Designing an oil regulatory framework: A consolidated view

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1. Introduction

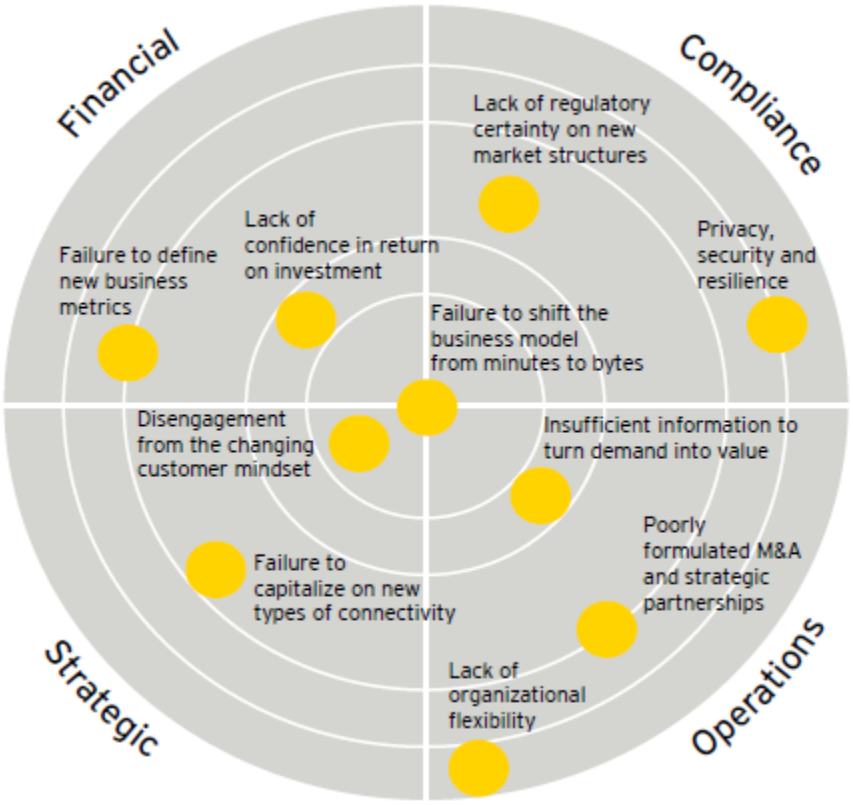
Different countries and industries deploy varying regulatory frameworks in their economic sectors. The market expectation is that all these regulatory frameworks are based on well thought-out country strategies, designed to yield maximum economic yield for the country, for suppliers and consumers alike. The key challenge, however, is that unlike policies and laws, most regulatory frameworks are not written down and published; they are only in the minds of a few. Market participants are forced to spend time and resources attempting to decipher regulatory principles underpinning the regulatory framework governing their sector, sometimes leading to unnecessary conflict between the regulator and the regulated.

Lack of transparency of regulatory frameworks even results in potential investors and market participants shying away from investing in certain markets. Regulatory risks are key risks identified by investors in networked industries, like energy and telecoms. In 2012, Ernst & Young placed lack of regulatory certainty as one of the top five risks in the telecommunications sector in 2012:

‘Consequently, policy challenges are undermining operators' willingness to invest. This means that 2010's third-placed risk of "rising regulatory pressure" has now narrowed into this year's more specific risk factor — and that it is increasingly crucial for governments and regulators to adopt pro-investment policies to sustain the sector's momentum.’ (Ernst & Young 2013). Figure 1 1 captures the top 10 business risks for the telecommunications sector in 2012.

[1] Khanya Africa Business Solutions (Pty) Ltd

Figure 0-1: Top 10 business risks for telecommunications in 2012



This paper seeks to locate the regulatory framework design of an industry in its strategic landscape and to identify its appropriate use and, by definition, its abuse. It seeks to identify the appropriate approach to designing an appropriate regulatory framework that addresses industry challenges and that has the potential to yield the better functioning of a networked and capital intensive sector. The position taken in this paper is that energy institutional framework design is in essence a country's energy strategy formulation.

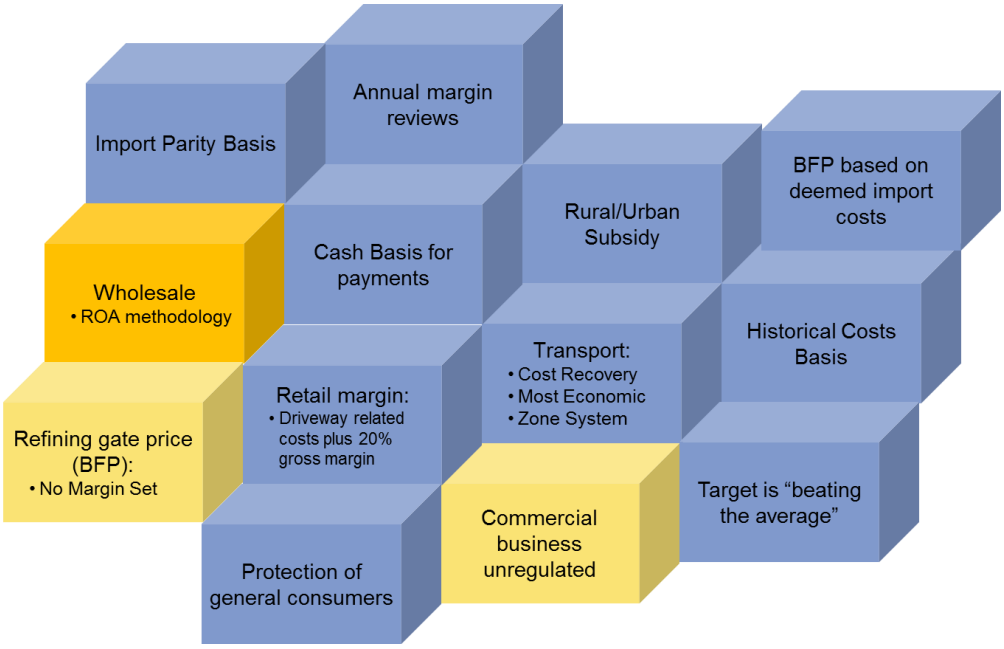
2. Background

Figure 2 1 represents the historical principles that governed South Africa's oil pricing framework. The price regulatory framework had a particular shape, but of interest would be an understanding of why it took the shape it did. It would be interesting to obtain views from market participants – including the implementers of the regulatory framework – on why the oil sector is regulated in the manner it is, or even why it is regulated in the first place.

The 2003 Amendment process introduced licensing into the regulatory framework, in the place of voluntary and exclusive RATPLAN, but none of the engagement processes associated with the amendment process actually got into detailed discussions on regulatory principles that would underpin the licensing. Section 2E of the Petroleum Products Act requires that 'the Minister must prescribe a system for the allocation of site and their corresponding retail

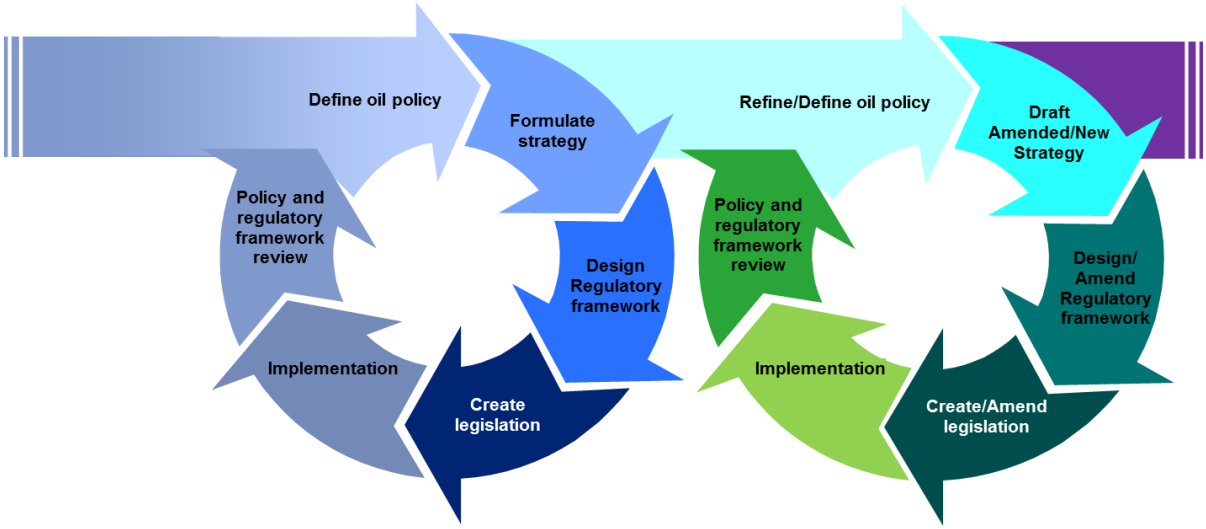
licences and the supply of prescribed petroleum products to such licensees, by which the Controller of Petroleum Products shall be bound.'

Figure 0-2 Historical South African regulatory principles



Licensing regulations make an attempt to define what the construct of the 'system' is. In truth, only the designers of the system truly understand the workings of the system.

Figure 2 2: Institutional framework design

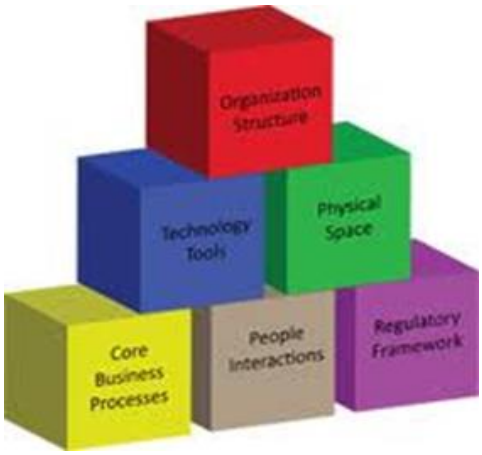


The regulatory framework development should ideally be an interactive process that starts with a clearly defined policy framework and a well-defined sector. Sector laws give effect to the regulatory framework and should therefore only be drafted as the final institutional framework element.

Error! Reference source not found. shows the linkages among a number of institutional framework elements. None of the elements are carved in stone, and they are all meant to be subject to a review process on a regular basis to check for their efficacy and appropriateness. The review periods vary from element to element. A policy position that is untenable will need to be changed; strategic choices that are not achieving desired outcomes need to be modified; regulatory frameworks that are not yielding anticipated outcomes need to be changed; and laws that are not resulting in expected outcomes need to be accordingly amended. Our position is that institutional design is in essence nothing more than a country's strategy formulation and should be handled as such. A great regulatory framework reflects the voices of all the key stakeholders.

Regulating is not only a means of control of an industry but a strategic intervention aimed at achieving certain policy objectives and imperatives. Like any strategic tool, it should not be arbitrarily developed, chosen or implemented but should be a strategic choice made after appropriate strategic analysis. Regulatory framework design should be based on principles that are aimed at yielding maximum economic welfare.

Figure 0-3: Locating regulatory frameworks



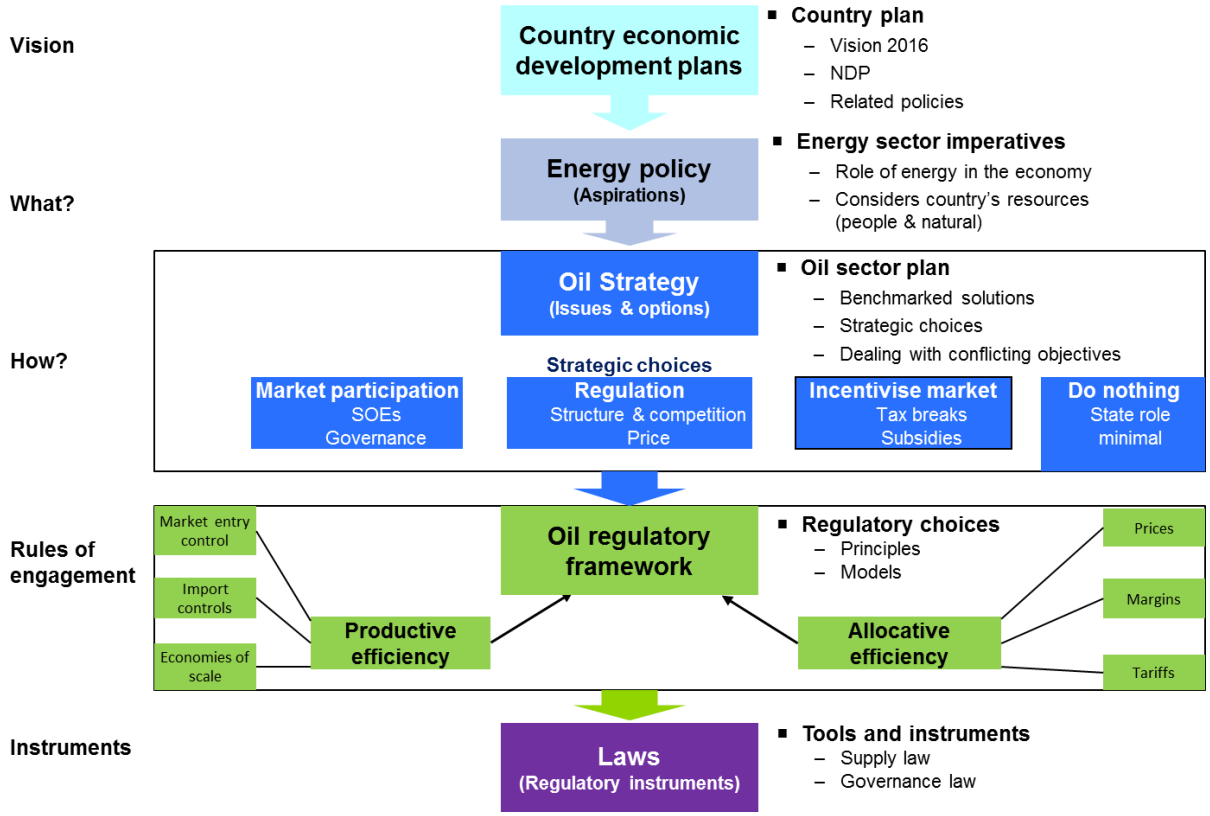
Clear and predictable regulatory frameworks form a foundation for competitive markets with profitable and stable companies. The key components of a regulatory framework include (i) the objectives of economic regulation; (ii) clear regulatory outcomes; (iii) clear reasons for regulating; (iv) a clear review process; (v) clear key performance indicators; (vi) the frequency of review; and (vii) clear goals and milestones. As with all great strategies, regulatory frameworks should be written *in soft clay* rather than *etched in hard stone,* as this allows for continuous improvement. The need for flexibility, however, presents a number of challenges for regulatory frameworks, which by the definition are given effect through laws that take time to approve or to amend. Further, investors require regulatory certainty, which a flexible framework cannot guarantee.

> *Any regulatory principle that is made at this level is informed by the specific characteristics of the sector, the particular policy objectives for the sector and the*

*relative weighting of the competing objectives. As these are different across the sectors, it would be difficult pin down a principle that could be applied effectively and appropriately across all the sectors (*Genesis, 2008*).*

The regulatory framework defines the operating space for the country's oil sector market participants. It encompasses oil sector policy aspirations and sectoral strategies applied in pursuit of those policy ambitions. The regulatory framework defines the rules of engagements of the sector, defining what is allowed and what is not allowed, defining how to play and how not to play. The legal framework is drawn from the regulatory framework. **Error! Reference source not found.** below shows the linkages among all aspects of the institutional framework of the oil sector.

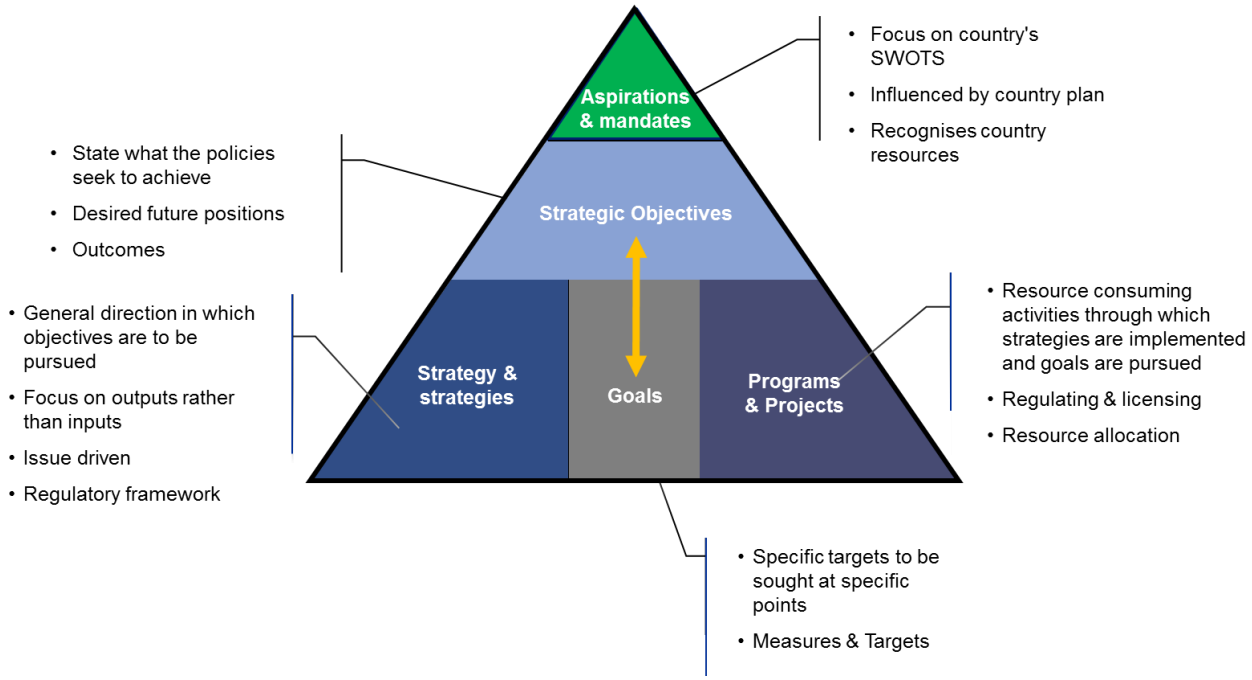
Figure 2-4: Linkages of elements of institutional framework



3. Energy policy

The starting point of the regulatory framework design is a well-articulated energy policy. The energy policy defines the desired end-state for the economy; it addresses policy concerns and issues, most of which are drawn from the broader national plan. The policy sets out aspirations, objectives and high level goals.

Figure 0-4: Locating regulating frameworks and instruments



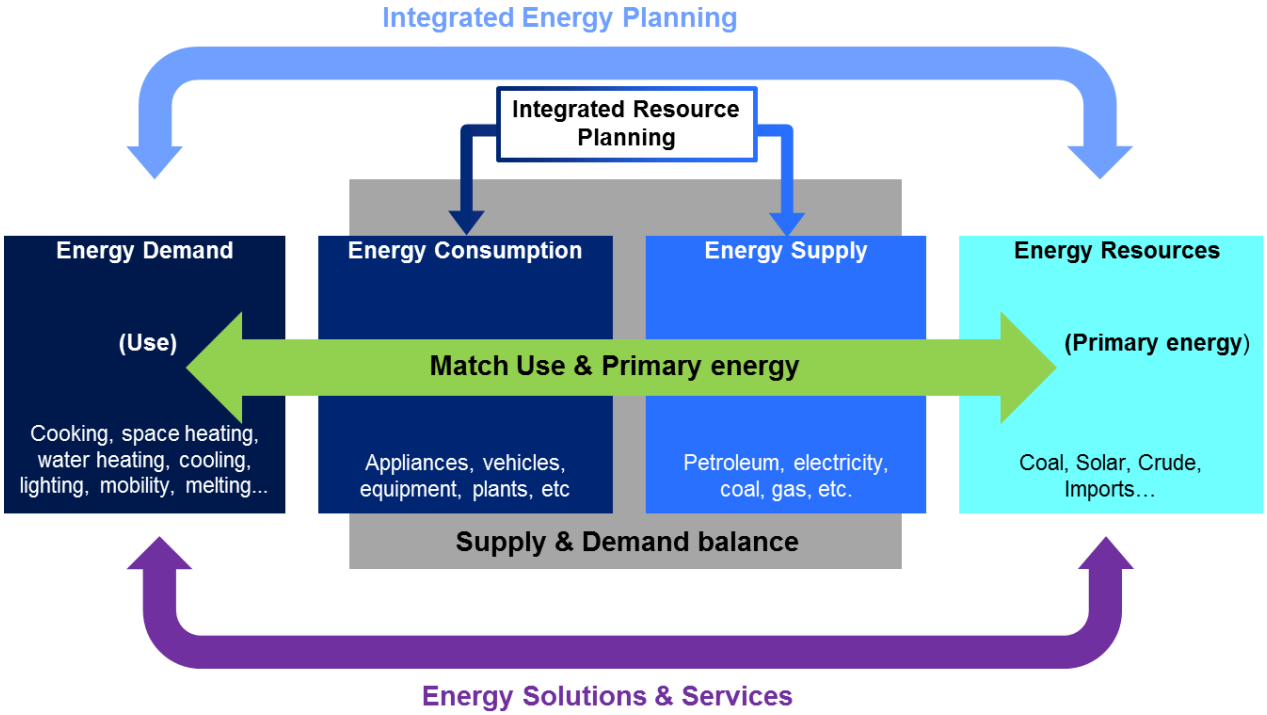
Legal instruments and state-owned entities are policy implementation instruments. So when policy changes, the implementation instruments need to accordingly change. Also their efficacy needs to be evaluated at regular intervals. Unfortunately, in most cases these policy implementation instruments end up with a life of their own, making them very difficult to change.

3.1. Demand-driven and country development plan informed

Energy has a *derived demand*[2], which ideally means that understanding its demand requires a thorough understanding of the country's economic structure and its developmental agenda. The primary role played by energy in any country's development plans relates to economic infrastructure. It affects the economy and it is also affected by the economy. Figure 0-5 below attempts to explain the concept in the case of energy.

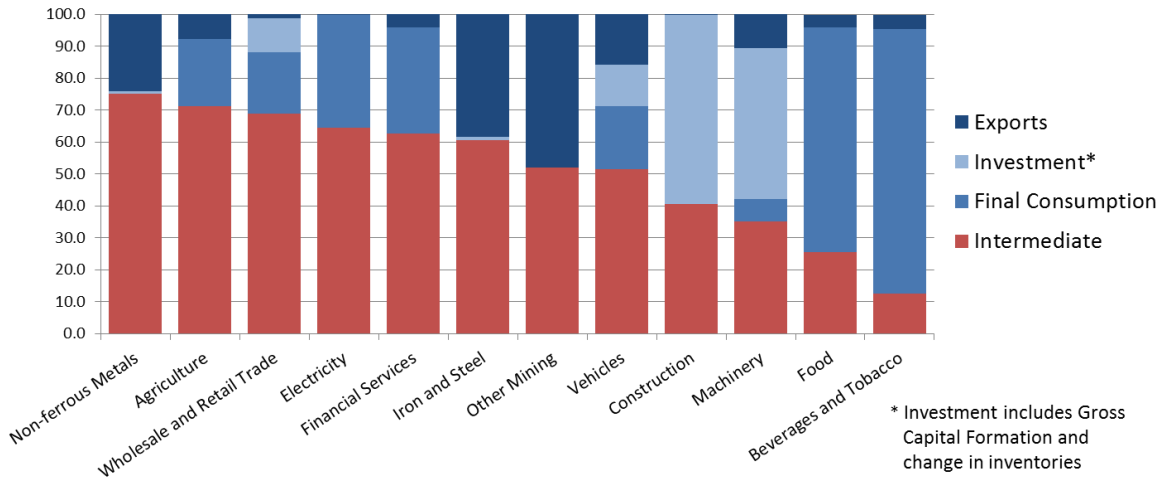
[2] Investopedia defines 'derived demand' as the demand that is derived from the demand from another good or service.

Figure 0-5: Matching consumer needs and country resources



Energy policy is directly linked to the country's developmental agenda, which among other things seeks to optimise the exploitation of a country's resources to match a country's energy demand. The country's development plan should outline the optimal route for the development of a country's resources, which may include (i) do nothing option (ii) trade the resource directly or unbeneficiated; or (iii) beneficiate the resource through an energy route. In some cases, like in the solar resource route, energy is presented as the only possible route for monetising a country resource, when better strategic options may exist. As depicted in Figure 0-6, the majority of energy resources and carriers are not consumed directly but are largely used as an input in the development of other goods and services. In the case of electricity, 64.4% of electricity was used as an intermediate, 35.4% consumed directly and 0.2% exported.

Figure 0-6: Understanding the role of energy in the South African economy



This intricate linkage between energy and other economic sectors makes planning for energy supply very challenging as changes in energy supply attributes impacts on the demand for that energy carrier by a particular demand sector. A country's development plan seeks to find the optimal resource development route.

3.2. Context of country's resources

As depicted in Figure 0-5, energy demand can also be met through imported resources when such resources are not available in the country. However, an optimally-defined energy plan would seek to minimise this dependence on imports and optimise the development and monetisation of indigenous raw materials. In some cases local resources can only be monetised or exported through conversion into an energy carrier, as was the case in the Norwegian water resources.

There are a number of strategic options available to a country to monetise or trade its energy minerals or resources, which tend to be very resource specific. The most common approaches are the non-energy route (in which a resource is traded directly as a commodity), conversion to a tradable energy carrier or as a tourist attraction. Since the establishment of effective spot and futures crude markets, crude oil globally is now traded as a commodity. The most notable exception is Canadian oil sands.

The most common route, however, is the energy trade route, in which produced energy is traded directly (including cross-border sale of electricity or refined oil products) or indirectly traded i.e. used to develop other tradables in the economy. The case in point is the use of electricity to process chromium ore into stainless steel or processing imported alumina to aluminium using electricity generated from a country's abundant, low value coal resources. The most appropriate route should be chosen after a detailed strategic analysis.

4. The oil strategy

Regulation is a strategic intervention, a programme, as depicted in Figure 0-4. It is a policy implementation tool. Once the energy policy has been defined, strategic choices need to be made to address strategic issues that are identified as possible inhibitors to the achievement of policy aspirations.

Figure 0-7: Strategic interventions

The following captures what we believe are strategic choices available to a government to address industry issues that inhibit growth and development in the oil sector:

1. Do-nothing option (market solution);
2. Regulate (legal option);
3. Participate directly in the market (state-owned-entities option); or
4. Provide incentivise (generally a tax option).

The choice of which appropriate strategic lever to adopt, to address an issue, is determined by the issue in question, its drivers and the prevailing circumstances in a particular economic environment. Due to the difficulty in changing regulatory frameworks and regulating instruments as well as greater difficulties associated with unwinding a company, these two options should only be adopted after careful and extensive evaluation.

4.1. The state participation option

The state can participate directly in the oil sector or it can regulate a sector. Differing circumstances make countries adopt different approaches.

4.1.1. National oil company route

State participation in the oil sector is as old as the oil industry itself, although the participation has been as varied and complex as the oil industry itself. The form of state participation in oil producing countries tends to be different from the form it takes in oil consuming countries. The primary interests for governments in oil producing countries are oil revenues and hence their active participation in the upstream sector. From around the early 1950s:

> *as the new order was beginning to generate massive profits, bitter battles were already erupting over how these profits were to be divided. … The central issue was division*

> *of what has been called 'that uneasy and important term in the economics of natural resources' – rents. (Yergin 2009:412 - 413).*

The post-World War II battles in the oil sector were not exclusively about the economics. They were also about nationalism, nation-building and sovereignty. The battles were about:

> *the powerful assertion against the 'foreigners,' who were said to be 'exploiting' the country, stifling development, denying social prosperity, perhaps corrupting the body politic, and certainly acting as 'masters' – in a haughty, arrogant, and 'superior' manner.* (Yergin, 2009:415).

The process of sharing of rents began in Venezuela with a 50-50 split of the economic rent derived from oil sales between the 'landlords' (oil-producing countries) and the oil companies. With that move, oil producing countries had begun to take control of their own. The takeover of the oil revenue by the state was not limited to OPEC countries; even countries like Norway and United Kingdom, through national oil companies, instituted significant state ownership of oil assets in their countries.

The case for national oil companies in oil consuming countries is not as clear. The prominent oil consuming national oil companies like Total, AGIP and SASOL were born out of needs to 'create a state-owned refining company, a national champion, to compete with the international companies' – (Yergin, 2009:483). The majority of these companies have since been privatised.

The concern for most oil consuming countries is security of oil supply and related infrastructure. Infrastructure security is essentially about investments in and protection of vulnerable energy infrastructure. The private sector generally does not invest in infrastructure required for securing supply, the burden which falls in the hands of the state. The state has to invest in storage facilities, pipelines and other related oil infrastructure in the country and outside. The state plays a key developmental role but this role must be separated from the other roles it plays in the industry, such as governance and policy-making. The state has an obligation to fill the gap left by the market. The state also has an obligation to invest in critical oil infrastructure. It is the investor of last resort.

National oil companies have evolved to meet energy challenges in their home countries as well as to respond to changes in the global energy markets. The presence of a strong national oil company deters the creation of strong departments of energy, resulting in opposition to the creation of national oil companies. In China for instance:

> *opposition of China's NOCs is widely cited by Chinese energy experts as one of the main reasons that the Chinese government has not created a ministry of energy…NOCs are reluctant to have another political manager and fear that it would limit their access to China's top leadership* (Pascual & Elkind, 2010:77).

The early 1990s saw a widespread push for freer markets and energy sector reforms across the globe, which resulted in a number of full and partial privatisation of national oil companies

globally. This activity, according to CEE-UT[3] (2007), was influenced by the following factors: 1) reduction in oil and gas prices, 2) needs among governments involved in restructuring programmes for revenue from privatisation exercises, 3) pressure from international capital markets, and 4) internal shifts in public preferences in respect of the role of government in the market. However, recent higher commodity prices and other factors have virtually reversed the tide.

> *NOCs are likely to remain a strong energy sector feature for countries that remain net exporters of hydrocarbons…even governments of net consuming countries may retain the NOC model…a key strategic issue for NOCs is challenge of balancing commercial and non-commercial objectives (*CEE-UT (2007).

To get a better view of the importance of state participation in the oil sector, it is important to understand why different countries formed national oil companies. CEE-UT cites the general reason as being the following:

> '*the "normal" operation of market forces would not be sufficient to propel developing countries out of poverty….* Additional reasons have, however, been cited*: (1) the emergence of natural resource nationalism and the reduction of the state's dependence on international oil companies; (2) the "strategic" nature of oil; (3) the inability of the private to deal with the commercially risky and technologically complex oil and gas sectors; (4) lack of institutional frameworks to support a regulated private sector; and (5) the economic development role envisioned for the NOCs. (*CEE-UT (2007:4))

In the late 1970s and 1980s, the economists successfully challenged the Keynesian basis for state economic intervention. 'The result was privatization, deregulation and general liberalization. State owned enterprises became viewed as dinosaurs requiring a helping hand into extinction. It seemed that removing state intervention from all but a minimal role was now an undisputed requirement.' (CEE-UT, 2007:6).

Recent events, including price hikes, have resulted in re-emergence of 'resource nationalism'. In many producing countries, national oil companies are still seen as crucial to economic development…control of oil revenue, in particular, is often a mechanism for political control of government.

CEE-UT (2007) suggests the following factors play a significant impact on NOC performance:

[3] Center for Energy Economics, University of Texas, Austin

Public sector governance	*Corporate governance*	*Fiscal regimes*	*Commercialization*	*Regulation*
Presence of a well-defined hydrocarbons policy	Only one government entity is the NOC 'owner'. Other government entities at arm's length	Fiscal regime allows NOC to have strong cash flows to meet objectives & plans	Non-NOC participants permitted in the sector to provide performance incentives	Independent regulation of prices, access and quality
Clearly defined stated NOC objectives	NOC has independent Board of Directors, selected on merit	Regime allows NOC to have good credit rating to attract external financing	Promote JVs and alliances of NOC with other parties domestically and internationally	Independent regulation of market transparency
Separation of policymaking, regulation & commercial operations	Merit & performance based NOC & manpower recruitment		NOC contains profit-oriented business units that are adequately capitalised	Independent resolution of disputes and conflicts and public concerns
Clearly defined tax & royalty regime	NOC possesses strong internal financial oversight & controls			

There are many examples of national oil companies that have performed extremely well, including PETRONAS and Statoil-Hydro. Founded in 1974, PETRONAS could have limited itself to its original charter, which focused on managing and regulating Malaysia's upstream oil sector. Instead, it worked closely with ExxonMobil and Shell, both long-term production-sharing contract holders in Malaysia, to develop the technology and capabilities of an independent operator. Today, PETRONAS has more than $75 billion in revenue and a global footprint matching that of many IOCs.

The Brazilian government launched Petrobras in 1953, but it was not until the first 1970s oil shock that the company began to focus on exploration. Over time, Petrobras developed breakthrough technologies that now enable exploration, development and production in Brazil's deep-water oil reserves. With revenues approaching $140 billion and a market

capitalisation of nearly $215 billion in June 2011, Petrobras is the largest company in Brazil and the eighth largest (by market cap) in the world.

StatoilHydro is a Norwegian energy company, formed through the 2007 merger of Statoil with the oil and gas division of Norsk Hydro. StatoilHydro is the biggest offshore oil and gas company in the world and the largest company by revenue in the Nordic Region. By market cap, StatoilHydro in 2008 was ranked by Fortune Magazine as the world's 11th largest oil and gas company, and as the world's 59th largest company. Statoil's shareholders hold 67.3% of the new company, with Norsk Hydro shareholders owning the remaining 32.7%. The Norwegian Government, the biggest shareholder in both Statoil and Norsk Hydro, holds 62.5% of the company.

Direct state participation in a market with significant presence of private players should always be carefully considered and be limited to cases where other solutions are considered not viable or not available. However, it is also important to note that in the oil sector some activities may well be better provided by the state or by an independent third party. This may include activities that are aimed at promoting efficiency and competition in the market.

4.1.2. Regulator route

> *Inadequate regulation and enforcement can also harm the efficiency of fuel supply. Sector regulations that have not been updated in decades, lack sufficient coverage, or list outdated fuel specifications may deter entry of experienced operators adhering to high standards. An efficient legal framework for the downstream petroleum sector requires legislation that clearly defines and limits the role of the government in order to avoid undue interference and establishes principles and rules for the private and public participants in the supply chain in order to create a level playing field and promote fair, transparent, and healthy competition*, ESMAP (2009:22).

Most countries have some form of petroleum law, mostly covering upstream issues, with a few focusing on the downstream sector. In a constitutional democracy, the basis of government engagement is law and therefore a sector specific law generally defines the legal and regulatory landscape in a democratic country, thus bringing regulatory certainty to both investors and consumers alike. According to Barton et al (2004:464) 'virtually all jurisdictions regulate their energy sector, the variable is the extent to which the regulation is aimed at energy security'. Producer countries are more concerned with upstream issues while consumer countries tend to focus on downstream issues (Barton, 2004).

All sectors of the economy can benefit from an efficiently managed downstream oil sector that delivers petroleum products in the quantity and at the quality required at least cost (ESMAP, 2010). Energy laws govern the production, use and taxation of both renewable and non-renewable energy resources. In the twentieth century, energy laws focused mostly on natural gas regulation, but were expanded to include other areas of energy regulation as well. They include the legal provision for oil, gasoline, and 'extraction taxes'.

According to Barton et al (2004:460), 'poor regulatory design can be the cause of energy insecurity'. Barton et al (2004:461) go on to state that:

law has a role in expressing formal expectations for energy security. It can state the entitlements of citizens in a general sense, and can provide mechanisms for determination more particular service levels. Law can allocate responsibility, and follow it up with formal planning, monitoring, and enforcement procedures.

A regulatory solution is therefore one that is largely aimed at clarifying the rules of engagement in an industry. It should, however, not just be derived from global best practice but rather from a detailed strategic analysis. A country's laws and regulations are 'the only things that can't be avoided, the only protection buyers and sellers have. In the international financial community they take the place of armies. Every conglomerate must adhere to the laws of the country in which its divisions operate.[4]'

4.2. Market solutions (trust the market)

Governments in larger and developed markets generally keep away from direct participation in the oil market, except to regulate safety, health and environmental standards. For the market solutions to work there should not be any controls in the market that could potentially limit market responses, including capping price increases, which are always in response to market supply/demand imbalances or are a signal for the market for investment.

It must, however, be noted that market solutions in a small concentrated market[5] may cause more problems than they solve. Like the state participation options, market solutions must emerge from an intensive strategic analysis. Market solutions have had limited successes in the small developing economies not because the solutions were inappropriate per se but because the process was not premised on a proper analysis. According to ESMAP (2009), in Kenya and Tanzania, charges of price collusion are putting pressure on the government to re-introduce price control. In most of these cases, the issue is not the failure of the market but the ownership and control of the logistical infrastructure by one or two market participants. Market solutions must be founded on a comprehensive strategic analysis.

4.3. Tax or incentive option

In some cases, the economics of supply to particular parts of the country or of supplying particular products do not add up, especially in low demand points. In such cases incentives are required to get companies to supply particular areas or products. Incentives may take the form of transfers (from a dedicated fund or from a national revenue fund) or exemptions from specific laws and prescriptions.

Use of subsidies or incentives is fairly common in the petroleum sector. Incentives, however, do not come cheap for the economy. They either need to be funded through direct fiscal allocations or dedicated levies. The challenge with incentives is that they can easily end up in

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[4] The paragraph was extracted from the novel "*The Materese Circle*" by Robert Ludlum.

[5] The HHI for South Africa was calculated to be 1 699 and a market with an HHI, the Herfindahl-Hirschman index, above 1 800 is generally considered concentrated while less than 1 000 is generally considered not concentrated. (ESMAP, 2010)

the wrong hands. It is difficult to ensure that the incentives are channelled directly to their intended recipients and fiscal allocations do not end benefiting neighbouring states or promoting cross-border smuggling, as is seen in a number of Southern African states (ESMAP, 2009).

Incentives and/or subsidies should be specifically designed and targeted and supported by robust monitoring and compliance measures. In addition, incentives/subsidies should be subjected to stringent cost benefit analyses to ensure that the intended recipients in fact benefit and that the overall benefit to the country can be verified. In many instances the administrative cost of providing incentives/subsidies can be prohibitive.

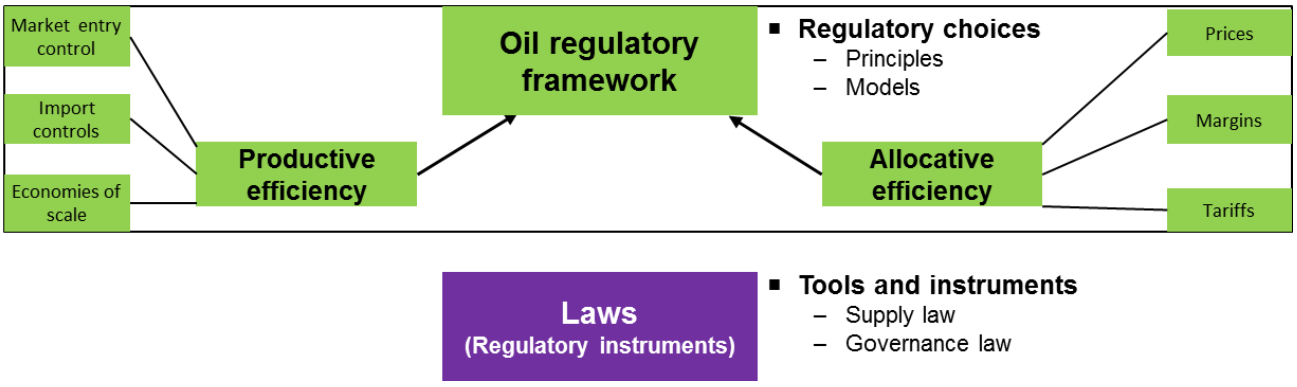
5. Regulatory framework design

The key output from an oil sector strategic assessment is a clearly-defined regulatory framework. In the downstream part of the oil value, scale is important.

> E*conomies of scale are particularly important for refining. Product demand has been increasingly moving away from fuel oil to gasoline, kerosene, and diesel, requiring cracking of residual fuel oil to white products. At the same time, fuel specifications are being tightened progressively, in particular requiring so-called sulphur-free gasoline and diesel in developed countries. Producing white products meeting tight fuel specifications requires processing units that enjoy large economies of scale. As a basic rule of thumb, a refinery needs to have a processing capacity of at least 100 000 barrels a day (or 5 million tonnes a year) to be economic in a liberalized market (*ESMAP (2009).

Countries have adopted a number of strategies such as a single-buyer model, import control and market control to increase economies of scale. However, control of the market requires a concomitant control of prices.

Figure 0-8: Regulatory framework structure



As articulated by ESMAP (2009):

> *…it is not easy to have effective competition in a small market, again because of economies of scale in establishing and managing supply assets and in fuel procurement.*

A large market can accommodate several actors, all enjoying requisite economies of scale, but a small market not necessarily so. This is particularly true for product import, refining, and wholesale. The larger the marine tanker carrying petroleum products, the lower is the unit cost of shipping. This requires two conditions: first, the volume to be purchased be sufficiently large to fill an economic-size tanker; and second, the port be capable of handling large tankers. Some small markets have used joint bulk import with varying degrees of success.

5.1. Key elements of the regulatory framework

There are four key areas of regulation:

1) *Regulation of competition and industry structural issues* – a number of domains have a sector specific regulator, over and above the presence of a competition regulator. In most jurisdictions, the energy sector regulator retains exclusive jurisdiction on matters clearly articulated in a sector law, with the competitions authorities retaining control of all other competition issues not clearly articulated in a sector-specific law.

2) *Regulation of economic issues (mainly prices and tariffs*) – regulating entry into a sector invariably implies a simultaneous need for regulation of prices and tariffs in the sector. Price regulation is therefore a regulatory issue directly linked to the energy sector regulatory framework.

3) *Regulation of standards of equipment, infrastructure and commodities produced or consumed by the oil sector* in the areas of:

    a) *Fuel specifications* - determination of standards for goods consumed or services provided in any sector remains the prerogative of the Department of Trade and Industry. Sector ministries, however, play a critical role in the development of those standards;

    b) *Marking and labelling* – the nature of the products that are sold in the oil sector require that both products and equipment used to dispense petroleum products to final consumers be marked or labelled accordingly;

    c) *Security of supply* – the energy regulator is generally tasked with ensuring availability of liquid fuels to the country and is required to therefore evaluate the risks associated with such supply and regulate the issues that would affect such availability. The intervention should be based on a well-research security of supply strategy, which may also include a stipulation of the emergency stocks to be held by specified market participants throughout the supply chain; and

    d) *Safety, health and environmental (SHE*) – the regulation of occupational health and safety is split between the Departments of Environment and of Labour.

4) *Social and national objectives* – South Africa has a number of social and national objectives, including economic transformation of the sector and reduction of energy poverty. These issues are, however, national issues, which should ideally be dealt with

through national prescripts. Sector regulatory frameworks may however address sector specific issues directly.

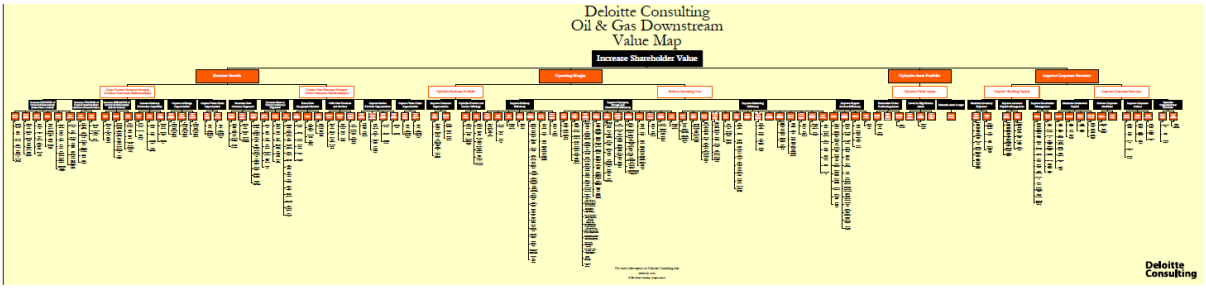
The regulatory framework brings together various aspects of the institutional framework, including the energy policy and the oil strategy and provides the framework within which all stakeholders will engage in the sector. The regulatory framework translates the strategic choice of regulating an industry into *what* is to be regulated, with a clear understanding of *why* they need to be regulated and *how* they are to be regulated.

Figure 0-9: Key regulatory framework elements

	Licensing	Access	Tariffs	Pricing & margins
Regulatory areas	• Importing • Exporting • Transit volume • Manufacturing • Wholesaling • Retailing • Pipeline • Storage facilities • Handling facilities • *Transport*	• Pipelines • Storage facilities • Handling facilities • *Transport*	• Pipelines charges • Storage facilities' charges • Handling facilities' charges	• Maximum retail price • Maximum wholesale price • Refinery gate price • Storage and handling facilities' charges • Transport margins • Single National Price
Outcomes	• Orderly development • Viable businesses • Non-discriminatory • CEC participation • Compliance regulation • Product quality	• Greater competition • CEC participation • Non discrimination • 3rd party access • Lower barriers to entry • Energy security	• Viable businesses • Non-discrimination • Reduction in monopoly rents • Investments in sector • Charges linked to cost of services	• Predictable • Transparent • Cost reflective • Optimal investments • Minimum price volatility

While Figure 0-9 attempts to capture the usual elements that are considered in the oil regulatory framework, it would be reckless to state as fact that these are the only or correct elements that need to be considered. The elements that need to be regulated should in fact emerge from a country's strategic analysis; from a detailed understanding of issues and drivers of competition in the country's oil sector. Figure 0-10 shows a typical downstream oil sector value map, which identifies the typical industry issues and value drivers, from which strategic levers can be drawn.

Figure 0-10 Downstream oil industry value map



The downstream oil value chain is usually segmented into four key areas that require clear regulatory frameworks, namely: price setting, entry management and control, and competition facilitation. These key areas translate into four key regulatory areas:

1. Activities in the oil sector value chain that will require ***licensing or contracting*** to enable enforceable orderly development;
2. Management of ***access*** to both private and public oil infrastructure to facilitate efficient and reliable supply, affordable prices and effective competition;
3. Determination of cost reflective ***tariffs*** that are applicable to users of certain oil infrastructure to reinforce sustainable economic activity; and
4. Setting of ***margins and prices*** of certain petroleum products across the value chain in a manner that encourages reliable and appropriate supply chain investments and yields affordable consumer prices.

The regulatory framework seeks to marshal all stakeholders in an inclusive and non-discriminatory manner on a level playing field by addressing explicit issues. It is critical that all stakeholders understand the merit for regulating and understand and appreciate the outcomes that are sought.

Economic regulation demands modulation of the two key aspects of market efficiency, namely *productive efficiency* (related to control of number of players in the market) and *allocative efficiency* (related to regulating price levels), which are not interdependent. The regulatory framework defines various regulatory instruments that may be used directly or indirectly to promote economic efficiency and competition in the industry.

In designing a regulatory framework, it is essential to make appropriate decisions on which principles should be legislated and which ones are to be left to the discretion of the regulator. In making this key decision, conventional wisdom suggests that it is safer to trust systems than people. When a country has a competent regulator, greater discretion would be a great idea but existence of a weak regulator can result in increased regulatory risk and uncertainty that may undermine long term investments. Allowing a regulator's discretion provides the necessary flexibility required for strategy implementation but brings the much dreaded regulatory uncertainty.

There are no hard and fast guidelines to assist with the decision on what to include in the legislation (both primary and secondary) and what to leave for the regulator's discretion. Some issues such as standards clearly demand upfront definition, while others such as social and national issues are perhaps better left to the discretion of the regulator. For economic, competition and industry structural issues, some level of discretion may be required to deal with unique circumstances associated with each licence. However, investors require regulatory certainty, which means a greater degree of legal prescription is expected. Regulatory design requires a sound balance between predictability and flexibility.

5.2. Regulating market entry

Regulation in general and licensing in particular brings significant challenges to both the state and the regulated entities and should therefore be undertaken only where a verifiable need exists. To be able to ensure compliance with conditions of economic engagement, a state has

two generic approaches, namely: *licensing or contracting*. Contracting allows for imposition of specific conditions to each market players but can be discriminatory and cumbersome. Licensing on the other hand allows for non-discriminatory conditions and is easier to implement but is administratively more demanding.

Experiences in Niger, Mali and Tanzania in relation to the behaviour of Oil Marketing Companies (OMCs), has indicated that even in deregulated markets, there is a need for the licensing of market participants: 'The very large number of OMCs raises the need for better enforcement of standards to create a level playing field. This large number of companies to scrutinize of course, places a difficult burden on EWURA, the regulator.' (ESMAP 2009:148) Kenya provides a better example of what could potentially go wrong if the market is not licensed. 'It could be concluded that, in order for a market of 3.9 million m^3 to sustain twenty-five companies, some of the smaller operators must be cutting costs through the operation of sub-standard retail facilities and/or engaging in practices which do not conform to the established rules. Hence the importance of good governance and sound regulations which are enforced.' (ESMAP 2009:138).

Licensing of the petroleum value chain seeks to achieve the following general outcomes:

- *Orderly development of the oil industry* - achieving productive efficiency in a capital intensive industry generally requires economy of scale, which may require limiting of the number of firms operating in the industry to one or a few firms;
- *Viable businesses* – security of supply can only be ensured by viable businesses;
- *Non-discrimination* – access to strategic infrastructure by all market participant is critical to promote competition in the commercial sector and reduce logistical costs in the rest of the industry;
- *Increased HDSA participation* – participation by the historically disadvantaged, in an industry that is largely run by international companies, can best be safeguarded through institutionalised means;
- *Increased compliance with laws & regulations* – ensuring compliance with a country's laws and regulations can be very difficult without direct control through either contracting or licensing; and
- *Supply of good quality product* – licensing creates an environment in which quality petroleum products can be sustainably supplied.

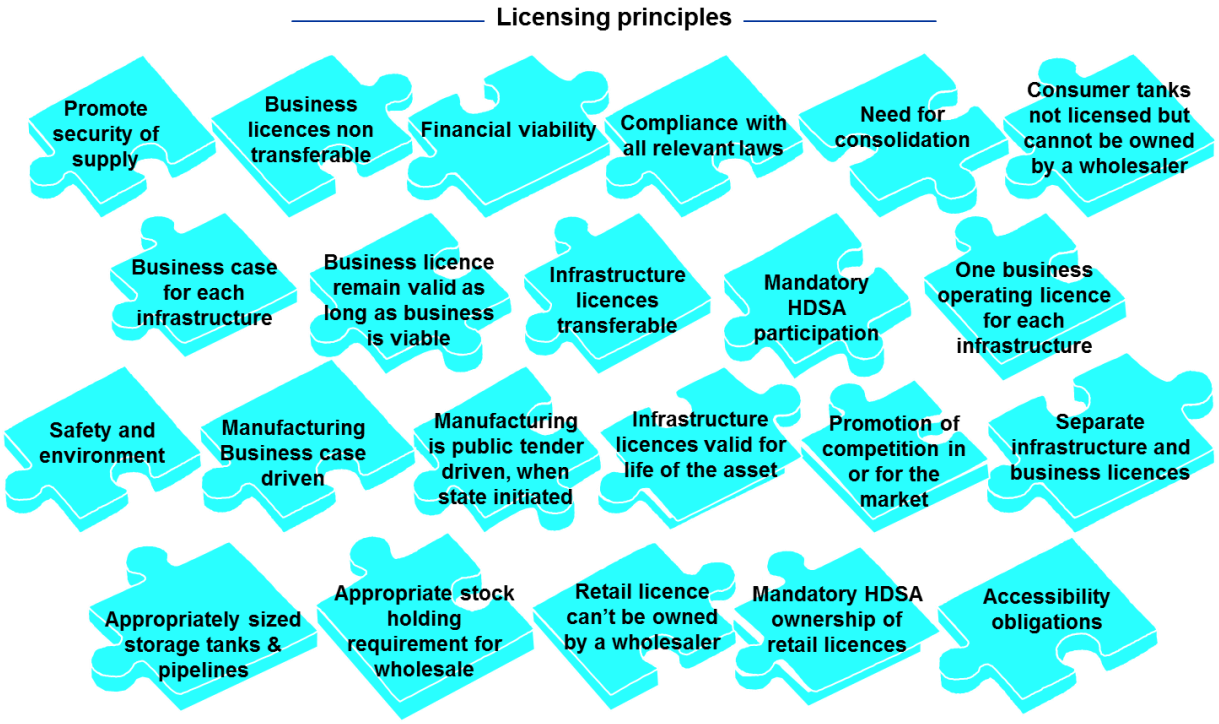
Oil sector activities can be classified into a) infrastructure-based and b) business-related activities. Issues related to development and operations of oil infrastructure are very different to those related to operating businesses using those assets. In some cases, the operator of the asset may not even be the same person owning the asset. The operator of a retailing site for instance is in most cases not the owner of the retail site.

It therefore makes a sensible choice to separate infrastructure licences from business (operating) licences. The separation would result in two licences for each activity, namely:

1. *Petroleum pipelines* construction and operating licences;
2. *Storage facilities* construction and operating licences;
3. *Handling facilities* construction and operating licences;
4. Manufacturing construction and operating licences;
5. Petroleum products site and retailing licences;
6. Wholesaling licence; and
7. Importing and export licence.

Ownership of key infrastructure is not always an issue; it is the discriminatory use of such facilities which limits access to key facilities that limit competition in the petroleum sector. Licensing should be based on principles agreed with all key industry stakeholders. Figure 0-11 shows an example of general licensing principles.

Figure 0-11: General principles governing liquid fuels activities licensing



5.3. Regulating access

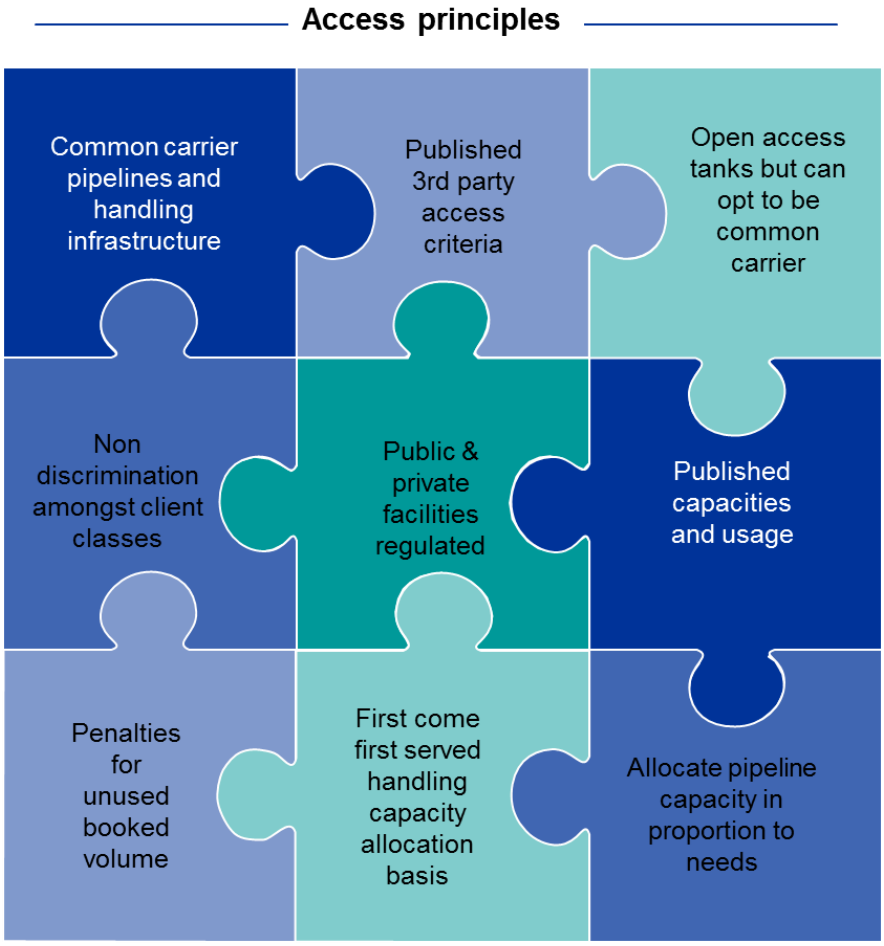
Investment in the oil supply chain is generally lumpy and capital intensive, requiring a long term view and deep pockets. These challenges and the fact that in South Africa, the majority of key infrastructure in the petroleum value chain is owned by a few market participants present the biggest competition challenges. Ensuring third party access to oil infrastructure in the petroleum value chain is perhaps the single most important factor that drives competition

in the sector. This understanding is captured by the general objectives of regulating access in the oil sector, namely:

- *Facilitating greater competition* – access to storage and handling facilities is critical for greater competition in the oil sector.
- *HDSA participation* – HDSA participation has, to some extent, been limited by their inability to access key infrastructure in the oil sector.
- *Non-discrimination* – some oil industry practices are exclusionary and discriminatory in nature and regulation of access to key oil would limit this discrimination and increase efficiency in an effort to reduce consumer prices.
- *Third party access* – regulation of access is aimed at providing 3rd parties access to key oil infrastructure in a non-discriminatory manner.
- *Lower barriers to entry* – regulation of access is principally about the lowering barriers to entry to the market.
- *Energy security* – regulation of access to oil infrastructure is about securing oil supply to the country at prices that are affordable to the economy and the consumers in general in a socioeconomic and environmentally sustainable manner.

Figure 0-12 below captures the principles that govern access to oil infrastructure.

Figure 0-12: Principles governing access to key oil infrastructure



Access is generally regulated on common carrier, contract carrier or open-access basis; however these terms mean many things to different people.

5.3.1. Common carrier principle

A common carrier is a quasi-public provider of services to the public at large. Some market players often object to the use of the term quasi-public for infrastructure that is built and operated by private shareholder companies. Extensive government involvement in energy, transport and telecommunication infrastructure, through regulation of construction, operations and management of these facilities gives these facilities the public cast. The legal principle of common carriage is used to ensure that 'no customer seeking service upon reasonable demand, willing and able to pay the established price, however set, would be denied lawful use of the service or would otherwise be discriminated against'.

Common carriage is thought to be an economically efficient response for the reduction of the market power of carriers through government regulation, preventing discrimination and promoting competition. As an important part of common carriage, an obligation may be imposed on the owner of the asset to invest in new capacity to meet the increasing demand.

1.1.1 Contract carrier principles

The opposite of common carrier is a contract carrier, such as cable television and gas pipelines. Contract carriers generally do not have any regulatory obligation to serve everyone on the same terms and can therefore:

- be selective about their customers;
- discriminate between those customers in terms of price and conditions of service; and
- make monetary gains from the management of competition among their customers.

Industry incumbents and asset owners prefer contract arrangements because it allows them to capture the most lucrative customers and not necessarily serve those it does not want to.

1.1.2 Open access principles

In terms of open access principles, the owner is only obliged to avail 'uncommitted capacity' to third parties. The key challenge with open access is defining this 'uncommitted capacity'. It has proved to be the Achilles heel for the South African storage industry. When the capacity is fully utilised, the owner of the infrastructure is not obligated to create space for 3rd parties. In an open access environment, existing relationships are prioritised over new relationships and therefore access to infrastructure can become a barrier to entry. The infrastructure owner is under no obligation to invest in new capacity. Open-access principles however also demand that offered rates to all customers should be on an equal basis — basically, utilities may not prefer their own affiliates to competitors or other third parties.

5.4. Regulating prices and margins

Controlling market entry has an unintended outcome of limiting competition, which invariably results in higher than-would-be market prices. Control of market entry invariably requires a concomitant control of prices. The basic tenet of price setting is transparency, transparency of price setting methodologies and transparency in the use of the methodology. Key to transparency is regular reporting. According to ESMAP (2009*)* 'several countries do not report retail prices on a regular basis to the public. Secondly, prices charged did not reflect costs in the countries where governments adopted policies to shield consumers from the world oil price increases in 2007 and 2008'.

While it is true that there are countries in Africa that have deregulated control of prices like Kenya, a World Bank study has shown that consumers have not necessary benefited from such moves.

> *Petroleum product prices have been liberalised in Tanzania since 2000 and most determinants of pricing efficiency are favourable. Along with Uganda, Tanzania has the most liberalised downstream oil sector of all the E & SA countries within the study. It has no direct government involvement at all. However, indicative December, 2008 OMC margins for retail products are higher than those of Kenya and there are inefficiencies in the sub-sector. Like Kenya; Tanzania feels OMCs were too slow to reduce retail prices as international market prices fell late in 2008*. (ESMAP, 2009:146)

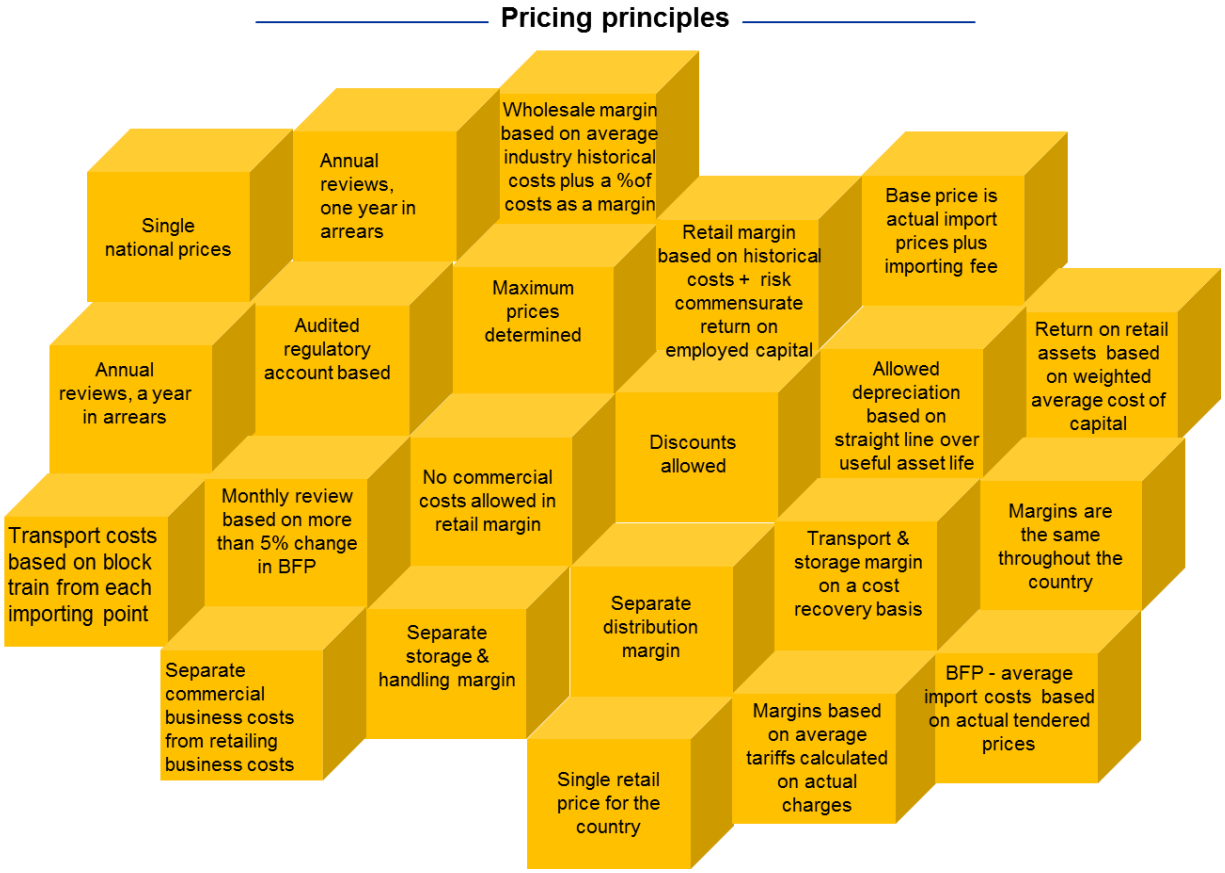
It is important to distinguish between affordability and pricing. While pricing is about translating costs to charges, affordability is about price levels versus income levels, and the ability of the citizen to enjoy the service. The state needs to come up with affordability programmes that will operate independently from price setting.

Pricing and margin setting is in essence about translating legitimate costs into consumer prices. Regulatory pricing has been justified in some sectors when it is thought that markets will not yield 'correct' prices. Regulation of prices and margins is intended to achieve the following strategic outcomes:

- *Predictability* – prices and margins setting should be formula based.
- *Transparency* – the methodologies and formulas used in price or margin setting should be published and made available to all stakeholders.
- *Cost reflectivity* – prices and margin should be based on legitimate and justifiable costs.
- *Optimal investments* – setting of prices or determination of margin must promote optimal investment in the oil sector, taking the need for supply security into account.

Figure 0-13 below graphically represents the key principles that generally guide the setting of petroleum product prices and determination of related margins.

Figure 0-13: Principles governing price setting and margin determination



5.5. Regulating tariffs

Pricing drives both behaviour and investment patterns. Tariff setting is an attempt to determine appropriate consumer charges for a provision of a service in cases where the market does not yield the correct prices. This is largely the case in natural and de facto monopolies. Regulatory pricing is an attempt to understand appropriate costs, translating those costs and risk commensurate profit into appropriate consumer charges.

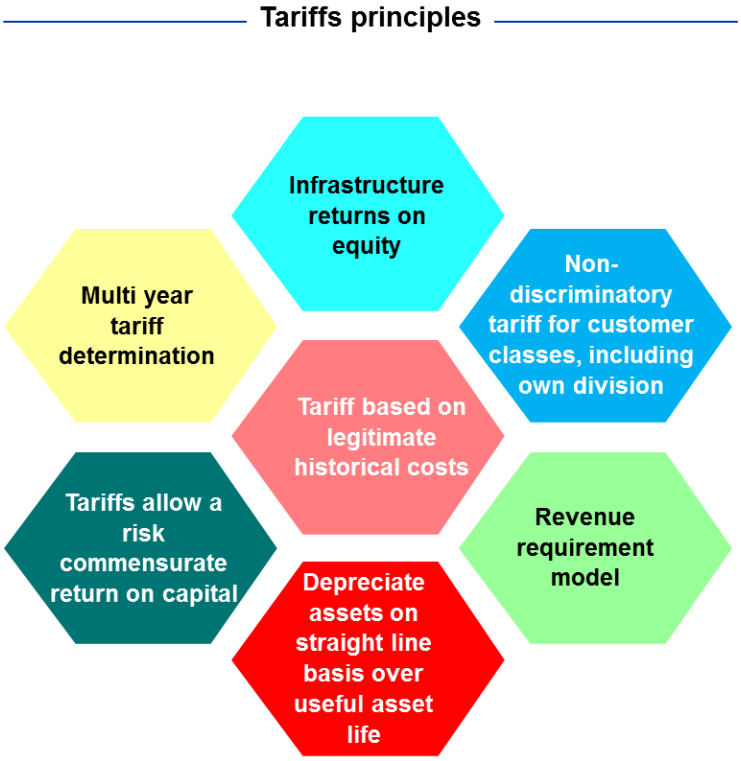
The fundamental principle guiding tariff setting is ensuring that price setting and tariff determinations are depoliticised i.e. removed from the realm of political decision into a technical realm. The pricing system should allow owners to recoup their legitimate operating, maintenance and capital costs and provide a reasonable profit that is commensurate with associated risk. The rules for tariff making must be transparent and predictable.

In regulating tariffs for oil infrastructure in the petroleum value chain, the following general outcomes are sought:

- *Viable businesses* – the tariff must be set at levels that ensure economic viability of businesses providing the service, with an understanding that a service will only be provided when it can be done on a sustainable basis.
- *Non-discrimination* – the tariff regime must ensure that all market participants are treated equitably to facilitate efficiency and competition in the oil market.
- *Cost reflective tariffs* – infrastructure tariffs must reflect the true costs of providing a service.
- *Reduction in monopoly rents* – a majority of oil logistic infrastructure can be deemed to be *de facto* or natural monopolies and if unregulated could allow owners to enjoy monopoly rents.
- *Promoting investments in sector* – investment in any part of the value chain is driven largely by profitability of that part of the value chain. The tariffing system will seek ensure that infrastructure investments are profitable.
- *Affordability* – a healthy balance needs to be strike between profitability of operations and the affordability of the service to the economy and the general consumer.

To achieve the above stated objectives, the tariff regime needs to be governed by the principles that are expressed in Figure 0-14 below.

Figure 0-14: Tariffing principles



Tariff setting is essentially about determining reasonable levels of revenue that will cover operating and maintenance costs, recoup the investment and provide for reasonable profit. A significant threat to the robustness of any tariff regime generally lies in uncertainty and ambiguity that some tariff regimes generate.

For regulated entities, uncertainty or ambiguity relate to the link between:

- its investments/expenses and the level of its permissible revenues under a tariff regulatory regime;
- permissible revenues and the charges that are collected from customers through the use of its infrastructure; and
- today's tariffs and those applicable in future.

In all these respects, it is evident that without clear and transparent methods of translating (1) legitimate costs (allowing a profit) to permissible revenues; (2) permissible revenues to tariffs; and (3) tariffs now to tariffs next year, the entire process of creating a tariff regime is of dubious practical value.

6. Legal instruments

Laws are an outcome or means of giving effect to a regulatory framework. Most domains in Africa attempt to make an unfruitful leap from policies to laws, in the process merely copying

laws from other countries without fully considering the applicability of those strategic actions on their own economy. It is hoped that the above analysis has clearly shown the futility and inappropriateness of such actions.

Having developed a regulatory framework, it is also important to have an assessment table that evaluates the aspects of the framework which require flexibility and those for which certainty is non-negotiable. Those regulatory principles which are non-negotiable should be part of principle law (i.e. subject to a legislative and fully consultative process rather than executive order or regulator's discretion). Generally primary legislations are products of a deliberative legislative process, and therefore more likely to reflect the public interest than the interests of a few. Further, primary law is harder and slower to change than secondary laws and regulatory orders, so it provides greater certainty, stability and foundation for economical long-term financing.

Those aspects of the framework that require flexibility should either be dealt with in the secondary legislation or left for the regulator's discretion. Secondary legislation, although not subject to the same consultative rigour as the primary legislation, is still based on a consultative process. The real challenge with secondary legislation (regulations) is that it is easy to change and therefore does not provide much certainty. The situation is worse when it comes to the regulator's discretion. Regulators generally have rules that guide their decision making process (over an above the primary and secondary laws) but decisions are made based on unique situation of the case in point.

Ideally, the principal legislation should specify a regulatory body independent from the executive, with specific duties and information-gathering functions specific to the industry. An independent regulatory body, capable of making long-term commitments and demonstrating strong rules for its actions, is needed to promote the long-term nature of oil investments. Without strong laws that define such a regulatory body, investments are not likely to be efficient and effective.

> *Inadequate regulation and enforcement of sector legislations can harm the efficiency of fuel supply. Sector regulations that have not been updated in decades, lack sufficient coverage, or outdated fuel specifications may deter entry of experienced operators adhering to high standards. A lack of enforcement resulting in wide-scale sale of fuels evading taxes, illegal cheap imports from neighbouring countries, short selling, mislabelling (for example, low-octane gasoline sold as high octane), fuel adulteration, and sale of fuels that do not meet minimal quality standards may lead to partial or total product degradation. A low quality product could drive out a high-quality product because of consumers' difficulty in distinguishing between the two, especially without effective monitoring and enforcement. Even if prices initially are kept at a level that would cover the costs of the high-quality product, the excess profits that unscrupulous firms can gain by selling a low-quality product would encourage them to cut prices in order to increase sales. Eventually prices could drop until they cover only the costs of the low-quality product. But with sufficient enforcement and reputational risk, firms known not to engage in abuses might be able to expand their market shares and drive out unscrupulous firms. In the short run, cheap illegal imports and fuels evading taxation may benefit consumers. Over the long run, two effects could harm both the*

*sector and society—loss of tax revenues…and exit from the market of firms not prepared to engage in commercial malpractice (*ESMAP (2009:8).

Legal instruments are but instruments used to give effect to regulatory frameworks. As issues in the oil industry change, new strategic initiatives adopted and a regulatory framework adopted, laws must be accordingly amended and in some cases, regulators restructured. There is no point of "*doing the same thing over and over again and expecting different results* (Albert Einstein)."

7. Conclusion

Although it is seldom projected as such, regulatory frameworks are a strategic intervention by the state to address issues facing an industry, which prevents the industry from achieving the country's strategic goals. Like all strategies, their development and implementation should be subject to intensive stakeholder engagement. Merely copying laws from other countries is short changing one's economy. It is unlikely that issues that are pertinent to one's economy would be similar to issues in another. Issues facing an oil industry of a landlocked, dry, poorly populated small economy are very different to those facing a coastal country, close to vibrant, large economies. The tools used to address these issues can therefore not be the same.

To increase its efficiency and effectiveness, a regulatory framework should be reviewed on a regular basis for efficacy and relevance. Those aspects of the regulatory framework that are found not to be appropriate or relevant should be accordingly amended.

Legislations are natural outcomes of the regulatory framework design and should therefore only be drafted at the end the regulatory framework design process and should be accordingly amended after every regulatory framework review.

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