometimes considered to be a barrier to entry if it 'effectively imposes an obligation on entrants to advertise their products to a similar extent' (OECD, 2005).

Although the consideration of barriers to entry in competition law is largely technical, the discussion has tried to illustrate the mechanisms by which barriers to entry impact on competition and participation in an industry and therefore, by extension, in the economy as a whole. The following case study on the liquid fuel sector in South Africa will further illustrate this.

3. Case study: Liquid fuel sector in South Africa

In this section we provide a background of the liquid fuel sector in South Africa, and then a discussion of the structure of the market and the main strategic barriers to entry which illustrate the concepts raised in the literature review.

a. Overview of the sector

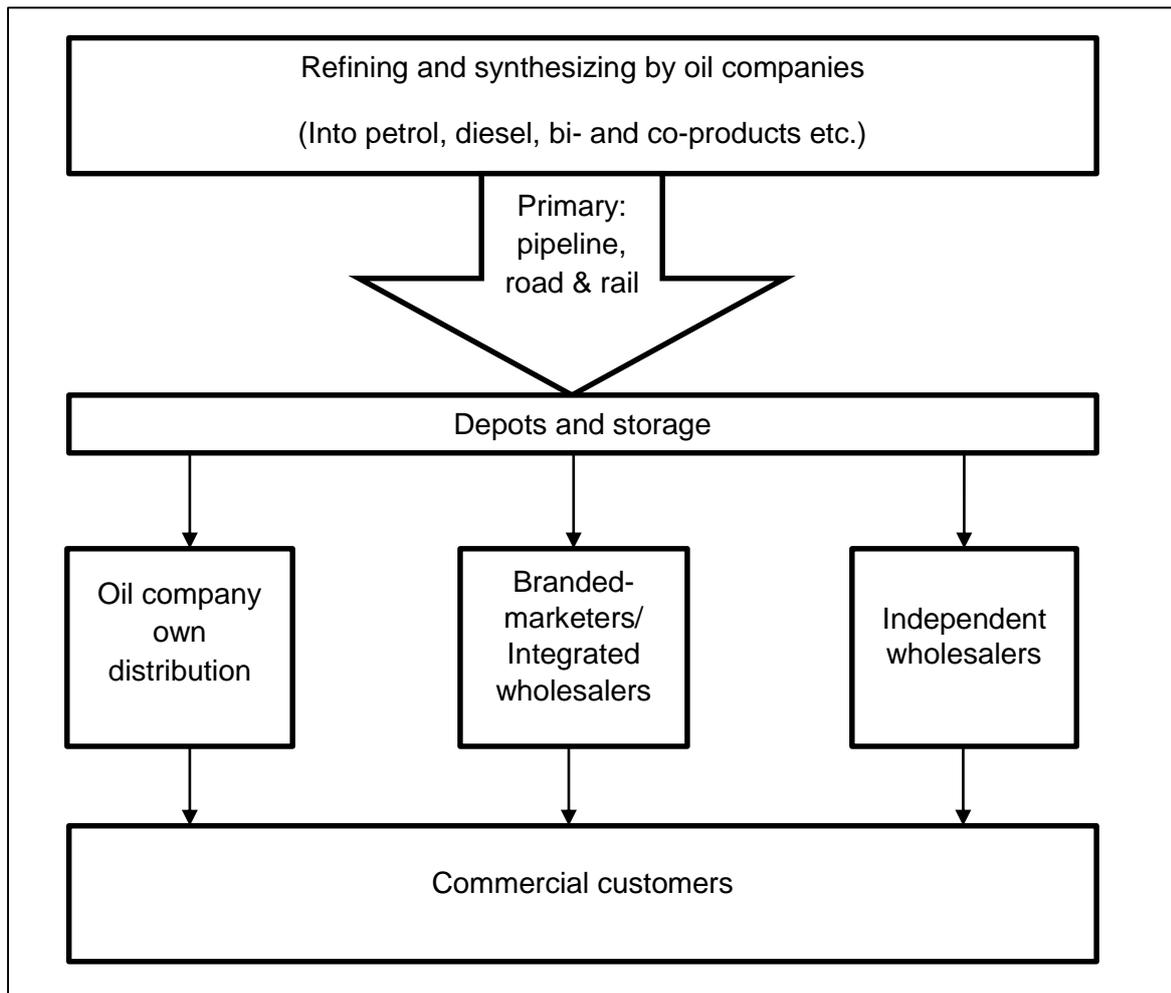
The liquid fuel sector in South Africa presents an interesting case study in that it has historically enjoyed protection from the state due to the strategic objective of ensuring security of supply in the country. This has created a market where there is an established set of incumbent firms, and significant barriers to entry for newer entrants as we discuss below.

The sector is governed by two main bodies; the Department of Energy (DoE) and the industry regulator; National Energy Regulator of South Africa (NERSA). The DoE mostly deals with issues pertaining to licensing and the pricing structure. NERSA sets tariffs for petroleum pipeline operations and approves tariffs for petroleum storage and loading facilities. The Petroleum Pipelines Act also gives NERSA the authority to compel operators of pipeline, loading and storage facilities to allow independents access to unused or “uncommitted” capacity although NERSA is unable to compel the owners or operators to expand their facilities.

The main acts regulating the liquid fuel sector are; Petroleum Products Act No 20 of 1977 as amended by Act No. 58 of 2003 and Act No. 2 of 2005, the Petroleum Pipelines Act No. 60 of 2003, and the International Trade Administration Act 71 of 2002. The Petroleum Products Act informs the duties of the DoE regarding licensing of manufacturers, wholesalers and retailers of petroleum products. It also works hand in hand with the liquid fuels charter which acts as an addendum to the Act to promote transformation in the industry. NERSA for its part was established in 2005 by the National Energy Regulator Act No 40 of 2004. Section 4 of the Petroleum Pipelines Act prescribes its duties and functions. The International Trade Administration Act mainly governs the import and export of fuel in South Africa. Other important policy and regulations in this sector include environmental regulations, municipal regulations and pricing regulations.

The country’s overriding concern in the liquid fuel sector has been to ensure security of supply. The DoE’s legislated mandate is “*to ensure secure and sustainable provision of energy for socio-economic development*” (Department of Energy, 2014). This concern was emphasised even more prior to 1994 as the apartheid government needed to ensure supply of fuel particularly during the period of sanctions. As such, the government created an environment where a small number of oil companies were allowed to grow, acquire key infrastructure such as refineries and depots in strategic locations and thus develop considerable market power. This protection allowed for vertical integration across all levels in the fuel sector from importing, refining and production to distribution and retail, further entrenching the market power held by these few oil companies. The industry is thus largely characterised by seven oil majors; Total, Sasol, Engen, Chevron, Shell, PetroSA and BP who still account for about 70% of the retail volumes of oil sold (Lewies, 2013). The other 30% of the retail volumes sold are by independent players in the market, however, even the independent players source their fuel almost exclusively from the seven major oil companies who, by virtue of their refineries and control of the port and storage facilities, also control the supply of fuel at the upstream level.

Figure 1: Fuel distribution (inland) flow chart



Source: Authors' own interpretation

Figure 1 above shows the different levels of the value chain in liquid fuel distribution. The wholesaling of fuel takes place once crude oil imports have been refined and distributed (mostly via pipeline) to the different depots and storage facilities in the country. The fuel is then sold wholesale to commercial customers through three main channels being the oil company's own distribution, branded marketers and independent wholesalers. Through the first channel, the oil companies sell directly to large volume customers. In the second channel, the oil companies first sell the fuel to their branded distributors or marketers who act as contracted agents of the oil companies and only sell in allocated regions. The independent wholesalers have supply contracts with the branded distributors and/or oil companies, however they do not operate under the brand or policies of the major oil companies and are free to distribute fuel to customers in different geographic areas.

b. Market structure and competitive dynamics in the petroleum sector

Of particular interest in this sector is how the major oil companies have come to control critical stages of the value chain, including jointly, and how the vertically integrated nature of their

operations has allowed incumbents to control competitive outcomes not only at the refinery level, but in distribution and retail as well. The findings of various competition cases in the past decade illustrate the overarching concern regarding the joint market power and intricate bargaining relationships which exist between the major oil companies in South Africa. For example, in 2005 a proposed merger between Sasol and Engen was prohibited by the Competition Tribunal on the basis of concerns regarding the market power which the merger would likely grant to the merged entity in the context of the structure and history of the sector. Sasol at the time held 82% of the inland supply whilst Engen had a coastland refinery and the largest distribution network in the inland market.⁶ The merger would therefore have resulted in significant market power accruing to the merged entity. This was significant because Sasol had substantial capacity to supply fuel to the inland market from its facilities in Sasolburg which were closer to the main source of demand, and Engen also had a coastal refinery which would have essentially meant that the other oil companies would not have any bargaining power vis-à-vis the merged entity. The Tribunal therefore found that Sasol had the ability and incentive to foreclose on the other retailers inland post-merger, which may have forced rivals to reach a coordinated arrangement with the merged entity if they were to retain presence in this inland market.

This decision by the Tribunal relates in particular to the history of coordinated arrangements between the players in the sector in order to ensure security of supply. One such agreement was the Main Supply Agreement (MSA) which had been crafted to coordinate the market such that the other oil companies were required to buy Sasol's fuel in the inland market, until Sasol gave five year's notice of its intention to terminate the arrangement in 1998. In this regard, the Tribunal noted as follows regarding the competitive dynamics in the industry in its decision:

*"all the conditions for cartel formation and maintenance pertain: the structure of the markets is oligopolistic; the products are homogenous and technologically mature; entry barriers are very high; cost structures of the various oil companies are similar ... the rate of growth in demand is moderate and demand is highly inelastic; there is no countervailing buyer power to speak of; the markets are highly transparent; there is an extensive history of co-operation both at the level of the MSA and also in a range of joint ventures and ubiquitous swap and hospitality arrangements."*⁷

The close contacts between the major oil companies has also been facilitated through various exemption applications, which have enhanced coordination between the companies. In 2005, following a period of fuel shortages, a task team appointed by the Minister of Minerals and Energy recommended that there be increased coordination over issues such as supply lines

⁶ Competition Tribunal case number 101/LM/Dec04.

⁷ Competition Tribunal case number 101/LM/Dec04, para 526.

and shut-downs. The petroleum industry was encouraged to apply for an exemption from the Competition Act through the South African Petroleum Industry Association (SAPIA), which was granted for a period up to 31 December 2015. A short term exemption was also granted in 2010 to coordinate supply for the World Cup. To the extent that these arrangements facilitated coordinated outcomes in the sector, an information exchange case involving Chevron, Engen, Shell, Total, Sasol, BP and SAPIA was referred to the Competition Tribunal by the Competition Commission in 2012. The Commission's expressed reasons for the referral were summed up as follows:

“The disaggregated sales information exchanged between oil companies in the case being referred here removed any element of surprise in strategic decision making and functioned as a reliable substitute to direct cartel interactions insofar as it made monitoring of rivals possible. This, together with the history of coordinated behaviour and other characteristics that exist in the petroleum industry, made achieving cartel outcomes post the exemption period possible.”⁸

Together, these cases show the effect of state-sanctioned protection on the competitive dynamics in the sector. Furthermore, they describe a market wherein incumbent operators through close contacts with one another, legal and otherwise, have effectively established a position of joint market power akin to a cartel arrangement and in which rivalry between each company is restricted. This is significant when considering the likelihood of entry of rival companies, particularly at the fuel wholesale level that are able to grow their businesses and enter higher levels of the value chain in direct competition with the incumbents, or through encouraging rivalry between the main suppliers by playing them off against one another. We return to this issue in the discussion below.

The Sasol/Engen merger decision also illustrates the significance of the ownership of key infrastructure by the major oil companies and how that has also contributed significantly to the creation of structural barriers to entry and expansion in the sector. The sunk investments made into building the refineries and depots, investing in technology, marketing, and research and development reduce the returns the incumbents need to stay in the market compared to those an entrant needs to invest in entering and successfully competing in the market. The oil majors enjoy economies of scale and absolute cost advantages such as preferential access to fuel and infrastructure which puts them in a much better position than entrants, as we discuss in sections to follow.

⁸ Competition Commission press release, 24 October 2012. Available online: <http://www.compcom.co.za/assets/Uploads/AttachedFiles/MyDocuments/Competition-Commission-refers-a-case-of-collusion-against-oil-companies.pdf>

Furthermore, entrants at various levels of the value chain face structural barriers in the form of access to finance, environmental and pricing regulation although some of these factors affect all players in the industry in a similar manner. It is worth noting however, before discussing strategic barriers below, that although the pricing regulation is in itself not an impediment to entry, it does act as a barrier to growth according to wholesalers in the sector. This has to do with the current system which is known as the Regulatory Accounting System (RAS) which separates all activities in the value chain with a view to compensating investment in all activities by allocating margins to be earned at each level of the value chain. While this assures that independent wholesalers in particular earn a margin for their activities and investment, they are still required to compete with the oil majors that are vertically integrated at every level of the value chain, as well as the branded distributors of these companies. As such, these major rivals earn margins throughout the value chain. This aspect is discussed in more detail below.

c. Strategic barriers to entry in the liquid fuel sector

Strategic barriers to entry arise from the incumbent firms' own reaction to entry and in some circumstances may constitute anti-competitive conduct although this is often very difficult to prove. As mentioned in the literature review above, this conduct could take the form of aggressive post-entry behaviour or entry deterrence, raising rivals' cost and reducing rivals' revenues. The study on barriers to entry facing wholesale companies in the South African petroleum sector found a variety of arrangements relating to access to customers and key infrastructure and facilities, and the effects of vertical integration in the sector that affect the ability of wholesalers to compete with incumbent firms. This section considers the main barriers identified.

Scale, pricing and access to customers: One of the primary challenges facing the wholesalers is that major oil companies provide better discounts and better terms than the rivals can meet. As incumbents with direct control of the fuel as well as a bigger balance sheet, the fuel majors give much more favourable terms to their customers such as longer periods of credit to pay for the fuel. Related to this is the fact that the oil companies also deal with large volumes of fuel thus enjoying significant economies of scale in their operations.

While this aspect is characteristic of most industries where entrants need to compete with established incumbents, the challenge in this case is that the major companies are vertically integrated and also control the supply of fuel, and so it is even more difficult for downstream rivals to compete because in most cases they would be competing directly with their suppliers. This is exacerbated by the fact that the major oil companies have established relationships and hold long term supply agreements with several of their large customers such that competing wholesalers, who also rely on the same companies for supply, would not be able to match the terms or discounts to be able to compete for these customers. This is made even more difficult by supply agreements, which due to the constraints on accessing customers, has the effect of limiting the growth of even large scale wholesale companies in the market. Wholesalers have argued that they are left to compete on deriving efficiencies in their own operations, offering superior service to customers than large companies, and offering

additional services and support to customers as value-added products. While customers can benefit substantially from this approach, in the medium- to long-term the ability of these wholesalers to expand their businesses is restricted, at least partly because they may incur additional costs in providing value-added services, and customers in the industry generally remain focused on price as the primary determinant of which firm they will source their fuel from.

Control of key inputs (security of supply): The costs of rivals can be raised by incumbent firms through various mechanisms as discussed in earlier sections. One aspect is through leveraging control of key inputs to increase the input costs of downstream rivals, thus potentially foreclosing them. In the fuel sector, the main oil companies exercise significant control of several key inputs.

The major suppliers generally do not supply product to small new entrants as the volumes they require when starting out are considered to be low. New entrants are usually directed to acquire supply from branded wholesalers or to first acquire sizable contracts before they can deal directly with the major suppliers. Once the new entrants establish supply contracts with either the majors or the branded marketers, they are still at a disadvantage because during shortages they are often the last to get access to fuel after the major operators and their branded marketers. While branded marketers are in a better position than independent wholesalers because they are assured of supply of fuel from the onset, the majors are able to dictate terms to the wholesalers. Their own branded marketers must generally only buy oil from their 'parent' oil company and in accordance with the terms of their agreement with the oil company, which agreement may involve some reciprocity in terms of equipment, branding and guarantee of supply. There are therefore some efficiency justifications for the arrangements.

The wholesalers generally have limited leverage for negotiating with their suppliers and no real possibility of playing one supplier off against another because of the very transparent nature of costs and pricing in the industry. Information obtained in the study suggests that if a wholesaler competes too strongly or presents a competitive threat to an incumbent oil company, there is a risk that the wholesaler could be foreclosed from supply. Rivals, and ultimately their customers, are therefore forced to pay higher prices than they might have had there been an alternative source of supply or if they were able to bargain for more favourable discounted prices.

Control of key infrastructure: The discussion above suggests that wholesalers, and particularly large ones, should seek alternative sources of supply. However, one of the main challenges particularly with importing fuel directly, is the ownership by oil companies of key infrastructure such as port facilities, depots and storage. The main port facilities for landing fuel in Durban are owned by the major oil companies, including through part-ownerships of refineries and other facilities. Thus, in order to land fuel currently, an independent player would have to negotiate with the major oil companies for access to this infrastructure. Similarly, the existing storage facilities in Durban are mainly owned by the major oil companies and there is no commercial imperative for the major oil companies to construct more storage capacity than

they expect to use, or that could be used by independent importers. In addition, even when there is apparently spare capacity in their facilities, it may not be practical to rent it out to independents since the major oil companies need to ensure that there is always sufficient available capacity for the arrival of their next fuel shipment. Demurrage costs are high if the product is left unloaded on the ship for a lengthy period of time.

Independent storage facilities are available through companies like Vopak however, in general, even the independent facilities are contractually bound to the major oil companies. Based on data from NERSA, only 6% of storage capacity for petrol and diesel at the port in Durban is currently of independent facilities. The remaining 94% is owned by the major oil companies. Storage facilities are extremely expensive to build and in order to get financing, storage companies are usually required to acquire long-term “use or pay” contracts with customers for at least 80% of the capacity to be built. This generally means engaging the major oil companies who would have substantial volume requirements and the ability to guarantee volumes for five or six years. Smaller companies by contrast take on a substantial risk by signing up for a long use or pay contract. In addition, storage companies sometimes require guarantees to be paid up-front while the capacity will only come online in 18 months to two years. This is onerous for a small firm and as a result only 1.7% of storage capacity is used for independent wholesalers and other rivals to major oil companies currently despite efforts by NERSA to force facility owners to have explicit allocation mechanism for sharing uncommitted capacity.

Alternatively, independent wholesalers could decide to import fuel from the world market on their own but this is very expensive and often fraught with complications. First of all, importing fuel is an extremely risky endeavour requiring a large balance sheet and well-managed cash flow. A small tanker-load of fuel could take at least three weeks to reach the port, in which time currency and oil price fluctuations may have changed the economics of the deal. Once the fuel has landed, there are often problems with the quality of fuel which are very difficult for an independent wholesaler to manage without refining capacity. The major oil companies have refineries in the country and therefore can fairly easily rectify any deficiencies or changes in the quality of landed fuel. The view of wholesalers is that even if several independents took on the venture collectively, importing fuel is still a substantial risk.

In the case where an independent wholesaler were to successfully import fuel through the port and gain access to storage facilities, it would still need to have access to the fuel pipeline to transport the fuel inland. The pipeline infrastructure is owned and operated by Transnet Pipelines which, as part of its mandate, has to ensure access to this infrastructure. The pipeline infrastructure is particularly important when considering that 60% of fuel demand in South Africa is in the inland regions such as Gauteng, while the remainder is coastal (Naidoo, 2011). The challenge in this regard is that the current pipeline infrastructure is connected to the storage facilities of the major oil companies at the port which again requires negotiations with the major suppliers that carry far larger volumes. Furthermore, once the fuel is transported by pipeline to the inland region, storage facilities are required once the fuel is offloaded from the various inland pipeline depots – currently fuel is transported by road and rail from the depots to the storage facilities of the main oil companies.

There have been efforts to import fuel through Mozambique and then transport it via rail or road. The quality of this fuel however is questionable and the channel unreliable. A number of firms have had bad experiences with this channel of supply including in terms of the reliability and quality of the product. Furthermore given the costs involved, it is not sustainable to transport this fuel to inland regions except to Mpumalanga and Limpopo.

Pricing and transport: The issue of transportation is especially important in this sector. For wholesalers, the ability to achieve scale in transporting loads of fuel to various customers can determine whether the operator is able to make a profit. Given that margins in the industry are controlled and that wholesalers do not have the control of supply or the scale of operations to afford to obtain fuel supply at heavily discounted prices, it is increasingly important to be able to reduce costs and derive efficiencies in their operations. Due to changes in the pricing regulation over time, most of the major oil companies have given away less profitable wholesale businesses in peri-urban and rural areas to branded and independent wholesalers. This in fact led to the entry of several firms to the wholesale level of this sector. These areas are less profitable primarily because of the distances travelled to service customers in these markets. However, wholesalers have argued that the current pricing mechanism, RAS, is not calculated based on all the costs experienced in servicing customers in distant rural areas and delivery to small customers requiring small volumes. Instead, the mechanism is said to be based on the costs of an average operator largely based in urban areas where transport distances from depots are less, and demand is higher.

RAS assumes a benchmark service station through averaging the costs of fifty depots. Wholesalers have argued that service stations located farther from the benchmark station bear higher transport costs which reduces the margin they can receive. Distributors that are closer to the benchmark station receive higher profit margins than those farther away. It is for this reason that the major oil companies chose to sell off the less profitable sites that were in the rural areas and far from the benchmark station. The major oil companies therefore retain the sites with the highest profit margins. This arrangement affects both branded and independent wholesalers in so far as branded wholesalers have also been allocated less profitable peri-urban and rural areas in accordance with the policies of the oil company that they are contracted with.

4. Conclusion and recommendations

The combined effect of the barriers to entry noted above is that whilst a large number of entrant wholesalers have been licensed, very few are actually operating in the industry and still fewer are operating successfully. Even if a new entrant does manage to secure both fuel supply and customers for the product, the environment remains challenging and most struggle to grow beyond a small scale of activity.

Competition appears to be relatively muted in the industry due to a combination of factors including the vertical agreements between the major oil companies and their branded-marketers and retailers, limited competition between the major oil companies, and the nature of economic regulation in the sector. The major oil companies have been able to coordinate the supply of fuel to different parts of South Africa through various mechanisms discussed

above, including an exemption from the Competition Act. Although in theory it is possible for an independent player to import fuel, in practice there are a series of constraints which make this very difficult, if not impossible. These constraints mainly relate to the availability of storage infrastructure.

This results in a situation where new entrants at the distribution level are usually accommodated into the industry by existing players, rather than entering independently and challenging the status quo. For example, a well-established wholesaler may agree to supply fuel to a new entrant if the entrant can deliver a new customer that the established player would not otherwise have served, but would be unlikely to do so if the new entrant plans to compete for existing customers. Similarly, the more established wholesalers do not typically compete with the major oil companies for customers as they are usually tied in to a branded-marketer agreement which dictates the area in which they may trade. Even where this is not the case, it is difficult for wholesalers to compete with the major oil companies for customers when they are dependent on them for the supply of fuel. These dynamics would not matter if there was strong competition between the major oil companies themselves and therefore between the different vertical chains present in the market. However, this does not seem to be the case. Such competition as does take place is typically based on service levels and there is not vigorous price competition in the market.

The reason for this may be attributable in part to the economic regulation of the industry. The fact that prices are regulated serves as a further disincentive for competition in the industry. Even though prices are directly regulated at only one level of the value chain, the price formula includes wholesale and retail margin components, which means that the compensation level for the average wholesaler is common knowledge throughout the industry. Similarly the return that the average retailer should make is published as part of the formula. The fact that the retail price (of petrol) is regulated means that the total rents available are determined by the regulator. The major oil companies in turn have control over supply such that they generally do not allow wholesalers and retailers any more than these average amounts, no matter whether the wholesaler or retailer in question is located in a high cost or low cost area to service.

The price regulation system may also explain why wholesalers report that they are generally unable to play the major oil companies off against one another, as it provides a focal point around which the major oil companies can easily tacitly coordinate. Coordinated outcomes in oligopolistic markets are the result of repeated games where the market conditions mean that competitors find it more profitable to adhere to the collusive agreement (whether tacit or explicit) than to compete strongly with one another. For this to be the case, firms must have a means of reaching agreement and a mechanism for detecting and punishing deviations from that agreement. This suggests a set of conditions in which coordination is more likely including high levels of concentration, symmetry between firms, transparency in the market, and product homogeneity.

As discussed by the Tribunal and highlighted above, all of these conditions are met in the petroleum industry. Transparency in particular is very high in this market as a result of the

swap agreements between the major oil companies, the pricing formula used by the regulator, and the need to coordinate supply in the interests of security of supply. Market transparency enhances the ability of firms to monitor the behaviour of competitors and detect any deviation from the coordinated outcome. The information sharing arrangement which the major oil companies were party to until recently would have further enhanced their understanding of one another's businesses and avoid head-on competition. As noted above, the transparent pricing formula published by the regulator provides an easy means for firms to reach a tacit understanding on price.

In this context, the long-term exclusive contracts which the major oil companies sign with their branded distributors could also be interpreted as a means of committing to maintain the agreement, as the agreements effectively prevent the firms from undercutting one another to customers and allow them to maintain high margins upstream. This may also partially explain the major oil companies' decision to disinvest from the wholesale level. Independent wholesalers on the other hand are prevented from competing effectively by the control which the major oil companies hold over supply. They have neither the ability nor the incentive to compete strongly on price as the major oil companies control the price at which they receive the product, and the independent wholesalers are effectively reliant on them for their existence. Unless the independent wholesalers are able to access an alternative source of supply, the major oil companies' control of the market and ability to extract the majority of the available rents is likely to continue. This ties in with the earlier discussion of strategic barriers as raising the costs of rivals and reducing their ability to compete.

The liquid fuels industry is one where there are a number of competing imperatives. In addition to stimulating transformation in the industry, DoE is also concerned with ensuring security of supply and preventing costly shortages of fuel in the country. Still in addition to this, is the need to ensure that fuel is affordable to consumers across the country, a goal which may be thwarted if consumers in outlying areas had to face the full costs of distributing fuel to these areas, and which therefore necessitates some cross-subsidisation. In this environment, competition concerns may be relatively low down on the list of priorities. However, the study has shown that to a large degree the problems with competition and increased participation and transformation in the industry are interlinked, and the constraints in wholesaling are in fact directly linked to the broader market structure, regulatory environment and resulting constraints to greater competition in the industry as a whole.

In this context, we consider a set of recommendations drawn from the study which focus not only on the wholesale level of the market and the barriers discussed above, but also consider aspects of the sector as a whole which affect the wholesale level.

The first relates to access to alternative sources of supply. It is clear that developing alternative sources of supply would undermine returns to the incumbent oil companies who would be expected to adjust their competitive strategies in response to this. Significant benefits would accrue to downstream operators and consumers if distributors could play oil companies off against one another to get better prices and terms. Furthermore, oil companies would most likely have to compete with one another more aggressively, which it appears is not currently

happening in the market. In order for this to be possible, however, interventions are required at the transport and storage level.

In this regard, facilitating access for independent wholesalers to storage infrastructure is absolutely critical to enabling alternative sources of supply into the market, and hence to allow for greater levels of competition in the value chain. In the short term, NERSA should continue to make efforts to enable independents to gain access to existing uncommitted capacity. In the longer term, it is necessary to ensure that there is sufficient uncommitted capacity in the market for independents to use. DoE and NERSA could do this by leveraging storage facility licence conditions to mandate that players set aside a certain proportion of capacity for independents to use. Alternatively DoE could facilitate investment in new independent storage capacity, either through providing guarantees or through encouraging collective action by independent wholesalers to make such an investment.

Some interventions could be made in the relatively short term to assist independent wholesalers to be effective competitors. For instance, it does seem that a review of the implementation of RAS would be beneficial and could include consideration of situations where wholesalers are not receiving the full margins recommended in the RAS pricing mechanism, and the adequacy of the allocated margins overall. In addition, increased efforts in terms of capacity building and assistance for new entrants could help to address any skills deficiency in the industry including in the management of finances and on strategies to derive efficiencies in entrant businesses given the current pricing and cost environment. A long term intervention could be to address the exclusive and long term nature of the agreements between the major oil companies and their branded distributors. The agreements between wholesale distributors and the major oil companies serve to restrain competition by specifying geographic territories (in the case of branded marketers) and in some cases the customers which a wholesale firm is required to service. In the case of independent wholesalers, the supply relationships with the oil companies would probably not exist if the oil company thought that those wholesalers threatened to compete with them directly. If supply contracts were known to be for a shorter period of time, then it is more likely that oil companies would have to compete to retain those wholesalers as distributors for them in specific areas and especially those that they would rather not service themselves. However, this would potentially be constrained by the fact that oil companies would most likely remove their infrastructure from a wholesaler's site if they could no longer supply that wholesaler, for competitive and environmental reasons.

Overall, the effect of these and similar measures is likely to be insignificant relative to the importance of addressing the limitations on rivalry between the major oil companies and enhancing the opportunities for accessing infrastructure and alternative sources of supply. It is of course important to keep in mind the issue of security of supply in considering interventions that impact the sector. However, with well-designed policies, the objectives of competition, transformation and security of supply should be able to be met simultaneously.

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